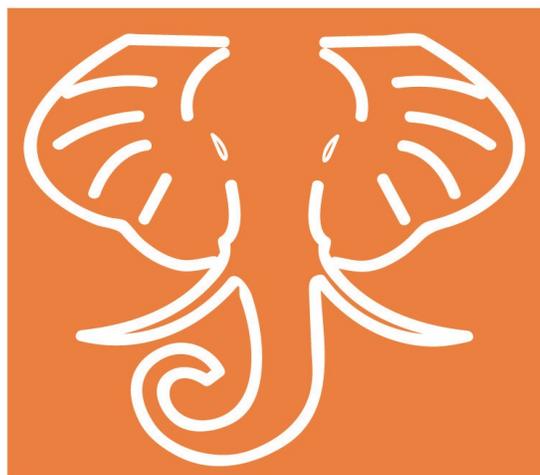


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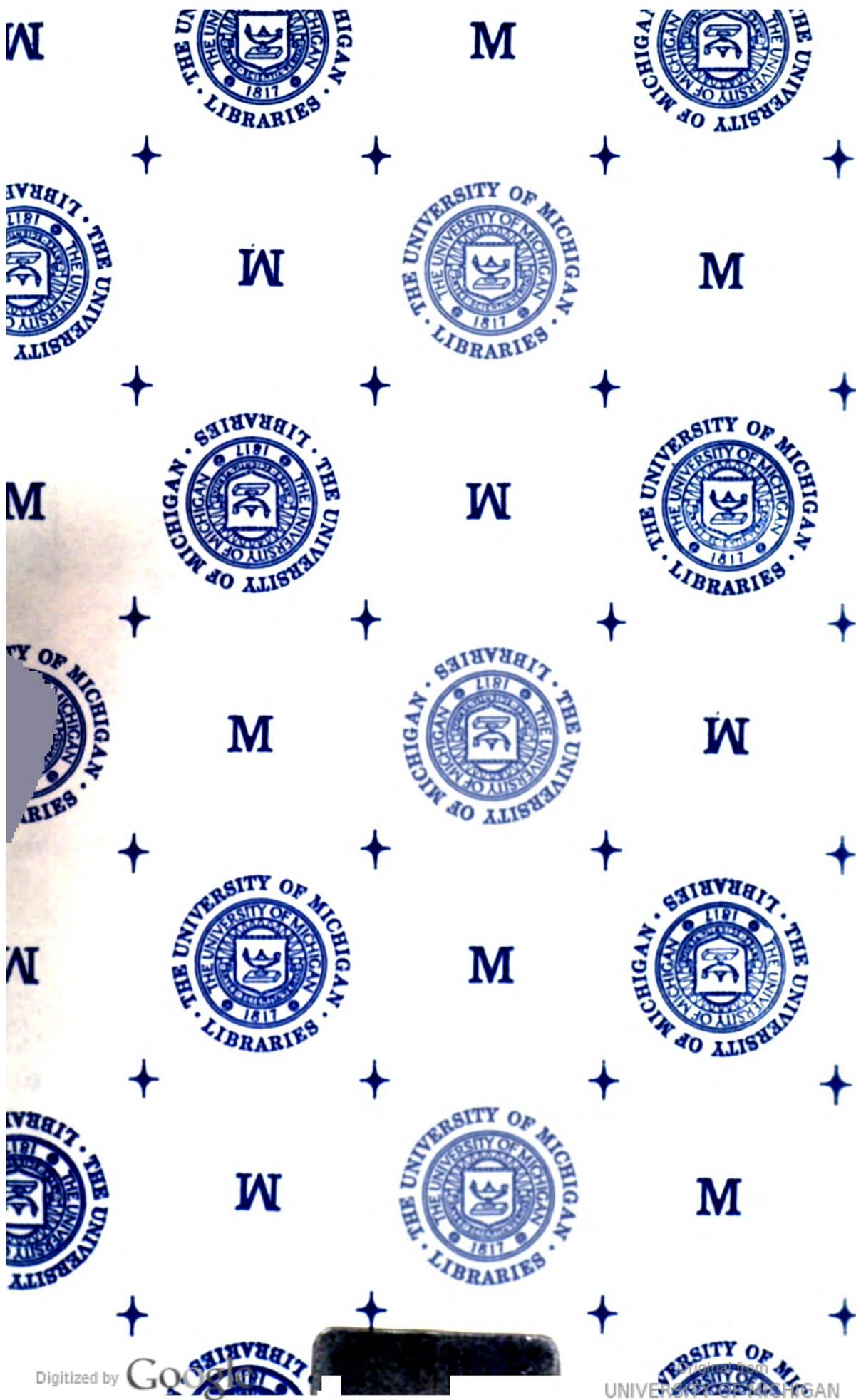
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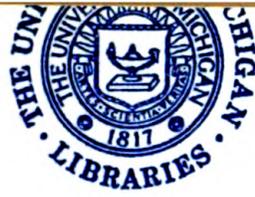
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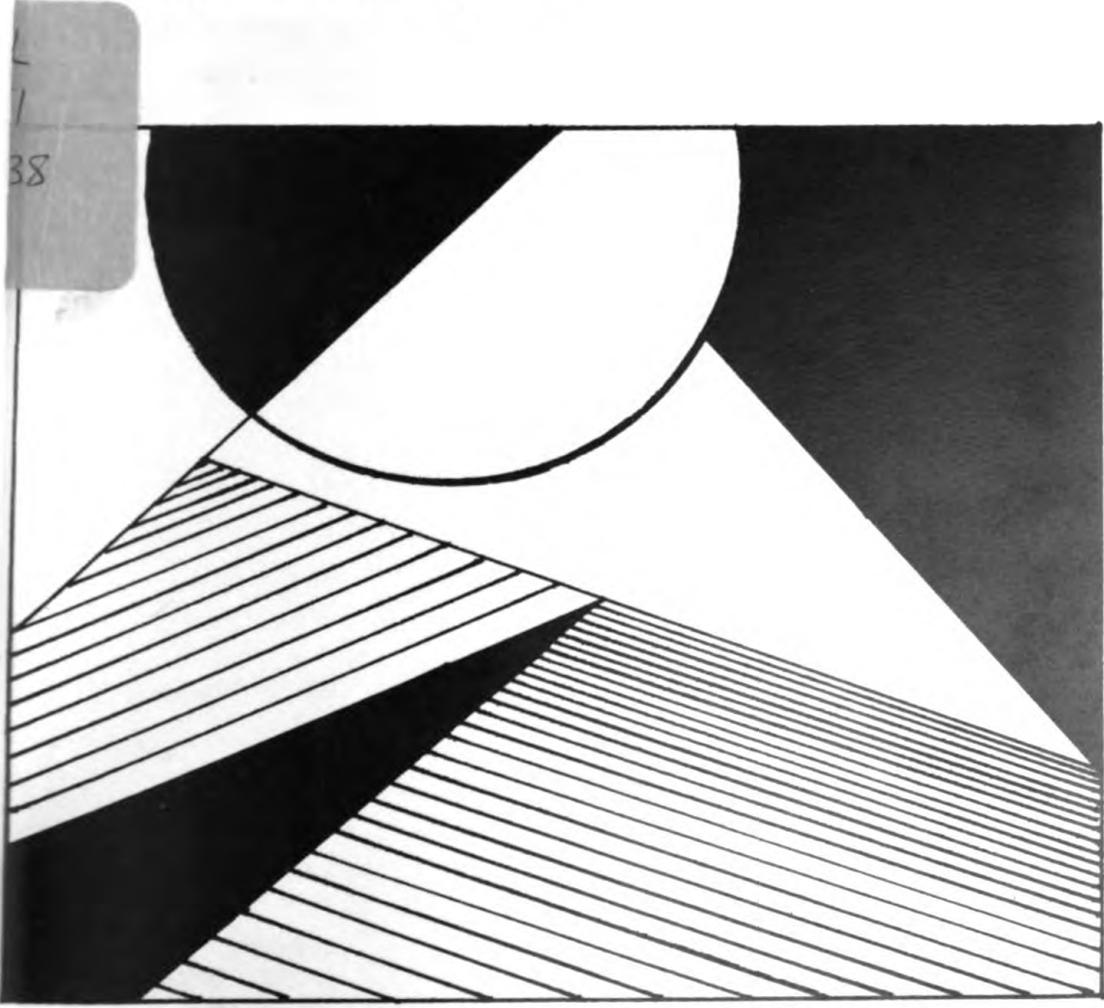
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THEORIA to theory

**An International Journal of Science, Philosophy and
Contemplative Religion**



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THEORIA to theory

An International Journal of Science, Philosophy and Contemplative Religion

Editors

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Explorations in the sciences and technology that affect our understanding of religious and philosophical questions—these are the basis of this quarterly journal. *Theoria to Theory* holds that traditional religion has been primarily, and at best, concerned with mystical and contemplative experience; therefore it is important to a widened science in providing a source of insight. *Theoria* was the old Greek name for this insight; *Theory* here stands for an enlarged and revised scientific understanding. The journal represents an effort to knit together the two terms with each other.

The journal was started in 1966, when this approach was outside current theological and philosophical and religious fashion, but times have changed, and the interests of *Theoria to Theory* have become those of an influential avant-garde. However, implementing this approach is not so easy. Real understanding proceeds at its own rate, and demands precisely the "waiting on God" that contemplatives should but do not always manage. Any other approach leads, on the one hand, to occultism, and, on the other, away from the spirit of adventure within science.

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JANUARY 1975 issue

The Epiphany Philosophers, Gordon and Breach Science Publishers Ltd., 42 William IV Street, London WC2.

Editorial

In this number we have a discussion with Fritz Schumacher, the founder of the Intermediate Technology Group. Schumacher is alarmed at what he sees to be the dehumanizing effects of large scale technology. He is out for small ingenious machines which a few people can work and have fun with. His sense of urgency was heightened by his experience in the Coal Board in the 1950's, when he foresaw that an energy crisis was coming, and yet saw pits being closed as a result of political decisions. He now seems disillusioned by—or at least unprepared to discuss—the political aspects of the problem of economic survival in a thickly populated complex society. When our discussion with him took place, Ralf Dahrendorf had given the first of his Reith Lectures, “The New Liberty”, and a reference is made to a remark that long term gloom can go along with short term thoughtlessness. Since our discussion we have had the rest of the lectures, and it has been exciting to find how many of the thoughts we have been having in T. to T. over the last years are being thought by Dahrendorf in his own way, especially those put forward by Lewis Braithwaite when he launched the series “Enhancing Life through Technology” in 1969. Notably, while not rejecting growth like the Club of Rome, we have been interested in the changes in attitudes needed in a society which is less interested in growth than in what we have called “enhancement”—Dahrendorf says, less in expansion than in “improvement”. Our own earlier discussions fastened mainly, as does Schumacher, on questions raised by *technology*. Dahrendorf takes the discussion explicitly into political and socio-economic questions. He sees that these, rather than technology, are now the centre of the picture. There will have to be decisions affecting how society is organized if we are to go not only for survival, but for

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other things we value, notably liberty. There will have to be both initiative and control—here we agree, but would like to know more about at what points control takes over and who should do the controlling.

Dahrendorf is alarmed (as is Galbraith—see T. to T. Editorial 8/2) at the disproportionate power of organized groups, such as the big Trade Unions, whose interests, he says, seem to be converging with those of the big employers, with the rest of the community getting left in a weak position. He wants to see checks and balances (statutory controls?) on this kind of power. All this moves on a very general level, as also does what he says about the need for a critical, politically aware public. Perhaps he thought that particular political proposals would not be proper for a Reith Lecturer. He does however make some suggestions for changes in social arrangements in a society where improvement in the quality of life is not measured by a rising standard of income and consumption. Most interestingly, he questions the complete ascendancy of the doctrine of the division of labour. Since Adam Smith wrote *The Wealth of Nations* in 1776, this has surely been accepted without question, and of course in general it is a necessary condition for efficiency if a lot of different jobs and parts of jobs are to be done. But need it be quite such a sacred cow? How many before Dahrendorf have seriously asked this question? “This is not a plea for returning to a subsistence economy in which everybody grows his own food and builds his own house. It is a plea for a modern industrial economy and society in which the sorting of men into neat little cubicles, exclusive and definitive social identities, is replaced by arrangements which permit choice and change” (from Lecture V). For instance, people should not be discouraged from taking more than one job (this might mean shortening hours on each): a tax inspector could inspect taxes for part of the day and repair cars for another part. The Trade Unions’ objections would have to be countered and a form of higher moonlighting encouraged. So too the rigid division between work and leisure could go. Lewis Braithwaite is one whose hobby has become his profession through which he earns his living. Lewis is amused to find people whom he can never afford to employ, such

as doctors and solicitors, digging out derelict canals at the week ends—which the British Waterways Board can't afford to have dug by navvies—because it is “leisure” and not “work”, and he asks the Marxist question “what is the true value of a man's work?”

This is an extension of “Do it yourself”—a tide which the restrictive practices of the Unions have not succeeded in stemming.

(Lord Finchley tried to mend the Electric Light
Himself. It struck him dead; and serve him right!
It is the business of the wealthy man
To give employment to the artisan . . .

Hilaire Belloc)

We are interested in receiving ingenious ideas and suggestions about kinds of “Do it yourself”. Here Dahrendorf meets Schumacher, who grinds his own corn and makes his own bread; and who also likes working with small machines which he can service himself without being dependent on sending for a man with a van from Ilford, who will probably be on strike. But for most people this can only be a second string. Schumacher does not deal with the job-satisfaction that people might get inside larger technological units. He assumes that this kind of work must be boring; the interesting jobs, he says, are done by the machines, and men are just “gap-fillers”. Is this necessarily so? Machines can take over a good deal of the drudgery.

Dahrendorf would also like to see more flexibility over when people take up jobs and over the time of retirement, and also would like more possibilities for part-time work. He would like less rigid security of tenure for bureaucrats, (what about dons?). He links all this with people being prepared to be mobile; full employment should not necessarily mean the right to go on working in the same place at the same job. True; but we are also concerned about job-satisfaction and “life-chances” for people who value stability in one place, or who are forced to stay where they are. Married women, for instance, normally cannot go for the kind of promotion which means moving elsewhere. They themselves need ingenuity in finding interesting things which can be done from a fixed base, and the assumption needs shaking that

work with high status can only be done by people who can get into a mobile rat race.

We also have an article in this number by Rupert Sheldrake, who suggests that sabbatical years ought not only to be the privilege of the teaching profession. They might be extended to people in all sorts of occupations, who could opt to take an advance on one of their pensionable years for this purpose, at the stage when this could be of real use to them. This is of a type with Dahrendorf's suggestion that tertiary education need not all be taken on leaving school. People could be given grant-carrying chits like luncheon vouchers to be used at the stage when they really want a particular kind of tertiary education.

We are on the look out for specific suggestions on these lines, and we shall try to develop thinking about some of them. In particular we want to look at ways of estimating what constitutes success, indeed economic success, by alternative measures to those assumed in the expansionist society with its emphasis on goods rather than on primary products. In Dahrendorf's words, we need to think out the economics of "good husbandry" rather than of affluence.

Discussion

Alternative technology

GORDON LAING, DOROTHY EMMET and ANTHONY APPIAH talk to FRITZ SCHUMACHER, founder of the Intermediate Technology Group

Dorothy Emmet. In *Theoria to Theory* we have run a series called “Technology to Enhance Life”, in which we have asked various people, some of them engineers, to come out with ingenious ideas about how technology can be used to improve the quality of life in the environment. We are not Luddites, we recognize we have to live in a world where large-scale technology is needed to produce a framework which can sustain life for vast numbers of people, but we also want to see technology, on a smaller scale, which can be used to improve its quality. We know that you have thought a great deal about this and we have read your book *Small is Beautiful*, so we wanted to come and talk to you. Another thing we are concerned with is how people can have hope with all this doomsday talk going on around us. I was struck by Dahrendorf saying in his Reith Lecture last week, that long-term doomsday talk can go along with short-term carelessness if you don’t have hope.

Anthony Appiah. May I ask you this: if you had to locate the key points in contemporary economic textbooks which make you feel uneasy, what would you name first of all?

Fritz Schumacher. I am no longer familiar with economic textbooks, nor do I think, now, that our problems can be dealt with in the general categories, capital investment, productivity, and so on.

The one index of “good technology” has been thought to be

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productivity, as if the only thing that needed to be saved, or economized on, were human labour. Having done that for more or less one hundred years we have mindless labour, madly repetitive, boring work for most people. The interesting work is done by the machines. So, I think what we need is a fresh look and a widening of criteria. Of course we're in favour of productivity. So I would say that the first thing that is necessary is to come to some view of what is wrong with the technological development. Where has it taken the wrong turn? First of all, things have become too big. Secondly, they have become too costly, and thirdly, they have become too violent. They have become too big in many respects: skyscrapers, vast buildings, vast speeds, vast roads and Jumbos, production units with the capacity of millions of pieces. Complexity: people almost rejoice in it. I hold a negative theory of complexity; any third-rate engineer can make things more complicated, but the real challenge is to find simple solutions. Complexity takes many forms. You have a car overloaded with gadgets, any one of which can go wrong, and generally does. As a result: enormous capital costs. You have to be rich before you can do anything. These three factors—gigantism, complexity, and costliness—are what I call factors of exclusion. They exclude more and more people. You have got to be rich to get in. And that is where people become unhappy.

This applies in our own country, particularly with young people, and it also applies in the developing countries. In spite of political freedom they are more and more dependent now because of this. The fourth factor—violence—is of a different category. We are prepared to take a sledge hammer to smash a problem and the parts and pieces go flying in all directions and create new problems.

D.E. What sort of hammer and what sort of problem?

F.S. Supposing we have some little infestation of our roses. We are prepared to reach for a strong insecticide. We have a problem with the health of animals. So we feed them as a matter of routine with antibiotics. These are violent solutions.

We say our energy supplies are depleting, so we are prepared to get energy from the conversion of uranium, which is nasty enough

in all conscience, turning it into highly radioactive plutonium. We say science will solve all problems whilst science is creating these immense problems. Plutonium has to be kept out of the biosphere for all time.

D.E. Can I take up what you said about the inhuman nature of machines? Is it true that all the interesting work is always handed over to the machine, and the human work always becomes repetitive; aren't there processes in which you have an interaction between the human agent and the machine, where the human being takes the initiative? I believe this is what happens in ways of using computers.

F.S. To my way of thinking it is too general to talk about the relationship between the machine and man. I want to know what kind of machine and how big.

D.E. Well of course I agree with that.

F.S. Only then can we get down to real design work which one can't do if one's just talking about general questions such as the relation of man and the machine.

A.A. We might consider three scenarios—one in which somebody is doing very complicated craft-work making bread. He's built the oven himself and knows how it works and what can go wrong with it. Then there is a factory in which they are producing loaves. There is a very boring job of pressing a button every few minutes when a light comes on—but these people who only have to press a button don't have to think, they are just doing something very specific, and they also have their minds free to be thinking about something else. There is then the much worse case where someone is doing a job which is not only boring but one which he cannot take his mind off. Every load has to be looked at before pressing the button. The piece of machinery that puts the light on, though it may seem to be more complex, has a definite utility because it releases him from a certain kind of strain. If we can't make the job interesting, we can make it undemanding.

F.S. I am not talking from the point of view of God Almighty evaluating what we are doing. I know we are in one hell of a mess. I cannot stop the world's population growing. There are all sorts of things I cannot do. But for me the important, the only operable

thing, is to give technology a shake to get us out of our present fix. So we have to start from a specific analysis of the characteristics of this technological development. Henry Ford, seventy years ago, started his factory with \$30,000 on the basis of an entirely different technology from now. Within four months of starting the factory he was producing cars, and if in those four months he had received evidence that the internal combustion engine was no good and the steam engine better, then he would have changed over to a steam engine without difficulty. Now Ford's are committed to a vast investment and if they want a change of model it costs \$300,000,000 and takes four years to do. Doesn't this suggest we should look in the opposite direction from some of these developments? They have become too burdensome. Vast systems are increasingly breaking down. We need smaller systems.

D.E. Do you mean by "small systems" encouragement to inventors and entrepreneurs to be able to market without being part of a huge show with a lot of capital?

F.S. As a young person grows up he wants to make himself productive and this has become virtually impossible unless he is already rich. Even if you want to live in your own house you have to be rich. Ordinary people have to hawk themselves around. As Nietzsche said, man is reduced to being a gap filler. If I leave a gap in a mechanization to move a piece of wood from here to there and it is cheaper to have a man do it, then he will do it all his life. If I want to produce egg-trays in Zambia, I'm told I can't: the smallest machine has a capacity far beyond all the requirements of Zambia so I had better import from the people who have the big machines. All this is unacceptable. We have designed a small machine, against all the prejudices of the engineers.

D.E. I do not think this is only a matter for undeveloped countries, it is also for ourselves. In your recent television programme I most liked that little tractor-cultivator which one could use on one's own garden or allotment. In how much of your intermediate technology are you working out things we can use here and then asking the people in the undeveloped countries whether they would be interested in having them too? It seems to me we want interaction between users here and users abroad—not

us designing things for them. We want a combination of large and small technology here, and similarly there.

F.S. There is no distinction; there is my analysis of trends in technology, and I have said that these three things, gigantism, complexity, capital costs, are principles of exclusion both in our own countries and in the underdeveloped ones. In every country we are moving in the direction of a dual society, some people living on a scale which is completely out of keeping with that which the mass of the people can have, even though in the developed countries for very temporary reasons this has been to a certain extent mitigated. So I quite agree this is not specifically for the Third World.

A.A. You said you started with the problem and looked at particular systems rather than dealing in generalities. Can you tell us how you particularize?

F.S. I have to focus on something real. One has to start by saying, why are we in the mess we are in? I say there are three crises; first, our political crisis—things are becoming increasingly unmanageable. Second, there is the ecological crisis—nature cannot stand very much more—so thirdly, a resources crisis. From my point of view one operable factor we can do something about is technology. Can we find technological solutions to various specific problems around us which will obviate the difficulties we run into? The other approach is building a model of desirabilities to see if they will work, but I haven't found that you can deal with reality and its qualities as a mechanistic system.

D.E. Gordon Laing, here, is interested in models, and may like to challenge this view. Gordon, what do you think models can do? Is it true that when you are building a model you can't take account of qualitative distinctions? Can you make, at any rate, some sort of preferential scale on which you can map them ordinally?

A.A. Can I put in, from my very small knowledge of what economists do when talking about distributive justice, that it seems wrong to suppose that taking an interest in formalization rules out the qualitative? It seems to me, that one of the reasons why this need not be true is that there are partially ordered

systems, and this is why, for economists, topology has become interesting because we can use it to represent qualitative features of the situation. Even when we can't give cardinal numbers to units, we can give ordinal ones; we can say we prefer this to that. That gives one a general theoretical approach.

F.S. I don't know what I can do with this. I can't talk about things in these terms. The big change in my life was to stop talking about things and start doing things. More and more people are being excluded from creative participation in productive life, so can't we do something about it, for instance, by making small-scale self-help equipment so that not only the rich and powerful can make themselves productive? This is something quite definite. It doesn't help me to ask how I handle this theoretically. I know how to handle a practical situation: for instance, to enable little people to build their own houses.

G.L. Some would say that, in the case of the underdeveloped countries, it has taken nearly twenty years to learn how to give the right sort of aid. In other words to provide the means for self-help, rather than simply food or money which often only fulfils a short-term need.

Reverting to the question of models: it is true that there are many people building models which contain hundreds of variables and which really do not seem to have much meaning. At any rate they apparently often go wrong. A few people know that I have developed a simple national model which, four years ago, enabled me to forecast the present crisis. One cannot, however, have a very simple model which will take account of all the exogenous variables at all times. Nevertheless, if it is possible to produce working models which clearly demonstrate the catastrophic situation you are talking about, it may be possible to stimulate people into action. For example there is the Forester M.I.T. model, which is important if correct. It suggests more effort should be put in agriculture and social activities and less in industrial development.

When you have produced a model showing what would be a catastrophic situation, you can then try to get people to wake up about it. You can show how, for instance, in Los Angeles, if you

have 1.2 times as many roads as buildings the cars don't go. The prediction is self-correcting to some extent; if you show that people will only have so many square feet to stand on, this won't come true, because they would all die of plague or something.

D.E. Dr. Schumacher says he is interested in concrete small-scale projects and inventions. I don't see why this, and wanting to produce pictures of the form of a possible economy, need exclude each other, because one of the factors you might take into account in your alternative picture—one of your indexes of success—could be how far it promotes these small-scale ventures. We could ask (I thought at the beginning he was asking) how to have a different way of envisaging what is to count as economic success, switching from the productivity and growth criteria to criteria of encouraging primary production and widespread inventiveness, talking about what you look on as a successful economy in those terms rather than in the orthodox terms. Wouldn't it be possible to map criteria like this on your model, and then see how different alternatives scored?

G.L. This is the sort of thing that is done in the M.I.T. model. According to the M.I.T. people, this is the only way you are going to get stability in the next years. Money should be spent in agriculture and on social services.

A.A. Presumably Dr. Schumacher will say that he didn't need the model to tell him that.

F.S. Yes, it stares us in the face. But to get it across M.I.T. have done a first-class P.R. exercise. Now it may be said that "The computer hath spoken", so it means something to the modern world, and that's fine. But what should we do? No refinement of that model will tell us what to do.

G.L. The M.I.T. model tells you what to do, but the big question is how strongly we can rely on it.

F.S. But for what? Basically, isn't it saying simply that unlimited growth in a finite environment leads to a crash? Whether it is population, or pollution or any other major factor: we don't need to know how they interact and don't need to refine them. What I want to say is, first, that theologically I believe life is something in which one has to heighten one's consciousness and

cope with uncertainty. The suggestion of certainty is I think a metaphysical error. The second thing is that a model cannot really carry any precise detail as to what I can do tomorrow.

A.A. But neither of these points need be rejected by someone who is in favour of building these models of the world economy. It's always worth having relevant information—unless it's very expensive to gather—and these models do tell us things it would be difficult to find out in any other way. Of course, they aren't certain, but they don't have to be certain to be worth using. They just have to be the best available projections. They don't map out the future in detail, they don't tell us everything; but we never ask everything of them and computers, unlike people, only answer questions they are asked. So surely there is a case for these exploratory models: isn't it a question not of looking for certainties but of exploring all the possibilities in a very difficult situation? These exploratory investigations do then show you alternatives between which you have got to decide.

F.S. You can't decide between these alternatives. All you can do is to say: These are all extrapolations, exploratory calculations. It is no good talking about milliards of world population in year X. It cannot be: they will just die. So these extrapolations are useful as a warning: "Don't take these trends for granted". Now what is really happening? I was reading something the other day by Kingsley Davis who said, "The world is not yet fully urbanized but soon will be". Why? Because there has been a 100-year trend. But he has never asked himself whether, if the last 100 years have seen the building up of huge towns, the material basis for this trend is going on to exist.

G.L. You are giving opinions about a crisis, and you form your opinions as a consequence of a mathematical extrapolation. This is an extremely crude model. You say it is common sense. What is common sense? As you go through life you build a model of the world in your mind and this model is continually evolving with experience. It is true you can only write down a simplification of this information. But you base what you say about the future on your past experience. The computer can only do the same, and I don't know if you can ever build into a computer

model all the complexities, but you can with the help of it explore alternative situations.

F.S. I don't want to get into a discussion of what the technical aids of thinking could be. I find the back of an envelope is good enough for all the things I want to do. In my own case, I looked at reports of geologists, used my common sense that there is a finite quantity of oil, and that at the rate we are grabbing it, it couldn't last—so in order to have 20 years oil resources in 1990, between 1970 and 1990 we would have to find two new Alaskas every year. I don't need a computer. I just say I know we can't find two Alaskas every year, though I can't prove it.

People say, "Oh well, Science will solve the problem", and so we go on until there is a big crash. So I ask whether we can't use our technological know-how to reduce the size of things, not to theorize about it but to get cracking, to simplify things. People are longing for a 1974 version of the Ford Model T, a car of which when the body is worn out you can still use the engine for threshing. Scientists used to want to have multi-purpose machines, but that democratic principle of simplicity has been abandoned.

D.E. Can I go back to Kingsley Davis' remark about increasing urbanization—this horror of cities getting bigger and bigger? You spoke in your book of "two million villages", and I am with you about the growth of cities. Lagos seems to me Hades and it is still growing, while cars are already at a standstill in traffic jams.

On the other hand, if you are going to have this devolution, you are going to want for instance very good communications. You need sometimes at any rate, to be able to get into contact quickly and easily with people elsewhere. You also need some things which will call on large technology as well as the small. For instance, it has been suggested that there should be underground concrete water storage in places like parts of India, and Bangla Desh, so that you don't just get alternations between floods and droughts, but can store water for irrigation. But this would be a pretty big-scale engineering operation.

F.S. The example is exactly the other way round. We have developed small-scale underground water catchment tanks not

made of concrete, which would be too expensive, but from a new building material which poor people can afford. But it isn't my metier to reject other people talking in this way, trying to make a mental picture of large-scale combined with small-scale technology. As an operator I say the large scale is well provided for; it doesn't need me. There is a low-level technology on which people remain extremely poor and a high-level out of reach of the masses. In between, the intermediate range is not documented, it is very patchy, so I say, let's fill this gap. Where I succeed I find people saying, "This is absolutely marvellous, now I can do my own thing". All I say we should try to fill this gap.

D.E. But when are you really doing your own thing? In your television programme there was a woman making a collar on a sewing machine which was contrasted favourably with a machine turning out heaps of collars. But if you have to work a sewing machine, you know it isn't doing your own thing, like embroidering a collar might be. The blasted thing can go wrong, and be maddening to work, and you might be glad to be able to get some mass produced collars.

F.S. I haven't seen the programme, and wouldn't know about that bit. I should call the sewing machine a tool, rather than a machine, and I think tools are wonderful things. But to hand over the greater part of your life to a mindless machine, spewing out profits and using people as gap fillers, means their creativity is not utilized.

A.A. I think a lot of people take you as representing a position which is anti-growth. But there are other people who hold that the way to solve problems created by technology is by putting more and more capital into systems that will give us mechanical reconstruction to make possible the raising of standards for the masses. These people would say, "My trade union friends don't want more interesting jobs, they want more money. They don't want a more interesting time in the factory so much as less time in the factory and more time at home". Now of course, one can try and persuade people that that is not a sensible way to think. One can say producing things on your own is one of the things that human life is about, but that certainly isn't a view that

is taken for granted. So there is a big ideological, not only a technological, problem. You have got to persuade that woman that it is worth while producing the collar herself and not letting the machines do it.

F.S. How I see it, is that I have only got the life I have and I had better do something constructive. It doesn't mean anything to me to say you must try and persuade people in general to change their values.

D.E. But aren't you trying to do this, for instance, in the first chapter of your book, where you talk about the "metaphysics" of economic attitudes?

G.L. How far do you think politicians should adopt your viewpoint?

F.S. I have no hope of politicians. Politicians are the executive committee of the majority.

G.L. But an executive committee does have executive power and therefore politicians are people who are able to do things.

F.S. On the whole the change that is necessary will never come from the majority. It will come from individuals, from minorities. And I have to do some extra work; this work is to make a viable future visible in the present. If I want to persuade people it is with a very specific object. I say that even the most wonderfully designed ocean steamer needs several lifeboats, not because there is a model that suggests that the steamer will crash into an iceberg, but simply because these hazards are known to exist. Sighting more and more icebergs, isn't it really worth thinking about a lifeboat?

I was on a farm of 2,000 acres in Kent. The owner was deeply unhappy about this farm; he was so vulnerable. He told me he was going to buy another 200 acres. I said "How are you going to farm it?" "Well, like the rest." "But you don't need this to make your living, why don't you use it to make it your life-boat?" Find out how far you can get with an alternative farming system, which is not dependent on these industrial inputs, or only slightly dependent.

D.E. It's fine to think about how in the interstices of the system you can be building up things that are viable and interest-

ing on a small scale. But there is also still the problem of mass production for a large population—even if you don't want all its hazards.

G.L. We can't support the nation on an 1840 agrarian economy; isn't this what you're trying to say?

D.E. Dr. Schumacher is saying the mass production will go on anyway, and what he is interested in is in seeing how some of these small things could be done. I think the latter is fine. But there is also the broader background problem.

F.S. Well, the dinosaurs lived on until they died. Why did they disappear? Because the economic basis on which they existed disappeared. They were not destroyed by the gazelles, but the great laboratory of nature produced the gazelles and the gazelles were better adapted to the new situation and the dinosaurs just collapsed. I can't decentralize General Motors or British Leyland but I can create what I take to be a few cells of new health. You are quite right, the problem of the dinosaurs remains. If the dinosaurs' base is not withdrawn they will linger on. But if it is withdrawn at least there will be a few gazelles.

I accept the truth of what you say. All I know is that one cannot feed all these people on a 1840 agrarian economy. That's what everybody says. But we claim there is an alternative 1974 agricultural basis, with the intelligence and added knowledge of these 130 years. Now, we can go on talking and talking, but unless somebody puts this into reality and shows it is viable, what's the use?

We know that our present technology has no long-term future, the resources simply are not there. If we attempted to feed the whole of mankind on the basis of the American and Western European "green revolution" agriculture, this alone would absorb all the known oil resources in 30 years. We have to find alternatives. We have to do the work. Well, some people have done so. As you came through the front door, you saw three sacks of wheat from Sam Mayall whose family has farmed perfectly successfully without artificial fertilizers or herbicides. So we know it can be done. Are we going to take this alternative seriously, or are we not? I told this man with the new 200 acres to try it out as

a “lifeboat” to see if he could do what Mr. Mayall has done. If he can establish for himself that it can be done, he may carry on his other 2,000 acres the same as before, but if there is some real hold-up, then he knows what to do. Otherwise he won’t be properly educated and will just have a crash.

G.L. This is clearly in line with the M.I.T. findings that we should spend more money on agriculture and social services. If you are taking people to do research you are in effect spending money. Shouldn’t there be more than a handful of people to do it? The M.I.T. model is simply supporting your viewpoint.

F.S. One has to go one step further. It’s not enough to put money into so-called modern agriculture, which is collapsing round our ears.

G.L. By agricultural research, I did not necessarily mean going on with conventional agricultural research.

F.S. I say to big companies, why not devote 5% of your R and D expenditure on a little think-tank—see if it isn’t possible with the knowledge of 1974 to create small units which are simplified, ecologically viable, operating, in my sense, non-violently, and do not require much capital.

It’s never very clever to solve problems, to let them arise and then solve them. It’s much better not to let them arise. It’s not clever to have faster transport; it’s clever to avoid the need of going faster.

A.A. One of the difficulties with our dinosaurs is that it seems inevitable that they die, but in dying they’re going to squash an awful lot of people. We’ve got to think of things we can do with the dinosaurs, what we can turn them into. Or, to pick up another of your metaphors, to avoid the situation of having only the lifeboats left and most people going down with the liner.

G.L. May I caution against smallness for its own sake? God is very large (infinite in fact) and very beautiful. The phrase “small is beautiful” is a recognition of the fact that *some* temporary solutions are beautiful, but also indicate that man has a small mind. Seeing the Queen Mary sailing out of New York, I was greatly impressed with its beauty and hardly noticed the lifeboats. No doubt the passengers thought the same, but had the ship sunk

in mid-atlantic no doubt they would have thought the lifeboats extremely useful if not extremely beautiful.

D.E. Now we've got back to the lifeboat analogy. I was thinking when it came up before, yes, it's fine to have your lifeboat, if you run into icebergs, but mightn't your much maligned computer calculations help the navigator to know where the icebergs were, and so avoid them? One surely does need to make use of the best available information, using the computer as a tool, not as a master, to get information which it might be very difficult to get otherwise.

G.L. Clearly Dr. Schumacher feels that so many of the problems are obvious and that the calculations aren't necessary for prediction. But should we turn down any of these aids if they can be helpful at any rate in giving broad patterns?

F.S. It's not my business to turn down anything. It's my business to say that alternatives have to be thought of in time. We have a very small number of decades to move from fossil fuels to income fuels. Now this is clear. How quickly we can do it nobody knows. So we should be interested in this line of thought: there is plenty of income fuel, but it comes in very small parcels—solar energy for example—so you can't use it to propel great conglomerates. The use of income fuel presupposes a highly decentralized life-style: so let's be interested in using solar energy where it arrives: in agriculture. But agriculture has veered right away from the use of solar energy and has handed itself over, lock, stock and barrel, to the Arabs, to the oil countries.

G.L. Presumably it isn't any good just doing a tiny bit of research unless you can put the thing on a world-wide basis. This could involve a large investment in national resources.

F.S. How are you to do this?

G.L. Your philosophy involves expecting people to hold back, and devoting some of the GNP to the lifeboat solutions.

D.E. You were talking about income fuel. One source of this is hydro-electric power, for instance, things like the Volta Dam. Anthony was telling me that these dams silt up in about 100 years, and it is more expensive to unsilt them than to build others. Couldn't some of the research effort go into methods of dealing

with silt, getting it, for instance, into underground pipes? But this of course would have to be a fairly large-scale thing. Surely the electricity produced by dams can feed into a lot of your smaller-scale efforts and into a lot of the villages.

F.S. Of course hydro-electricity is a lovely thing. It still has to be considered whether these gigantic installations are a good thing. All such problems, like silting up, may well arise only because the thing is out of scale, out of the tolerance margins of nature. I am saying, we should devote attention to the possibility of harnessing thousands of little streams, even canals where the water is flowing all the time; think not in terms of 1,000 mW but in terms of 50 kW which can be had all along the river. Yet in Britain no mini-turbines are made, except one that hasn't been worked on since 1902.

D.E. I remember when I was in Nigeria, at the time when we were having power cuts and black-outs, a Nigerian economist said to me, "We are so sorry for you people in the over-developed countries". Obviously you aren't as vulnerable if these things are split up in a lot of different centres. But could there ever be enough mini-turbines to supply whole cities? Let's have them as a supplement in case of break-downs.

A.A. Again, we come back to the question of whether, if we are in a hurry to produce, it hasn't got to be a mass production business.

F.S. This is the current assumption, but I have found all these crash programmes have failed and caused trouble, and misled people. Anyhow, the world doesn't need me to plead for mass production. What the world does need is someone to do the alternative.

G.L. How are you also going to develop an alternative philosophy so that people will cease their continual demand for more? How can rigidity be avoided and people encouraged to develop new skills and how will you convince the politicians this is important?

F.S. I'm not concerning myself with philosophy.

D.E. Oh, surely you are. A lot of the first part of your book is saying, "Aren't we getting our values wrong?" You are talking

about what we want out of life, and you are very fond in that book of using the word “metaphysical”. I’m not quarrelling with this, only pointing out that you aren’t only the practical man.

F.S. Of course; *ça va sans dire*. But if the book were just speculation it would be worthless. Every chapter has grown out of practical activity. It was written as a cry of agony. They were shutting the coal mines and I could see that in 10 years they would all be weeping about insufficient coal output. One is always operating on several different levels. I have to battle against people who say my schemes are no good because I can’t decentralize General Motors or solve all problems.

D.E. You remember at the beginning I quoted Dahrendorf’s remark that long-term Doomsday outlook can go along with short-term carelessness, because you think “What’s the use?” Can you say anything about where you see hope? Do you see people having enough versatility? After all, in this country, we usually do produce versatility when we are up against it.

F.S. You mean it is produced by necessity?

D.E. Yes, but, besides the actual necessity, what do you think are the points of hope we should be looking for?

F.S. People want optimism, and you can be called an optimist if you say black is white.

D.E. Hope isn’t necessarily the same as optimism.

F.S. There is hope in my theology. Let’s remember that in the 1930’s and 1940’s this country with much the same population used only just over half the fuel it uses now. Now of course, there has been an increase in the standard of living; but also of waste, and the waste in our society is not just that one throws things away, that rooms are overheated and so on. The waste is in the pattern. A joke of mine is to say that when I travel on the M1, I am surrounded by huge motor lorries carrying biscuits from London to Glasgow and on the other carriage way there is an equally big fleet of lorries carrying biscuits from Glasgow to London.

A.G. Perhaps with a slightly different flavour!

F.S. Yes, but it is frivolous. It comes out of a certain economic logic which was followed, first, because oil was rela-

tively cheap, and secondly because we built these monster roads, and thirdly because the units of production are so big that to utilize capacity fully you send your goods over vast distances, and invade the Glasgow market. Unfortunately, the Glasgow man is also invading the London Market. Or you have a business in a town and a fleet of 20 delivery vans. Traffic becomes slower and you can't get through with your 20 vans so you buy another 20 and traffic gets slowed down still more—so you buy another 20 Yet if I refuse to do it I suffer from congestion like all the others. Now all these mechanisms can be sorted out, if one adapts the technology to smaller units, and creates administratively smaller communities that can exist inside the bigger communities.

So we should work in a different direction. No one can change course completely. I come back to these four criteria I gave at the beginning. Gigantism, complexity, capital costliness, and violence.

Preaching must be backed by actual experience that another way is feasible. This work is partly creating new things, partly bringing to light the things which are already being done, for instance by Sam Mayall, and many farmers about the country; and in things, like the water catchment tanks and many other things, originally developed with the Third World in view. But immediately they are developed they are of great interest to people in highly developed countries too, because the concentration in vast urban communities is creating crises of fuel consumption. So the counter-development is to create viability in smaller units all over the place. What I have to contribute is in this approach. If a big wind arises, there should be some sails spread to catch it.

The abandonment of simultaneity

PIERRE NOYES

Some recent investigations in linguistics, communication, and social organization have found that progress can be made only by abandoning the concept of simultaneity in favour of a multi-component hierarchical description of overlapping times. It is suggested that the same approach might offer a clue to the solution of the problem of joining relativity theory to quantum mechanics, which has resisted more conventional approaches for forty years.

Although the atomic hypothesis that phenomena can be analysed into discrete elements with fixed properties has proved enormously fruitful in many different sciences, it conceals a fundamental paradox. If the atoms so isolated are in fact independent of their surroundings, how is it possible for them to influence those surroundings? This problem is already present with the hard impenetrable material atoms of Democritus, who insisted that there are only atoms and the void, and that all phenomena reduce to the collisions of these atoms. It was learned during the nineteenth century that one can, in fact, explain the relation between pressure, temperature, and volume of a gas with such a model, up to a point, but this is a far cry from explaining sounds and colors as experienced by human minds. Thus the atomic hypothesis taken literally produces a dichotomy between mind and matter, primary and secondary qualities, and so on, with which philosophers have struggled from time to time without resolving.

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Up to a point, the quantum mechanical description of the structure of matter gets around these difficulties in an ingenious way.¹ It starts (at the level of description which first concerns us) with a system of electrons and nuclei with fixed and stable properties, but because of the uncertainty principle, asserts that we are unable to predict anything more than probability distributions for these particles. Thus an isolated hydrogen atom consists of one proton and one electron, and if we observe it in such a way as to locate these particles, we will find only the two particles named. However, the locations of the particles will differ from hydrogen atom to hydrogen atom, even though hydrogen atoms interacting in ways that do *not* allow the localization of the particles behave in identical ways. This is accounted for in the theory by calculating a probability distribution for the electron in the hydrogen atom, and showing that, to about 1 part in 137, we will get the correct answer in such cases if we treat the charge of the electron, not as a point, but as if it were smeared out into this probability distribution. Thus, even though the theory in a sense is built on point particles, it also is capable of a description which looks like an extended structure in space.

With this understanding, we can, to a certain approximation, talk about a hydrogen atom in its ground state as having a spherically symmetric charge distribution, the radius of the sphere being about 0.5×10^{-8} cm in length. If two hydrogen atoms join together to form a hydrogen molecule, however, this charge distribution does not remain spherical. It forms an elongated structure with rounded ends. At rather accurately defined positions along the axis of this structure, it is possible to make measurements which will localize one or the other of the two protons, or both of them, and within the extended charge cloud one can, by suitable measurement, localize either or both of the two electrons. Thus quantum mechanics allows changes in the effective structure of atoms when they join to form molecules, even though the constituent electrons and nuclei retain their particulate character. In this way, one aspect of the atomic decomposition is retained, while at the same time allowing the actual spacial structure of the atoms to change with the molecules

in which they are imbedded. Similarly the structure of the molecules will be altered by whether they are in free space or surrounded by other atoms of a liquid. Ultimately, then, there will be subtle differences (according to the theory) depending on whether the molecule is in a muscle fibre or in a brain, what the species of the organism is, and what its past history has been. Thus there is no hiatus or barrier as one extends the chain of hierarchical organization upward. It is this subtlety of description which is at the root of the considerable success which molecular biology has had in accounting for the mechanism of life.

Of course the chain does not stop there. As Polanyi has pointed out in a recent article,² this molecular biological description, no matter how complete, still does not account for the purposeful aspects of life. To give explanation for these, we must extend our universe of discourse to include the evolutionary processes which through natural selection have fitted the gene pool of the species to the environment and interlocked the different species into ecological systems. Ultimately this description must extend backward in time over the full $4\frac{1}{2}$ billion years the earth has existed and include the steps by which self-replicating systems developed from non-living matter. Even so we are still not up to the level of discussing consciousness, which involves not only the neural currents in the brains of individuals, but the processes of learning by which they become associated with distinguishable aspects of the surroundings, and the social organizational structures without which these learning processes could not exist, and which shape them.

Clearly the whole explanatory process sketched above is far from complete at the present time, but there is no longer a logical reason why it cannot be continually expanded in scope and power as we learn more of molecular biology, neural structures, and intercommunicating social organizations. It also can be extended to a level of analysis below that of the electrons and nuclei showing that these too have structure which is subtly influenced by their surroundings. This comes about because of the combined effect of the $E = mc^2$ mass-energy equivalence of the special theory of relativity and the Heisenberg uncertainty relation $\delta E \delta t$

$\geq \hbar$ (where \hbar is Planck's constant divided by 2π). Since massive particles must move at speeds less than c , the velocity of light, in a time interval δt they can move only distances shorter than $r = c\delta t$. If we attempt to localize a particle within this distance r , the uncertainty principle tells us that there will be an uncertainty in energy at least as large as $\hbar/\delta t = \hbar c/r$. But if r is less than \hbar/mc , this uncertainty is greater than mc^2 , which then tells us that within distances \hbar/mc of any particle it will be possible (i.e. with some finite calculable probability) to find an additional particle of mass m . In the particular case of electrons, since these carry electric charge, the appearance of a single electron would violate the law of conservation of charge, but within a distance of $\hbar/2m_e c$, we can expect to find a (negative) electron of mass m_e together with a positron (positively charged electron) also of mass m_e . Putting in the numbers this tells us that any particle which interacts with electrons will be surrounded by some probability distribution of electron-positron pairs of radius about 2×10^{-11} cm. Thus, once we include relativity, particles themselves have extended charge-current distributions, and since these in turn can interact, they will be affected by the structures in which they are imbedded. Hence, in principle, even the electrons and nuclear particles in the brain of one man differ in their space-time distributions from those in the brain of another. These effects can be calculated for an isolated hydrogen atom (Lamb shift, vacuum polarization, etc.) and are in agreement with experiment to high accuracy. Hence, if we look closely enough, even the particles of which the atomic and molecular distributions are composed themselves dissolve into modifiable structures, and all the structures in the universe are ultimately interlocked and interdependent, leaving no unbridgable gap.

Unfortunately, this same line of reasoning leads to a new paradox. Since we can find an electron-positron pair within $\hbar/2m_e c$, we could find two such pairs within $\hbar/4m_e c$, three such pairs within $\hbar/6m_e c$, and so on. The smaller the scale on which we attempt a space-time description of the structure of particle charge-current (or mass) distributions, the larger the number of particles we encounter, and this number grows without limit.

Dirac began struggling with the infinities this simple fact introduced into the theory nearly 40 years ago, and neither he nor succeeding generations of theoretical physicists have come up with a satisfactory resolution of the paradox, though we keep trying. In some cases it has proved possible to sweep these difficulties under the rug and come up with successful predictions which have been confirmed experimentally, but the basic paradox remains unresolved. As many people have realized, starting at least as early as Bohr and Rosenfeld³ in 1933, the basic problem is that the special theory of relativity relies on an underlying space-time of points. Although the simultaneity of two events which cannot be connected by a light signal is arbitrary, and when using the Einstein convention for removing the arbitrariness, depends on the motion of the coordinate system, this relative simultaneity still allows a unique ordering of events and an arbitrarily precise punctiform localization of any space-time event. Hence, once this basic space is married to mass-energy equivalence and the uncertainty principle, infinite energy fluctuations at each of these points are inevitable and the mathematical consistency of the theory collapses. Attempts have been made to avoid this difficulty by giving a granular structure to space-time, or by other modifications of the theory at short distances which still allow it to reduce to the special theory of relativity in the macroscopic world. So far these have not commanded much enthusiasm in the community of theoretical physicists, and have not led to any striking successes. It therefore might be worthwhile to at least look at efforts in other sciences to struggle out of the straightjacket imposed by a punctiform and unique space-time description to a description which is more in accord with the requirements of their data.

This possibility was suggested to me in a conversation with R. L. Birdwhistell, J. H. Crook, and K. L. Pike, at the Center for Advanced Study in the Behavioral Sciences. Birdwhistell⁴ has been struggling for many years with kinesic aspects of communication—that is behavior such as the eye-blink, head motion, eye focus, leg cross, etc., which accompany and often replace verbalizing. He could make little progress so long as he was hung up with the telecommunicative model derived from information theory—

two individuals exchanging information back and forth along some channel in a uniquely ordered segmental time sequence. But a remark of Infeld's about the relativity of simultaneity freed him from this necessity and allowed him to start seeing the data as an overlapping laminated structure (i.e. multi-layered segments in which each layer is made up of pieces of finite size, and the joins between pieces do not necessarily cross the layers) of events of varying lengths occurring along many channels; some of these units may be only a few milliseconds in length while other aspects of the communicative process may extend over four generations, and unitary events of any intermediate length also occur. This makes it clear that the "information" described in the information theory model for communication can only be interchanged along this limited channel because of an enormous amount of social work preceding and succeeding this brief flow; one need only think of how difficult it is to enable children within a uniform culture to learn from a printed page, let alone to transmit this skill trans-culturally, to realize the force of this description. To use another analogy, communication starts with the installation of the phone system and not with the ringing of the bell; this fact should be obvious to the parent of any teenager who has sat by a silent phone. One point to be emphasized is that by focusing attention on the flow of information in the lexical channel, one not only loses important aspects of the situation, but makes it next to impossible to see the higher units of the hierarchical laminated structure; these are just as real as any of the shorter units, and may often be much more significant.

Working with the linguistic channel itself, Pike⁵ has come to a very similar structural picture. We are familiar in written English with the segmental decomposition into letters, words, sentences, paragraphs, and so on to higher units, but only trained linguists are familiar with the difficulties of recovering these structures from any particular example of spoken English, let alone making the equivalent analytic decomposition of spoken languages of different structure. A little reflection on the profound phonetic changes which occur in the speech of a child as it grows up, in voice tone the same individual under various settings, or at various times

during even the same speech, should convince the reader that the atoms of verbal communication are not unique physical structures with a defined distribution of frequencies and intensities occurring during a precisely defined interval of segmental time. Rather, they are a complicated hierarchical ordering of laminated relationships in which the units are subtly modified by these relationships. Otherwise it would be impossible to turn on a radio in the middle of a speech and realize almost immediately that a preacher is nearing the end of his sermon, or an orator building up to his peroration, as we obviously can. Again, the analysis of speech into segmental units successfully prevents the recovery of highly significant structural aspects of the ongoing process, and a multi-component analysis such as that Pike uses is essential.

Field studies of the social structure of primate societies such as those being conducted by Crook⁶ again reveal laminated hierarchical structured relationships rather than atomic encounters between individuals. For instance, among the Gelada baboons, the spacial relationships between all-male groups and the harem groups of dominant male plus females and young change through overlapping patterns from day to night and from season to season in ways that have an intimate connection with the exploitation of the available food supply, and hence are of fundamental evolutionary adaptive significance. These changes in both space and time are only very incompletely understood when the community is followed for only a year, even though the year contains the full range of seasonal variation. Equally significant is the way in which these relationships change as individuals mature and grow old and how the necessary accompanying changes in relationship are structured into the social organization. Clearly, these can only be guessed at until communities have been followed for generations, and this work is only beginning. The point to seize on here is that all this structure is missed if the data are viewed in terms of single segmental encounters rather than in larger units.

Clearly this rich material from the behavioral sciences can only be hinted at in an article of this length. It has taken the three individuals named above many years to come to this way of seeing their data, and there is by no means unanimity among anthro-

pologists, linguists, or ethologists as to the importance of this type of approach. But it does appear significant that by abandoning simultaneity and punctiform units as a method of description,⁷ significant new relationships become possible to observe. Unfortunately, the mathematical structures needed to give precision to this approach are yet to be worked out. The general area of mathematics in which to look is obviously set theory, as was realized long ago by von Neumann⁸ in discussing economic behavior, or the axiomatic field theorists⁹ in trying to come to grips with the infinities arising from the coupling of relativity and quantum mechanics. But it still seems to be beyond the current level of mathematical sophistication to go from a description in terms of overlapping sets, which does seem appropriate to the data, to a dynamical theory which would allow predictions as to how the relationships between these sets evolve in time. In the old punctiform theories, dynamics is supplied by equations of motion written in terms of rates of change (differential equations); but these necessarily imply a continuous background space of points.¹⁰ Since it is clear simultaneity and punctiform space must be abandoned,¹¹ this might imply that something equivalent to the calculus, but operating on the laminated set structure rather than on space-time, must be invented.¹² One purpose of this paper is to point up this necessity; unfortunately my own mathematical talents are too limited to see how to proceed further than pointing out the problem. A second purpose is to point out the similarity of structure between the problems of kinesics, linguistics, primate social organization, and elementary particle physics; this implies that advances in any one of these fields can offer fruitful suggestions for new insights into the others.

References and notes

1. For a somewhat broader discussion of how quantum mechanics remains, from some points of view, an atomistic and particulate theory, cf. Noyes, H. P. *American Scientist* 45, 431 (1957).
2. Polanyi, M. *Science* 160, 1308 (1968).
3. Bohr, N. and Rosenfeld, L. *Koenlige Danske Videnskabernes Selskab, Math-Fys. Medd.* 12, No. 8 (1933); for a less technical discussion see the article by Rosenfeld in the festschrift volume, *Niels Bohr and the Development of Physics*.

4. Since the full flavor of Birdwhistell's commentary has to be experienced along the non-lexical channels which he commands so thoroughly in order for really effective communication to take place, I prefer to acknowledge the importance of his providing me with this experience rather than to give necessarily inadequate lexical references.
5. Pike, K. L. *Language in Relation to a Unified Theory of the Structure of Human Behavior*, Mouton, the Hague and Paris (1967).
6. Crook, J. H. (ed.), *Social Behavior and Ethology*, Academic Press (in press).
7. To "abandon simultaneity" in the easiest way is not a novel idea, as is evidenced by the folk wisdom that those who follow the analytic approach "cannot see the forest for the trees". It becomes somewhat more radical when the methodology becomes so ingrained that Birdwhistell can say that there *are* no trees (or baboons, or atoms, or . . .). This flies in the face of our culture-bound necessity for assuming that systems are built of discrete units, but becomes a methodological necessity in those fields where in fact the forest dissolves when analysed into trees. Philosophers are trained to accept a methodological description shorn of its metaphysical implications, but a scientist who becomes thoroughly committed to a methodology will follow it through to the implied metaphysical conclusion, just as Lucretius followed the opposite methodology through to the belief that there are only atoms and the void.
8. Neumann, J. von and Morgenstern, O. *Theory of Games and Economic Behavior*, Princeton (1947).
9. Wightman, A. S. *Physics Today*, September 1969, p. 53.
10. Russell, Bertrand, in the *ABC of Relativity*, was at some pains to construct the Minkowski space-time of special relativity of the laminated structures of every-day experience by a limiting and abstracting process. He returned to this problem in his last epistemological work (*Human Knowledge: Its Scope and Limits*) with what strikes this author as an almost obsessive compulsion to establish not only space-time but also the causal chains of classical physics as a barricade against the Humean dilemma. This is the reverse of the methodology suggested here, which rejects the classical limit as both irrelevant and misleading. Although Whitehead's attempt to construct space-time points from the extended events of everyday life has some similarity to Russell's he is more ready to recognize that the entities so constructed are hardly the elements of a naive punctiform geometry, and may not converge to that limit. He is still, however, concerned to reconcile his theory with the relativistic physics of his day, rather than to follow the implications of his metaphysics into the actual construction of a new type of dynamics.
11. Lee, T. D. and Wick, G. C. (private communication) are making a promising attempt to remove the infinities from quantum electrodynamics by a limiting procedure that still uses a punctiform mathematical space-time as a substrate. However, the expanded Hilbert space required to make their limiting procedure finite introduces particles of imaginary mass which cannot be directly observed, and runs into trouble

with conventional ideas about causality. The experimenter has even less control over experimental study in their theory than in conventional quantum mechanics. In the conventional theory, the probability wave front retains its shape after scattering, but in theirs there is a precursor wave which is uncontrollable. Thus space-time recedes still further into the mathematical background. Other approaches to the problem of infinities introduce a granular structure to space-time, again avoiding the punctiform limit.

12. An alternative approach to the problem of infinities is the 'bootstrap' theory in which every particle in the universe generates every other particle, and the universe exists because this is the only self-consistent solution to the equations. This is acausality with a vengeance, and even one of the proponents of the (insoluble) theory questions whether it can be considered a "scientific" idea (G. F. Chew, *Science* 161, 762 (1968)). The lack of alternate solutions to the "true" one makes the issue of dynamical equations which determine the evolution of different systems starting with different conditions at some point irrelevant.

Prototypic organisms XIII

Tropical trees

“Thick twig, big leaf”

E. J. H. CORNER

In northern lands coniferous forest! In tropics, subtropics and southern lands broad-leafed flowering forest, but a sprinkling of conifers! This is the way in which I think of land-vegetation. Pine and palm, cone and flower, needle and broad leaf, or deal and hardwood, are the two efforts at making forest. The first is the “dark and gloomy forest”, with little to eat and no inspiration, cluttered in its lower reaches with almost impenetrable débris and serving as a hiding place rather than a store. You must not think of a pine or fir wood with grassy walks and trimmed trees, but imagine, if you have not seen, primeval giants tapering to dying heads and an almost suffocating, thick, broken, and compacted mattress of needles around their feet, maintained by the slow decay of chaotically discarded trunks, limbs, and twigs. Resinous and durable, coniferous forest has a record in rock and black coal from the Carboniferous period of seed-ferns until these post-glacial millennia. The broad-leafed, prone to decay, with peat and brown coal has left no trace of its origin. It was later, presumably, because in nearly every way the flowering tree is more elaborate than the conifer. Let us put aside, however, anatomy and perceive the main issue.

The rise of the broad-leafed forest brought an entirely new prospect for life on land, especially for the animal. In leaf, twig, trunk, root, flower, fruit, and seed it was edible and putrescible;

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what did not pass through the eater decayed on the forest-floor. The accumulation of coniferous detritus began to disappear. The undergrowth changed from fern and lycopod to the forebears of luscious palm, pandan, banana, ginger, and bamboo, and all the palatable seedlings and saplings on which forest animals thrive and thrive; sappy and swaying, they could be brushed aside. Coniferous forest was a refuge for the hunted, for reptiles, amphibia, primitive insects, scorpions, centipedes, snails, and worms. The broad-leafed gave food. Roped with flowering climbers and gardened with flowering epiphytes on its branches, it wrought an air-way from which arboreal bird and mammal need never descend; they gazed upon the fangs. Colour and nectar broadened vision and taste; wide limbs and hollow trunks gave breeding places and joyous clamour; finger and beak began artistry. The song-bird and the ape evolved.

If our civilization is not the outcome of the flowering plant, consider then the materials for food, drink, medicine, clothes, implements, and buildings before industrialization! Substitute the flowers and coloured leaves of the garden with conifers, and rehearse the Carboniferous! The botanist perceives all the gestures of mankind in the fruit of the broad-leafed tree of knowledge.

How did this come about? When or where flowering plants originated, we do not know. We attempt to re-trace their wanderings from their present distribution. Some lead into the southern continent of Gondwana, others into northern Laurasia. Conjectures on the nature of flowers develop schematically on paper and, in their antithesis, overlook the main fact that flowering trees displaced the flowerless. We must study trees, and not only the familiar ones of temperate forest but the familiar and unfamiliar of the tropics where, for every kind in the temperate forest, there are a hundred or more.

This takes a long journey abroad and it would be quite unprofitable if our botanical fathers had not devoted most of their energy to the collection, classification, and naming of trees. To-day, with a tropical flora to guide and an air-ticket, the botanist can study not merely the miscellany of temperate oak, birch, maple, ash, holly, elder, apple or elm, but systematic genera

of trees with many species, every one an evolutionary variation on the generic theme. He can study many species of oaks, figs, bread-fruit trees, myrtles (*Eugenia*), dipterocarps, eucalypts, acacias, and hollies. We know the Judas tree (*Cercis*) in English gardens and the Mediterranean, but in the tropics there are nearly two thousand tree-species in its particular family. It becomes a shock to discover that botanical theory has very largely ignored this treasury; text-books are based not on universal cognisance but the small temperate sector. Every species of tree is evidence of the manner of evolution in its genus, and by perceiving progress we may look back to the origin. There are no fossil bones or teeth such as supply the evidence for the evolution of horses, elephants and men, but there are, as it were, several hundred species of horse or elephant in these big genera of trees. We can welcome the start which has been made by our French colleagues, Professor F. Hallé and Dr. R. A. A. Oldeman (1970), and we have a delightful introduction by Dr. Edwin Menninger (1967), the newspaper-man of Florida, who quietly writes that he never read a botanical treatise in his life.

In large herbaria, dried specimens have been brought together from over the world and classified. If the folders of a large tree-genus are opened, it will be found that a few species have big leaves, a few have small leaves, and most fill the range with various sizes. It can be ascertained that big leaves are borne on thick twigs, the small on thin twigs, and the intermediate on various sizes; the range is not much, about 1-20 mm in thickness, but the extremes are conspicuous. These specimens, however, are fragments and we must go into the forest to observe their significance in the form and stature of trees. Two trends will be found. Trees with big leaves and thick twigs have fewer branches and make more open crowns than those with small leaves. Then, the big-leaved trees are usually shorter than the small-leaved. Certainly most big trees have large dense crowns composed of small leaves on thin twigs supported by many branches; such is the elm. The number of species which attain this stature, 120-250 feet high in the lowland tropics, is small compared with the many kinds of shorter tree under the forest canopy. Among the shorter trees the big-leaved

stand out again with lax crown and few limbs. If we pursue this symptom and reduce a short tree to the unbranched state, there will be a pole capped with a head of giant leaves. It will be no fiction but the habit of the short cabbage-trees or rosette-trees which temperate botanists consider to be curiosities because they are conspicuous in the simplified vegetation of outlandish places, such as distant islands (St. Helena, Juan Fernandez, Hawaii) or at the tree-limit on tropical mountains in the Andes and Central Africa. In fact, the rosette-trees occur all through the tropical forest from lowland to mountain, mainland to island, and they are the sapling forms of many big trees which, at a height of some thirty feet, change over to the branching form with smaller leaves. A good example is the papaya-tree (*Carica*) from tropical America, now planted for its fruit throughout the lowland tropics. The stout, unbranched and sappy stem, that can be cut down with a pen-knife, ends in a green succulent twig, as thick as one's wrist, and a cluster of large, palmately divided leaves on long stalks. Old trees branch sparingly from low down on the trunk and the branches, which are thinner, end in smaller leaves and fruits unprofitable for market; hence old trees are seldom to be seen. The papaya-tree cannot grow more than twenty to thirty feet high. It can be likened to a gigantic replica of that pot-plant *Fatsia*, which has taken over from the Victorian aspidistra in lodgings and restaurants.

The trend from big leaves on thick twigs to small leaves on more numerous thin twigs can be seen in a collection of rhododendrons; they are worth studying on a visit to the Royal Botanic Gardens at Kew or Edinburgh. It can be seen in their magnolias, in the few kinds of oak that they can grow, and in the *Sorbus*-trees of the rose-family. For my part, I have studied tree-form particularly in *Ficus*, the genus of wild figs, which has about a thousand tropical species in greater variety than any genus. There are treelets about a yard high and all stages to the giant banyans or strangling figs and lofty trees of 150 feet on widely buttressed trunks. In the Solomon Islands there is a short tree, *Ficus salomonensis*, the sapling of which is a cabbage-tree with the biggest of undivided leaves to be found in any dicotyledon; the blades reach six feet

long and two feet wide, and from a distance they suggest banana-leaves. Older trees are sparingly branched with lax crowns of smaller leaves two or three feet long and one foot wide. In contrast, there is the spreading banyan, *Ficus benjamina*, with small leaves and slender twigs like the birch, but with a huge dense crown spreading up to 150 feet in diameter. It, however, is a frequent tree in the lowland forest all the way from India to the Solomon Islands. We come upon another unsuspected fact; in general, small-leaved trees are more widely distributed in nature than the big-leaved, the occurrence of which may be extremely local.

A large tree cannot be primitive. It requires elaborate engineering; there must be a means of adding continually to its water-pipes and woody fibres to supply and support the enlarging crown. The systematic study of trees in their natural alliances, genus by genus, shows that the highly branched, small-leaved, canopy-tree has evolved from the large-leaved cabbage-tree. We realize, at once, in this great upward struggle, that has been the evolution of forest, the advantage of substituting for a big expensive blade of elaborate construction small simple leaves which can be cheaply reproduced in more effective display. Thus, as I have always taught, palms and bananas are tropical because they cannot afford to be deciduous.

This outline of tree-evolution is the gist of the durian-theory which I proposed in 1949 and which has been translated 'pour les durianologues françaises' in 1964. I have given a more detailed account in *The Life of Plants* (1964). The primitive forest of flowering plants has heightened and expanded from a sort of array of tree-ferns and palm-like trees, long ago, to the oceans of branches one to two hundred feet above the ground which, before man started logging, covered the greater part of tropical America, Africa, Asia, and Australasia. For the short ungainly tree with big leaf and thick twig I coined the ugly term pachycaul, in contrast with the elegant leptocaul for the familiar trees of slender primary construction. Re-stated, then, trees have evolved family by family, even genus by genus, from the pachycaul to the leptocaul. The elm-tree and the oak-tree have not evolved from other big trees

but each from its own humble and pachycaul beginning. The trees of different families have not evolved from each other but are parallel examples of tree-evolution from independent pachycaul beginnings. The study of shrubs and herbs lead to the same conclusion that the small and slender are derivatives of the massive; a systematic set of thistles would show this very well, as the bamboo explains the grass and the banana the ginger. The questions remain where this evolution first occurred and in what circumstances.

For the first one can answer only that it occurred somewhere in the tropics. Botany has, yet, to re-assemble its geographical knowledge on the distribution of the more primitive pachycaul members of every genus of flowering plants; then it may discover if they converge on a particular part of the tropics. With regard to the circumstances, we may note four points. Large leaves require much water. Their effect is to smother vegetation beneath their shadow. Thirdly, alluvial flats of estuarine rivers are the places where the pachycaul monocotyledons abound; thickets of palms, bananas, pandans, and the bigger allies of ginger, arrowroot and lily throng such river-banks and the creeks that lead into the forest. Lastly, these are poor places for conifers, though ferns may abound. The seed of the flowering plant, with a big supply of food for the seedling, is the reproductive advantage over the fern, which starts as a microscopic spore. The better construction of the wood is the mechanical advantage of the flowering plant over the tree-fern. It seems to me natural to suppose, on taking into account modern vegetation, that the flowering forest began with short, big-leaved, pachycaul trees in the swamp-lands and pursued its own contest in the upward struggle into high forest. They had better roots than ferns, perhaps also than conifers, but into this physiologists will need a long enquiry.

It has taken two centuries of botanical exploration and lucubration to arrive at this obvious understanding, and it is almost too late to visit the wild places where modern plants still convey the early history of the Mesozoic revolution. Nearly all the riverine forests have been mercilessly logged. A great deal has been cleared away to make rice-fields. In schools and universities

botanical teaching is fixed on the re-construction of living matter in molecular detail. The study of trees is an appendage of commerce. Conservation looks to animals. Horticulture may care for the pachycaul curiosities, but botanical gardens are full; new ones are not forthcoming; the public has no interest in such freaks. Yet, if we could grow *Ficus salomonensis* in a hot-house, the mere fact that it is a fig-leaf might awaken curiosity. I think, however, that students will revolt against the academic and applied instruction, and insist upon the revival and real conservation of natural history.

Among trees which are built from thin twigs and small leaves a difference may set in between the twigs. Some, which are thicker, become branches; others, with limited growth, behave as if they were compound or pinnate leaves. They are shed one by one from below upwards as the stouter twig lengthens, very much as the leaflets and leaf-stalk are shed from a rose or rowan-tree. That is, twigs come to function with short duration like leaves and the tree repeats the pachycaul form with big leaves, but now it has a second order of construction with branch, twig and leaf, not merely branch and leaf. Many kinds of tropical tree have this deceptive appearance; foresters recognize the process in the self-pruning when whole twigs are detached from the branches. It is not a curiosity but a good example of a common way of evolution among plants. That which was elaborated as a massive unit, say thick twig and big leaf, is broken down into small parts and these are set together in the form and magnitude of the first. An analogy is the country estate with mansion too large for modern convenience; it becomes a bungalow-estate and, when the town encloses and competition for land increases, there come apartment-buildings and high-rise flats—multiple wings of the spacious mansion.

Second-order construction is better known in flowers and fruits. All botanists acclaim the family of Compositae with tiny flowers set in heads, such as daisy, thistle, sunflower or chrysanthemum, advanced in floral design and perfected in seed-dispersal. A dahlia-flower is a flower of flowers as the apartment building is a house of houses, or the second order branch a spray of twigs. The

seed-head of the sunflower is a fruit of fruits, because the sunflower-seed is a fruit converted into a seed. Grasses and sedges, acclaimed likewise as advanced families, have tiny flowers aggregated into spikelets and set in compound spikes and panicles for wind-pollination, and their seeds, too, are little fruits converted. Circumventing the large and costly with many small cheap packets is economic and, of course, progressive for an increasing population whether it be of plant, animal, or man who in his domicile has given up wandering. What are towns, if not "compositae"?

This compound flower-head being the outcome of progress, it can be inferred that the primitive flower was single, massive and productive of a massive fruit with many large seeds. A massive flower needs a thick twig to bear it and a thickening twig for the fruit. A thick twig has a big leaf, and pachycauly derives the tree-form. We are returned to that theory of floral evolution which sets the magnolia-flower as the massive primitive construction. The theory was foreseen last century and proposed early this century; it is still sounder than others fabricated without understanding of pachycauly.

An acorn has one large seed. It is a fruit which, like that of the sunflower, has practically become a seed. In the ovary of the oak-flower, from which the acorn grows, there are three little cavities, each with two ovules as precursors of possible seeds. If an acorn held six seeds, it would either be very large and so costly to produce that not many would be borne on the tree, or it would have the same size and hold six small seeds tightly compressed; in either case, the seeds would germinate together and the seedlings would compete. But one large seed in one acorn and many such acorns from one tree is the best solution unless the primitive acorn split open and scattered its numerous seeds. Now in many of these tropical families of trees there are examples of dehiscent fruits, splitting open to discharge the many seeds, of indehiscent fruits containing one seed like the acorn, and of intermediate stages with few seeds and tardy dehiscence that may be delayed until the seeds germinate and split the lines of fracture. The botany of the fruit leads back to the dehiscent fruit with many seeds. Cherry,

avocado, mango, and walnut are one-seeded fruits which tell in their various genealogical lines of derivation from the dehiscent.

Besides leaf, twig, tree-form, and flower, we must study the dehiscent fruits of the tropical trees. Once there were botanical museums attached to schools of botany in which these fruits were displayed but, becoming dusty, shabby, and inexplicable, they have been discarded. Yet they, too, hold a surprise. The seed in many is invested with a brightly coloured fleshy layer, red or yellow, that is called the aril. The spindle-tree is the temperate example. The fleshy layer catches the eye of bird or mammal and, eating it, they disperse the seeds. In the museum specimen, of course, this delightful pulp had dried into a dark, horny and repulsive gluten. The fruit of the spindle-tree has but four or five seeds. In tropical fruits there may be as many as twenty. Just such an example is that famous fruit of the orient called the durian, or thorny thing, for the Malay word *duri* means a thorn. Covered with conical thorns, like a huge horse-chestnut weighing a pound or two, the durian has to the connoisseur the tastiest yellow pulp about the large seeds. It was not until I had made several attempts to overcome the revulsion of its strong smell that I became a durian-eater, and then many years elapsed before the botany of this fruit dawned upon me.

There are some thirty kinds of wild durian. Placed in the genus *Durio*, they belong to the alliance of cotton-trees, baobab, balsa, mallow, and hollyhock. Most of these durians have the pulpy aril round the seed, but some have not; the fruit itself is red, brown, yellow or greenish yellow, as in the cultivated durian. In allied genera the fruits are dry thorny capsules with dry seeds or a vestige of pulp at the base of the seed; in others the thornless fruit does not open but becomes a large berry, as in the baobab, or indeed a sort of one-seeded acorn. Here is an alliance of many trees showing the transition from the dehiscent to the indehiscent fruit together with the loss of seed-pulp, colour, and spiny armour. The impression that one gathers from botanical text-books is that these arillate fruits are modern peculiarities of little consequence because, like cabbage-trees, they are unfamiliar in temperate botany. Many families of tropical trees and climbers, however,

have the large, red or yellow, sometimes thorny, and dehiscent fruit containing black seeds covered, more or less, with yellow or red pulp. The fruits are well-known to natives who have special words for them and only when they enter school they are deprived of this knowledge. Set against the green foliage, there is scarcely a more conspicuous object in the forest than this red fruit.

Now, in most cases, the genera with these fruits are not only related with others in which the seed is dry or the fruit is indehiscent, and the colourful setting is missing, but in comparison with the other genera of their alliance they are few. Only *Durio* fulfils the character among the hundreds of trees in its alliance. Instead of being novelties, these arillate fruits appear to be relics of the primitive fruiting mechanism of flowering plants, surviving because they still appeal. Tested against other possibilities, the idea provides the one satisfactory explanation of the presence, or retention, of diminutive arils, or aril-relics, and abortive spines in indehiscent fruits. It becomes evident that the primitive flowering plant attracted animals not just with their flowers and edible leaves but with their gay fruits, armoured against the hungry in protection of the developing seeds until they opened for delectation and seed-dispersal. Rosy apples, red bananas! Who seeks the green tomato? Redness prevails in our homes, our flags, and our politics. A red blouse, a black skirt, and a green sash, and there are the hues of the durian-fruit!

In a lecture to a botanical audience at Cambridge in 1946, the theory was born and, redness prevailing, it became the durian-theory. In the dark sweltering nights at the Palacio Rio Negro in Manaus, when a guest of the Governor of Amazonas, one of the most tropical states, I committed the theory to paper. Since then, though long unheeded, much favourable evidence has accumulated, even to the conclusion that nutmeg-trees of the tropics, with dark seeds and red arils, have the most primitive kind of seed in any flowering plant. Such points, however, are but details of the whole which presents botanically the rise of the forest of flowering plants and, in natural history, the Mesozoic revolution.

The tale is simple. Children listen. It could be taught, but botany—nay, biology has hid its head in the laboratory.

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Everyone's sabbatical year

RUPERT SHELDRAKE

Whatever its political causes, the pessimistic fatalism that has become so prevalent an attitude has political consequences, not least of which is a paralysis of political thinking. But in fact the breakdown of the standard recipes for the future provides a situation in which really new possibilities can be discussed seriously. Here I propose a scheme which seems to me feasible, not as a panacea for all society's ills, but simply as one possibility of change which might be for the better.

One of the things that many people seem to look forward to is their retirement, not as a symptom of advancing age, but as a chance to do what they have wanted to do, whether it be gardening, reading, pigeon-fancying, travelling, taking educational courses, fishing or whatever. At present, for most people, time and freedom are a brief privilege of youth and do not come again until they arrive in an overwhelming excess with retirement and old age. But why should they not come when they would be of most potential value, in the middle life? Academics have their sabbatical years, but others have little chance of a remission from routine. Some may be unwilling to interrupt their jobs or careers; but more important, very few can afford to do so.

The simplest way to envisage how everyone who wanted one could take a sabbatical year is to think of the retirement age being raised by one year and this one year's pension being paid in advance, say for any year between the ages of forty and fifty. The year could be chosen according to family circumstances and employers would be given notice sufficiently far in advance for

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them to adapt to the absence of any given employee. Legislation could guarantee continued employment after the sabbatical year was over.

The middle-age pension may need to be at a higher level than retirement pensions because of the family responsibilities of the middle-aged. Where would the money come from? When thinking about this it is necessary to bear in mind that whether we like it or not the state is maintaining a great many people in an unwelcome freedom forced on them by unemployment. The sabbatical year could be regarded as involving a partial shifting of unemployment from those who do not want to be unemployed to those who do. Since unemployment seems more likely to increase than decrease, at the very least the middle-age pension could help to make a virtue of necessity.

It is easy to raise a host of practical objections, but it seems to me that to work out such a scheme practically and in detail would present far fewer difficulties than were involved in much more ambitious schemes in the past, such as the National Health Service. And objections based on the subjective assessment of what other people really want are easily met by making the whole scheme voluntary. Everyone could choose whether he or she wanted to take a sabbatical year: legislation would not compel him or her to do so but merely provide the right and the financial means.

Would most people really want such a year of freedom? I know that I would enjoy the prospect of such a year. I know many other people who would. But even if only a small minority wanted a year off from work, would they benefit from it in any way? Even those who take the cynical view that most people would be bored stiff might have to consider the possibility that this experience might confer a degree of wisdom and self-knowledge that could help in planning for and thinking about life after retirement, in old age. Those who are less cynical will easily be able to imagine possible benefits of a sabbatical year, which could not only make life fuller and more interesting for individuals and for families but also make our society as a whole a more interesting one to live in.

These possibilities do not seem to me to be either "utopian" or

necessarily remote. We could start planning for the introduction of a scheme such as this right away if we really wanted to. Or we could think of other, better schemes. But there is no reason why we should not even think about such things.

Review

***The Puzzled Body* by Caron Kent (Vision Press Limited)**

The problem of the relationship between anxiety states, depression, rage, suppressed sexuality and physical disturbance in the body has long exercised the interest and ingenuity of psychotherapists. Freud's analytical career began, in fact, with the impact made upon him as a young man by the French psychiatrist, Charcot, who by word of mouth alone could transform the physical condition of his patient. Conversion hysteria developed as a concept out of the clear recognition that when mental conflict went underground, was repressed, it found outlet in symptoms such as asthma, colitis, neurodermatitis, ulcers, hypertension, thyrotoxicosis, arthritis, etc. The revealing and assimilation of the mental conflict was also followed, in psychotherapeutic experience, by the remission of the physical symptoms.

Clinical psychiatrists sometimes deny the existence of conversion hysteria, maintaining that they never witness it in their hospital wards. I suspect they do not witness these transformations of symptom because drug and ECT therapy will block the process. Psychiatrists working on a conventional medical model find it easy to understand how bodily conditions, say disturbances in the nervous system and brain, may produce changes in the mental life of their patients, but almost impossible to understand how it might also be the case that changes in the mental life of the patient may produce dramatic changes also in the body. Stephen Black *et al.*,¹ however, have shown that Freud's reaction to Charcot was perfectly appropriate. Not only may the spoken

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word, used in a hypnotic trance, affect the tone of muscles and produce anaesthesia, but may also alter the biochemical structure of the cells of the body in ways that are conducive to the healing of disorders such as tuberculosis, neurodermatitis and the allergies, including hay fever.

Since the work of Franz Alexander and his colleagues² has made us familiar with the close inter-relationship of personality type and specific physical symptoms—e.g. the rage inhibited personality and colitis; and the anxious, driving personality type and stomach ulcers—psychotherapists are more prone to think in terms of the over-all unity of the person, rather than in terms of the dualism of mind/body. Instead of thinking against the naive philosophical concept of cause and effect, psychotherapists have espoused the notion of psychophysical concomitancy. Physical symptoms and mental distress are not so much causative the one of the other as different sides of the same coin; they will co-exist, but one face of the coin may reveal itself more readily than the other.

One point of agreement between the psychotherapists or depth psychologists on the one hand and the clinical psychiatrists on the other has generally been that the psychosomatic symptom, be it arthritis, asthma or whatever, is essentially an ill. They have tended to view the symptom as something to be “cured”, either by working through the mental conflict or by the application of appropriate medication or surgery. But there has been a growing feeling amongst at least the psychotherapists that the psychosomatic symptom is not merely a negative ill of which to be rid, but a positive sign of conflict.

In classical Freudian theory the conflict was, of course, between Super-Ego and Ego. Conflict arose within the Ego system because values, feelings, attitudes were arising which offended against the conditioning influences of childhood, now constellated in the Super-Ego as an inner watchdog of the person’s mental life. So long as the Ego continued to identify with the values of the Super-Ego there would be no conflict and, consequently, no psychosomatic symptoms. It was only when the Ego ventured a rebellion against those values, that is made a bid for freedom, that

conflict would arise. Such conflict, stirring as it does the pain of separation anxiety and the traumata of infancy, is difficult for the Ego to endure. It is in the struggle to keep the painful and unacceptable affect at bay that the psychosomatic symptom arises.

Whilst the symptoms are without doubt distressing and even dangerous, they represent not merely a negative ill, but rather register a positive attempt by the Ego to gain freedom and as such are to be welcomed by the therapist as the beginning of a movement towards health and wholeness, as the beginning of a spontaneous attempt at self-healing within the total personality.

It is in drawing the attention of therapists to the positive and creative value of psychosomatic disturbances that Dr. Caron Kent has made an important and fascinating contribution to our thought. In his book, *The Puzzled Body* (Vision Press, 1969) he describes in detail the development of physical disturbances during therapy and illuminates their significance for the therapeutic process. He comments not only on the significance of the major and well-recognized psychosomatic symptoms such as asthma, colitis, hypertension, stomach ulcers and so on, but also with deep and convincing insight reviews the significance of all those more minor physical disturbances such as nausea, vomiting, rashes, inexplicable bruising, discharges from various orifices, itching sensations, experiences of dizziness, flushing and heat sensations which often so puzzle the psychotherapist in session.

Early in the book he describes the progress of a patient whom he names Betty, who at the onset of therapy struggled with a mass of these minor symptoms:

“Before treatment the patient was described as being ‘tough and wiry as a mountain goat’, but in course of treatment she became softer and more feminine. This did not happen as dramatically as it may sound. In fact, it occurred very gradually. Furthermore, Betty’s organs, which at the beginning of treatment were deficient in function and were afflicted with infection, slowly healed and resumed their normal function. Treatment had not long begun before she discovered that her menopause was not a sign of old age but rather was due to repressive mechanisms which had been

exerted on her female generative organs in childhood. As this internal situation altered, new upsets no longer impaired her appetite. The conditions which had been considered chronic yielded to treatment. Betty was now facing the problem of how to deal with these upsurging forces which had begun a process of repair and reorganization."

Kent believes that the struggle towards health may often begin with the appearance of physical symptoms, which lead the patient (and perhaps the physician also) to believe that he is going through some kind of illness, whereas he is witnessing in his symptoms a spontaneous movement towards a general healing of the psyche/soma arising out of the innate "wisdom of the organism". The process requires, therefore, to be understood rather than prevented. Kent declares that: "the analyst has to prepare his patient for a situation in which (s)he must expect the breaking-out of inhibited forces. (S)he can easily regard the appearance of new symptoms in terms of the old. If there is discharge or cramp or inflammation, (s)he will associate it with previous disorders. However, at this stage the analyst aimed at directing the patient's mind to the nature of the new symptoms, and (s)he then began to realize that, in spite of their distressing nature, new attributes were appearing."

These new symptoms were tolerable because the patient realized that they would be of short duration and because, in their development, they were accompanied by the comforting feeling that "something was released, opened up and relaxed". In this way the patient experiences his "own processes of repair and healing". He is encouraged by the fact that his symptoms are given meaning, rather than treated merely as if they were an ill of which he must be cured.

Kent expands Freud's notion of primal repression. He writes that Freud's theory can be understood only by assuming that the process of birth is in some sense only partially completed; that is to say, that at different stages of embryonic development, beginning from the fertilizing of the ovum, repression of "properties and capacities" can take place, and that "at the same time there can be a blocking up of the energies which the organism needs to

advance from one stage of development to another". The maturation process is, obviously, *psychophysical* and a blockage in development is a blockage of the whole psychophysical organism, of the whole person. Kent is convinced that "if healing takes place the therapeutic process must, in some way, influence fundamental processes in the cells of the organism . . . during psychotherapeutic procedure, psychosomatic transformation processes take place". Successful therapy allows "the organs of the body to once more begin to mature".

This brings us to the most controversial theory which Kent presents. He believes there is good evidence to support the contention that not only may psychosomatic ills clear up during therapy, but that the very organs of the body may begin to develop again and the skeletal bones also grow so that measurable changes take place, for example, in the rib cage. Kent cites evidence that traumatic pregnancies may affect the maturation of cells and inhibit their ability to react to genetic information. Maturational processes become inhibited in the foetus and such inhibition may be reinforced by the child's life history. Successful therapy will promote the maturational process, permit cells to regain their contact with "lost" genetic information and release latent potentiality for growth.

The psychosomatic symptom, like any of the symptoms which patients present at the onset of therapy, is the razor's edge of opportunity. The stomach ulcer which may herald the beginning of a creative movement towards wholeness, may also lead to peritonitis and death; just as the psychotic episode, which may be the beginning of a journey towards integration of the personality, may lead instead to a life of tragic hospitalization. Many factors will determine where the final outcome will lie, amongst them being the patient's own deepest intentions towards life and people and the therapist's ability to provide an adequate meaning-system and empathic relationship for his patient. Kent's book is a valuable contribution at least towards the establishment of the latter.

Translated into theological language, the reliance upon the wisdom of the organism, when faced with distressing physical symptoms, parallels the Christian's exhortation to trust the healing

power of the Holy Spirit in times of sickness. Whilst it would be cruel and blasphemous folly to withhold medicine in times of illness, it should perhaps be remembered that even the best of medicines require the co-operation of the organism and its inherent healing powers and that there is the wisdom of much experience behind the traditional contemplative doctrine of mortification, which teaches that necessary ills graciously born may lead people further along that maturative way, which the contemplatives have described as The Path, or The Life of Grace.

DAVID DOEL

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NOTE ON THE THEORIES AND PRACTICE OF CARON KENT

(We asked Elizabeth Dupré, who has been able to study Caron Kent's unpublished as well as his published work, to add this note.)

Caron Kent, who died in May 1971, was the author of three books on the growth forces at work in the body, and the physical and psychological disturbances that occur when these forces are blocked. The first, *Man's Hidden Resources*, was published in 1962; *The Puzzled Body* followed in 1970. The third, *The Enigma of your Body*, was to have been published soon after his death but has been held up by editorial and legal tangles. His writing was based on a great many years of practice as a psychotherapist, first in Australia, and since 1963 until his death as director of the Highgate Clinic for Psychotherapy in London.

He pioneered research into energies at work in the physical organism and his ideas reached out beyond the traditional limits of psychoanalysis. He was interested, for instance, in sleep research. Noting that "the brain temperature leaps up at the beginning of each REM period" (the rapid eye movement phase signifying

dreaming), Kent points to the parallel physiological state during regression in psychotherapy, “the speeding up of the metabolism of the whole body to a rate comparable with that of the development of the embryo”. He refers to X-ray pictures taken of a patient he calls Alec, at the beginning of psychotherapy and after three years of treatment, which show that there has been a marked effect on his vascular system and blood supply (p. 242, *The Puzzled Body*). He goes on to describe how, “as brain circulation improved during the course of psychotherapy, he began to move and speak more freely and . . . there seemed to be an alteration in the very shape of his head from rounded to oval”.

The bursts of energy (about eight a second) invading the visual cortex at the beginning of the REM periods come from the brain stem, and Kent suggests that there is a close connection, even perhaps an identity of function, between ordinary dreams and the ideas and fantasies released in therapy. “It should be remembered in this connection that repression of the REM cycle of dreaming . . . leads to serious emotional and physical disturbances” (p. 243).

Caron Kent’s most important contribution to psychotherapy, though controversial from the point of view of orthodox schools, was his firm belief in the close connection between embryo-developmental growth forces and phylogenetically inherited archetypal images. His interest in sleep research and its implications for psychotherapy is an instance of this in action.

One of the most original aspects of his work was his acceptance and trust in the patient’s own body image. The “body image” (not of course to be confused with archetypal images) is a term which has been used by different psychiatrists to mean rather different things, and Caron Kent’s connotations need defining. He appears to have intended that inside awareness we each of us have of our own bodies, a total and detailed picture of the whole, including those areas where growth has been inhibited. He would also want to include the sense of the pressures towards development. That is to say, when the patient claimed to have a pain in his head, tight bands round his skull, Kent believed that there was an objective source for these sensations, that the patient was focusing on the

truly appropriate area of his body. At that particular point there was a blockage of growth forces which in some cases manifested itself in actual distortion or failure to develop. This was the case with Mary, one of Kent's more dramatic cases. "The physician's and X-ray reports on Mary given at the commencement of psycho-therapeutic treatment, indicated congenital exophthalmos, a moderate scoliosis of the lower-right side of the chest and protuberant lower-right rib-knob. Movement of the spine was restricted and early spondylitic lippings in the mid-cervical and dorsal regions were evident, and the adjacent surfaces of the eighth and ninth dorsal vertebrae showed considerable irregularity. She suffered from chronic arthritis of the spine". (Note to p. 24 *The Puzzled Body*.) It is particularly interesting that, during her teens, Mary had felt that there was something wrong with her spine, but at this stage of her life no medical evidence could be found to support this. By the time she was twenty-one she was in the state just described. After being treated by psychotherapy for a year, a further physical examination showed that her spine was far more flexible than it had been at the first examination. After two and a half years another remarkable feature became obvious: the building up of the rib-cage, producing much greater symmetry. All her physical functions improved and matured so that she achieved full, healthy life. "This is the point", comments Kent, "at which modern medicine might succeed in establishing a new principle, the pathology of becoming alive, which is tantamount to incarnation in adulthood" (p. 49).

Kent wrote that he did not know of any other psychotherapist who has aimed at the restoration of growth patterns. There are now beginning to emerge people who are following his lead with their modifications. To mention only a few, A. Janov, Seaborn Jones, Malcolm Brown, David Boadelle, all practising therapists in England or America. It is very much to be hoped that more people will take up his approach and refine the questions that his theories provoke, so that they may be tested.

ELIZABETH DUPRÉ

Comment

Purpose and consciousness

More than one editorial in *Theoria to Theory* has stressed the need to revise some of our scientific conceptions or preconceptions, and although I have not been able to trace it, I believe the concept of purpose was among them. In any case, I should like to contribute to such a discussion.

The emergence of consciousness, with purpose as a subordinate result, is often said to be the most inexplicable of all developments. I should like to suggest, however, that purpose appeared with the first living cell, and that given life, consciousness could be predicted. It is the emergence of life that is inexplicable. That an aggregation of matter should have appeared with an inherent unity of its own, protecting this unity with an outer integument, and using its physical environment for its own ends, in a hitherto purely physical universe, is quite inexplicable in terms of a physical universe obeying the second law of thermodynamics. But that this unity should evolve into organisms gradually becoming aware of their inbuilt purposes is easier to understand. It must also be noted that the purposes do not inhere in the material, or physical components of the living things, which are continuously perishing and continuously being replaced through metabolism. What remains unchanged by metabolism are the structures that carry their purpose. And more, finally the purposes served are those of the unity and not of the parts. We can see the over-riding position of the unity in the stem of a cutting which grows roots rather than twigs and leaves when these will serve the unity that its purpose is to serve. The healing of a wound, or recovery from disease all follow the same principle. It is not that all the parts

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involved are aware of what they are doing, at least as far as we can see. In every case it seems that purpose is anterior to awareness, the awareness, as far as we know, developing only in the unity.

Susanne Langer in the second volume of her *Mind: An Essay in Human Feeling* argues that the motivation of living organisms lies within themselves and that this is the determining factor in their development and consequently in evolution. We can therefore say that in a developing awareness unconscious purposes come to light, until in man the unity becomes aware not only of its purposes but of the motives behind many of them, and finally of itself as a unity with purposes, an "I". But the unity has acted as such before it became self-aware, just as its purposes preceded awareness. Consequently there was no new principle involved in consciousness not already prepared for. Given the beginning of life in the "primitive" cell, structured to defeat the second law of thermodynamics, the rest is predictable. It is to put the cart before the horse to say, as we do, that consciousness is a pre-requisite of purpose. Consciousness might well never have developed without a basis in purpose. Even within his highly-developed consciousness, man is far from being aware of all his motives and purposes. And if Jung is right, his attitudes and purposes depend on his unconscious inherited archetypal equipment, just as an animal's depend on its innate instinctual equipment. Our verbal habit of calling these unities "organisms" is based on an entirely unreasonable way of looking at them. An animal is not just a bundle of co-ordinated organs. It is in fact the prior thing, for such organs could never have developed apart from their purpose. What we call an organism is in its very nature first of all a purposeful unity. And it is a reasonable presumption that both the purposes and the purpose-serving structures or organs arose simultaneously, or if one preceded the other then that the purpose was there first, since it gives a reason for the structure, and the structure, although it may reveal the purpose to the observer, is inexplicable except in terms of the purpose it serves.

If all this is so, much more of our way of thinking needs to be recast. I suggest three of these questionable areas. The relationship

between brain and mind perhaps becomes unproblematic if there is such a thing as a structured purpose. Then, as Susanne Langer points out, behaviouristic or Pavlov-like experiments where the organism is confined to mechanistic situations devised in the laboratory preclude observation of its purposeful life. In the laboratory the only options may be reactions, and moreover, to unfamiliar situations where the emergence of purpose is controlled. Even biologists like Tinbergen and Lorenz, she notes, talk in terms suitable for a physical or mechanistic science, one based on measurements and calculations determined by a study of the physical world. It almost is as if biologists had not noticed anything different in living things. That life emerged from the physical, that the physical was there first, that the physical must have had the potentiality for the development of life is incontrovertible, but this is no argument against something new when life arrived. This will be true also if a scientist creates life in his laboratory. If this happens I'd expect the cell to make the best use of the environment it finds in the laboratory for its own purpose of, in the first place, surviving. Otherwise I cannot think on what principle it could be said to be living. Then finally we should perhaps reconsider our general presumption that consciousness appears first as perception, in the sense of awareness of the environment, and not as purpose. The mechanistic view that takes organisms to react first rather than act, and which therefore looks to the environment as the original motivator, has conditioned us to presuming that perception must precede purpose and yet this may not necessarily be so. Although perception, or awareness of the environment, certainly appears low down in the evolutionary scale, perhaps even in a plant's reaction to sunlight and other climatic conditions, and might eventually be found in the "primitive" cell, and although it must certainly play a great part in life, this does not mean that its development precedes or conditions the animal's purposes. If Susanne Langer is right about her reading of animal psychology, it would appear that the animal perceives less what is there to perceive, than what is of use for carrying out its purposes; in general too it is likely that our purposes may have

conditioned the development of our perceptions, and that the fact that they are necessary to our purposes does not mean that they were developed first, or were, so to say, the motivators of development.

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Apology

In *Theoria to Theory*, Vol. 8, No. 4, we printed Rudyard Kipling's "If". We omitted to state that this poem was from "Rewards and Fairies", and to acknowledge permission from Mrs. George Bainbridge to reproduce it.

Comment

Alternative technology in publishing

Reading Peter Harper's criteria for "Soft Technology",¹ with the big snag that it hasn't yet proved its economic viability, my thoughts went to "alternative publishing", which, to the onlooker nowadays seems to flourish better than traditional publishing. So I went to Alick Bartholomew, founder of the Turnstone Press, to discuss the "alternative publishing" viewpoint.

One trouble is, according to him, that traditional publishers don't know what the "new age" public want, and so deprive them of it. His first title is a case in point, *Jonathan Livingston Seagull*.² Nobody would look at it, so he got it for a song. Now the philosophy of that precocious bird has been described to me as banal (though everyone says the photography is marvellous). But we must remember what theologians said about *Honest to God*. The proof of both puddings is in the sales figures, J.L.S. has already sold 90,000 copies in hard covers. Archbishop Ramsey has now acknowledged the theologians' mistake about *Honest to God*, he still thinks it a poor book, "but I was soon to grasp how many were the contemporary gropings and quests which lay behind *Honest to God*".³ This is what has *not* yet been grasped by publishers or scholars about the "alternative" science (or anti-science) and the life-style of the "new-age" public, it is only seen as a betrayal of "objective" standards of scholarship.

Truth does not matter then, so long as people are given what they want? Well, this is not Alick Bartholomew's view, in fact before now he has written off quite a large sum to avoid

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publishing a book he had commissioned because he felt it put forward a materialistic view of mind which he believed to be untrue. For him and his public (which as he says, is a popular, not a scientific one) much of the professional scholars' writing is irrelevant, because the truth they are pursuing is too one-sided and its jargon unintelligible. So he is joining the anti-rational crusade? Not at all, indeed he has been publishing straight history and social science for 20 years, so he knows what he is talking about; there is a missing element in most academic work which can only be called the spiritual element.

Put it this way; if seeing the purpose of life is like looking at a many faceted jewel, intellect is only one facet. To many people, the extraordinary growth in rational outlook has been made at the expense of an inner awareness; those who still have this may get a glimpse, however obscured, of another facet of the jewel. Turnstone's accepted role is to help a little to connect facets of the jewel. To this end, almost any area of knowledge can be approached. One way of testing whether an approach is more "objective" than the conventional is the degree to which a writer has apparently discovered realities and grown through his own experience in a way that another can recognize as convincing. (This allround use of the term "objective" in a sphere that is usually called "subjective"—i.e. experience—is intentional).

Scientists won't like this rather eastern use of the word "objective". Well, we haven't a word now for describing this aspect of truth; it used to be called "metaphysical" (in one sense of that difficult word). Would "mythical" do? No, this suggests "imaginary". Lawrence Le Shan⁴ calls it "clairvoyant truth", but that's loaded too. People look for inner images of truth, ones that light up the activities and the occurrences of every day. And they want ways of exploring themselves, not by intellectual theorizing, but by experience and emotion that helps them to relate to the outer world. *Jonathan Livingston Seagull* is a case in point and so is P. D. Ouspensky, *Talks with a Devil*, or M. Anderson and L. Savory, *Passages*, or Walter Starckey, *Gospel of Relativity*. The competing dogmatism of science or philosophy or religion confuse them, they need an inner touchstone by which to test their

conclusions about the world. The archetypes, images of the unconscious, are not factual, but they supply this link, which is part of the whole truth of a situation. Dr. Jim Henderson has written a study in psycho-history about this called *A Bridge Across Time* (1975).

This is the underlying attitude of Alick Bartholomew's choices; what kind of subject matter reflects it? To some, this trying to connect different facets of the jewel is a spiritual exercise, to others it may be ecological or technological. Books on alternative diagnostic methods and healing techniques are very popular, and lend themselves to these aims, e.g. Dr. Mary Austin. *Acupuncture Therapy* or Dr. Donald Law. *A Guide to Alternative Medicine*.

If this is the substance of Turnstone's "alternative" publishing, what about its format? It is no longer possible, it seems, at present prices, to publish long books. This to me is a pity, as the Turnstone book I most enjoyed in 1974 was Bennett⁵ on Gurdjieff, but I see the risks, which are greater when the contents are very personal stuff, directed to a particular audience which it may hit or miss. Naturally such books will be regarded as nonsense if the reader has no experience of the author's facet of reality. *Yield*⁶ is one of these, and Thetis Blacker's⁷ book on dreams has been described to me by one reader as "outstanding, quite splendid", and by another as "nauseating stuff". So it is important to know how to reach the right audience. How is this done?

Business methods to achieve this end are the other distinguishing feature of successful publishing. Turnstone, e.g. is a small-staffed basement business, run from underneath its founder's private house. He does all his own reading, and his production manager does a great deal of the lay-out. J. Ivimy, *The Sphinx and the Megaliths* (1974) was set by typewriter and laid out in the office, and its design has been much admired.

The selling problem is that far too many books are published; the traditional book selling industry cannot cope, so they only stock new books and safe ones, or classics. This means that experimental firms don't get their books into most booksellers. So Turnstone encourages experiments, whether by shops specializing in their subject area, or in shops stocking a limited number of

publishers. A direct mailing system has been forced upon them because people cannot get their books locally. Direct stocking by van and changing the books as needed, as paperback firms do, is another idea, and combined mail order lists three or four times a year from seven or eight "alternative" firms is yet another.

All this seems to show that in at least one "soft technology" area it is possible both to meet real human needs and yet to survive economically. There is one little snag; it means hard, old-fashioned work.

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Sentences

From "In High Places" by Dougal Haston†

Do you really worry if you get up or not? The mind is often so blank. Getting up doing the same monotonous tasks. Is this the blinding up unknown walls in the remoter parts of the world, that you have chosen above all other things? Often it seems like a routine job. Up, out, work, back to bed. Instead of earning a wage you are earning mountain experience. Pessimism, pessimism, it so easily creeps in. Such a huge and wild situation is all too conducive to self-doubt. Self-doubt magnified beyond all proportion can drive you completely from the mountain. It is the reasonable elimination of this doubt that makes you a better climber. Self-doubt along with fear is necessary. But can you control them both? This is where climbing is that much more than just pitting body against mountain. In many ways it seems unreasonable. But what could be more reasonable than finding out about yourself? In many ways a large expedition is a great test of this. It is not only the ability to assimilate the vagaries and normalities in the minds of others. It is the ability to control them in your own.

. . . .

Onward, outward creeping on jumars and rimed ropes. It is cold: a cold cold colder than the coldest cold of our benumbed experience. Dachsteinmited hands freeze in jumar clutch. Even an additional pair doesn't help too much. Toes are where? Freezing in

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four boot layers. We move on. Out of the gully and desperate cold into vague sun. Sun as hot as sun can be at 26,000 feet. Covered suddenly by a wild burst of spindrift. Uncovered noses sharply freezing. A ridge ahead, an icy buttress and blue sky. Still the upward movement. Solo bodies a hundred feet apart. Thoughts not too dissimilar for once. Concentration precluding mental wondering. Then there was one body and the blue sky. Then the two meet again against the sky with the rock snow beneath. It's all over. But where did it all begin?

.

This is no criticism of the many who love climbing on odd days and easy things, or wandering around the mountains. They are also true mountain-lovers. We were just a little more committed. By pushing our standards we pushed ourselves and learnt more about both. This demands a hard, often ruthless state of mind. Often we didn't succeed on projects, but head-shaking we'd come back for more. The despised people were the ones who criticized through envy and because they were afraid to try the same things. There are always people who want a balanced mediocrity.

.

I began to wonder about partnerships in climbing. A mountaineering relationship, at least in the highest climbing levels, is a very strong thing. Everything is laid bare. You know your partner's strength and weaknesses, most of his hopes and ideals. You are both working at levels often close to the limit. It's a big responsibility to have another's life in your hands, or to trust yours completely to someone. Life on a mountain is basically unemotional, you are too used to seeing the other person in strict control. That is perhaps why, in the emotional free-for-all of normal living, you act as, or in fact are, different persons.

.

“What goes up must come down”.

A simple, quite reasonable and oft-repeated question: how do you get back down once you have got up? . . .

The whole of the reason for climbing is the going up. Getting down is of course necessary, but instead of seeking difficult ways, invariably we look for the easiest. On most cliffs in Britain one can usually find an easy walk off the back. But say you have a tower, sheer on all sides—like the Old Man of Hoy, for example, You have reached the top—the easiest way up is Very Severe, there can be no walking off. How do you get down? To reverse climb a Very Severe pitch would be very hard and take a long time; the party does not consider it. The leader takes a piton, knocks it in until he’s certain it will bear body weight, then ties a short sling through the eye. After this he takes the climbing-rope, threads it through the sling and coils the two ends together until he reaches the middle of the rope. He then throws or lowers the coils down the cliff until the weight of the rope is on the sling. First testing the piton with a pull, he wraps the rope round his body—or passes it through carabiners and then round his body—and slides to the end of the rope. There are quite a few methods of wrapping the rope; the main idea is to get enough friction on the body, carabiner or descendeur—a special descending device—so that you can go down even overhanging rock in complete control.

.

Morning after again very hot—temptation—there’s a choice between up and down which is never easy. Why is the urge always down when the end-product of the up is so much better?

Notes on contributors

EDRED JOHN HENRY CORNER entered professional biology as a mycologist. Residence in Singapore turned his attention to tropical forest. In 1947 and 1948, as an official of UNESCO, he endeavoured to set up the International Institute of the Hylean Amazon as a centre of research in Manaus. Adversity returned him to Cambridge where, as a lecturer and then reader in plant taxonomy, he became Professor of Tropical Botany. He led the Royal Society expeditions to North Borneo and the Solomon Islands. In retirement he is assembling the large collection of tropical fungi which have been his hobby.

DAVID DOEL has an MA and PhD from Manchester University in Psychology. He is a Unitarian minister, serving the Unitarian Church at Hindley, Lancs. Early in his ministry he received a training analysis and has practised psychotherapy or the care of souls as a part of that ministry for the past twenty years.

ELIZABETH DUPRÉ read English at Newnham College, Cambridge, is now a lecturer at the Cambridge College of Arts and Technology, and has a life-long interest in psychology. She is married with four children, all students.

PIERRE NOYES is a high energy physicist at Stanford University. He was for some years head of the theoretical section at the very powerful Stanford electron accelerator installation. After graduating from Harvard in 1943 he worked at several well-known centres where fundamental physics is done, including Birmingham and

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Liverpool in England. In recent years he has been involved in movements that seek a new vision for western society, and has looked at the Chinese experiment.

FRITZ SCHUMACHER was born in Germany and went to Oxford as a Rhodes Scholar. He then taught Economics at Columbia University in New York. After the war he was Economic Adviser to the British Control Commission in Germany, from 1946-1950. From 1950-1957, he was Economic Advisor to the National Coal Board. He is founder and Chairman of the Intermediate Technology Development Group.

RUPERT SHELDRAKE read the Natural Sciences Tripos and researched on Plant Physiology at Clare College, Cambridge, holding a Royal Society Research Fellowship. He is now working at the International Group Research Institute, Begumpet, Hyderabad on producing strains to give increased grain yields for growing in arid climates.

JULIE ANN ROYLE, who designed the cover, is a sculptor living in Cambridge with two children and is one of the Theoria to Theory Group.

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Editors

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Explorations in the sciences and technology that affect our understanding of religious and philosophical questions—these are the basis of this quarterly journal. *Theoria to Theory* holds that traditional religion has been primarily, and at best, concerned with mystical and contemplative experience; therefore it is important to a widened science in providing or source of insight. *Theoria* was the old Greek name for this insight; *Theory* here stands for an enlarged and revised scientific understanding. The journal represents an effort to keep the two terms with each other.

The journal was started in 1966, when this approach was outside current theological, philosophical and religious fashion, but times have changed, and the interests of *Theoria to Theory* have become those of an influential avant-garde. However, implementing this approach is not so easy. Real understanding proceeds at its own rate, and demands precisely the "waiting on God" that contemplatives should but do not always manage. Any other approach leads, on the one hand, to occultism, and, on the other, away from the spirit of adventure within science.

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UNIVERSITY OF MICHIGAN

Editorial

In this number we have a discussion with Jacques Monod, the molecular biologist, whose book *Chance and Necessity* has been widely discussed. We have already had occasion to refer to it more than once: in *T. to T.* Vol. 5, No. 4 (p. 15), for example, Hilary Rose spoke of what the French molecular biology laboratories had come to call “Monodtheism”, and in *T. to T.* Vol. 8, No. 2, Ivan Erbe, himself a French scientist, quoted Monod repeatedly in his “Réflexions sur le Temps qui Passe”. We have long wanted to have a full discussion of Monod’s views, and the unexpected chance of a fog at Heathrow airport made it possible for Mark Fitzgeorge-Parker and one of the editors to discuss them with the man himself.

In his book, Monod combines a “mechanistic” view of biology with a passionate plea that ethics should be “scientifically” rooted in the “principle of objectivity”. What is made clear in the discussion is the depth of moral conviction that underlies his total position. For Monod, commitment to the “principle of objectivity” is a moral stance, a basic commitment to the rejection of any teleological explanation of the natural world and the events which constitute it. We have argued in the past that the “objectivity” of science lies rather in the openness of scientific theory to evidence, and that the essence of the scientific method is some sort of demand for verification. We are not concerned here to restate that position: what interests us is Monod’s conviction that having once plumped for the “principle of objectivity”, all our other decisions, principles and choices must be compatible with this basic orientation.

At the centre of Monod’s philosophical view is the notion of an “existential choice”, ungoverned by reason; in his view there are

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no facts that constrain our choices, and questions about what is good (as an end) can be answered without recourse to an examination of what is true. Curiously enough, this “existentialist” view is underlain by the same sort of view of choice as that of many analytic philosophers. (A fact which Iris Murdoch has pointed out in “The Sovereignty of Good”.) Prescriptivism, for a long time the “official” Oxford account of moral language, sees morality as a matter of acting on principles which are taken as data. There is an account of changing one’s moral view, in which particular situations of decision and choice generate “feelings” which may lead one to modify one’s principles. But since no rationale is offered for changes of principle, and since choosing your principles is something that the prescriptivist leaves very much up to you, what are these principles worth? For in any situation, it is up to you whether you chose to go on acting on them. This leaves the same fundamental irrationalism at the centre of moral life as is found in the existentialist moralists on the Continent.

Prescriptivists have an account which, because it derives from the study of (public) moral language, is, of necessity, concerned more with judging action than with taking it. The underlying assumption, and it is one that is key to understanding much modern philosophical work in the analytical tradition even outside ethics, is that the task of the philosopher is to get at an underlying logic rather than to provide a reconstruction of what actually goes on. A prescriptivist need not care that his work is useless to the moral psychologist or the sociologist.

But, as we have argued before (*T. to T.* 8/3), philosophy ought to be concerned with the tacky world of facts. Even if a distinction can be made between the logical constraints on moral language and the non-logical ones, philosophy has something to say on both sides of the matter. This picture of choice, as a pure act of will, constrained only by “mere” feeling is psychological and sociological nonsense. To a certain extent this criticism can be answered by pointing to recent work in the field of reasons for action, where consideration has been given to the ways we actually do justify our choices and the considerations we actually do bring

to bear in taking decisions. It is even argued that anyone who deviates too far from the way we normally give reasons risks becoming morally unintelligible. Thus, far from emphasizing the extent of our moral freedom, this position emphasizes the constraints of reason on morality. But it risks disaster if this unfreedom is seen as a consequence of facts about moral language, which it is not, or if it leads to a static commitment to contemporary mores. What is needed is some account that makes sense of the structure of our moral lives in time, and then offers a reconstruction of moral “discovery” and moral “experience” that does not simply reject them as fictions.

In *T. to T.* 8/3, we sketched the outlines of a programme of “applied” philosophy, committed to a continual interaction between conceptualization and experience; such a philosophy might be said to be dialectical. There is no fixed centre, only a perpetual movement between a restless centre and a fluid periphery. And we believe that this movement can provide the basis for a deeper understanding of moral judgements and their grounds. So much is metaphor: now on to literal expression.

All of us grow up and are socialized in particular moral environments. We bring into the world dispositions to affection and action which interact with that environment to produce in us a complex of desires, which we might call basic ends. In a shared social world and with our common inheritance as men, it is reasonable that many of our basic ends should be the same: and it is an anthropological fact of some importance that even across social worlds, with their different economies and technologies, many basic ends are common to mankind. Nor need we be too restrictive in designating their scope: pleasure in friendship, as well as in water, food and sex, seems to be quite general.

Now, the moment this is admitted, not as an *a priori* truth, but as a restricted empirical generalization, a number of constraints on possible ends emerge: and with them corresponding constraints on morality. For a moral system is, we suggest, a system of guides to action—be they principles or exemplars—that constitute together a means of achieving the satisfaction of our basic ends in conditions of mutual benefit. Morality is a strategy, a plan for life: to ask of a

religion or a secular morality “Is its ethical teaching true?” is misleading. Surely we should ask whether its practices of justification provide us with satisfactory lives?

The result of “taking on” a particular moral system will be a period of life in which judgement and action take place under it. During that period the question whether the life is satisfying and the consequences of action acceptable can be assessed by reference to the basic ends of the man who takes it on. Within the moral view, questions of good and evil, right and wrong, are decided by reference to the strategy of justification of that system. But the system itself is subject to criticism from a higher level, subject to the question “Given those basic wants and needs that, as a matter of fact, I have, does this work for me?”

It is here that the dialectic comes in.

For one of the effects of taking on such a moral view may be to restructure your basic ends. You may find that you grow to place a greater value on some virtue than you did before. And this change in the structure of your basic ends will change your judgement of the moral view you have adopted. Any morality adequate to human nature and the particular social situation will tend to have this property. This interaction is, we believe, at the core of morality.

A conception of a dialectical moral life, in which, as it were, what we want may be profoundly affected by the means we chose for getting what we wanted, has a similar structure to a picture of science in which methods of research are perpetually redefined by the answers to scientific questions. Monod’s conviction that we must reject teleology if we are to have science hypostatizes a methodological principle that has been fruitful in his work, but may well have to be given up when we come to consider the problem of organisms above the molecular level. Monod rejects the principle of causality: but that principle was an essential part of the methodology of the mechanism of Newton and Laplace. In outgrowing that kind of mechanism we have outgrown the principle of causality and his rejection of the principle of causality stands at odds with his commitment to a picture of the cell as a machine. So, in outgrowing “Monodtheism”, function and purpose

may rediscover their place in the explanation of life. This dialectic in science is no more irresponsible to truth than the dialectic of morality is irresponsible to human nature: Monod's pessimistic "truth is hard to define" is like the pessimistic "choose what you will" of the existentialism he endorses.

It is not the answer, it is the problem.

Erratum

The name of the author of the Comment "Purpose and Consciousness" in *Theoria to Theory* 9/1 should have been given as Katharine M. Wilson, not Kathleen M. Wilson. We apologize most sincerely for this mistake.

Discussion in the fog at London Airport with Jacques Monod

MARK FITZGEORGE-PARKER and ANTHONY APPIAH

On Feb. 20th Professor Jacques Monod, Nobel Prize-winning molecular biologist and subsequently philosophical troubleshooter, came to Cambridge to deliver the Sidgwick Memorial Lecture. The lecture was little more than a defensive recapitulation of the themes of his best-selling controversial work, *Chance and Necessity*, but, towards the end, he spoke a few words on the irreversibility of time, a subject he has previously left untouched. The next day, dissatisfied but curious, we drove him to Heathrow. Although anxious to return to the Pasteur Institute, which he runs, and to a convention there on the applications of new discoveries in biochemistry, he was effusive and eloquent as we drove down.

For purely mechanistic reasons (although Monod was heard to observe “Thank *Heaven* for the Chance”) thick fog delayed the departure of his plane for several hours. Over lunch we were able to record this informal interview which was constantly interrupted by waiters and flight announcements—and at one moment by an invitation to Mass.

Professor Monod speaks and writes English as well as he speaks his own tongue (the first draft of *Chance and Necessity* was in English). Charming, fluent and concerned, he is a multiply-decorated resistance-fighter, a very fine musician and a passionate believer in the social responsibility of science and the dignity of man. Although he claimed the “privilege of age” in paying for our lunch, his face and his vigour remain those of a young man ‘out to change the world’.

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Monod. The irreversibility of time? Well, as I said yesterday, I was very impressed recently by a book by Mircea Eliade. In fact, what I said yesterday was largely pilfered from his book. You see, all myths and religions have had a structure which somehow denies the irreversibility of historical time, either by ignoring it or by making it run in circles. The latter is probably the prevalent method; it is to be found in India and in Greece, and in modern writers like Nietzsche, Toynbee, Joyce and so on. Another method involves the trick (originated, as Eliade points out, by the Jewish prophets) of keeping historical time suspended between two periods where time is stopped. History becomes a theophany for the Jews, it's a manifestation of God and of his relationship to man.

One thing I forgot to say yesterday—and it's a remarkable point—is that this is exactly the logical structure of Marxism. The end of history is, after all, one of the basic predictions of Marxism. I personally never had any doubt the immense power of Marxism over the intellect comes not so much from its announcement of the liberation of man—all brands of socialism make the same claims—but from its classical logical structure, closely analogous to that of accepted myths and religions. Moreover, in a scientific age, it pretends to be founded entirely upon science.

A.A. You suggested yesterday that this tendency accounted for the difficulty some people have in accepting the results of molecular biology.

Monod. Oh yes. The chance element, the element of contingency, in the existence of man, is hateful to many people, instinctively to be rejected. I would say that most of the papers in that little book we were discussing [*Beyond Chance and Necessity* ed. John Lewis] are rationalizations of this instinctive feeling. The concept of contingency—the fact that we are here but we might well not have been—is obviously hateful to many people. The business about the irreversibility of time is different. What I really

wanted to impress upon people is the fact that this is a completely new idea, an idea that is very modern, which is now rather generally accepted because of statistical mechanics and molecular biology.

A.A. You did suggest earlier that Prof. Thorpe's paper [the introduction] was based—like much of the criticism of your work—on a feeling that you are an intellectual imperialist. When we spoke about that you mentioned your connections with the “Centre Royaumont pour une science de l'homme”, and your interests in sciences very different from your own. But there are, however, molecular biologists who are fairly imperialistic.

Monod. Well, if you say that to people, they would take as examples Francis Crick and myself. Now, I know it is not true of Francis, and I think I know it's totally wrong as far as I am concerned. I am extremely interested in ethology and anthropology. If I had time, and if I were younger than I am, I might well have abandoned molecular biology for anthropology. Not abandoning the principles and the methodology that we have learnt, but realizing that the study of living beings has to combine two different approaches: one from above and one from under. To pretend that you can do everything from one side or the other exclusively is absurd. To build an anthropology ignoring genetics is insane.

A.A. That amounts to a straightforward rejection of the reductionism that you are sometimes supposed to represent.

Monod. That whole book, seems to be aimed at a man called Monod that I have never met. He is a peculiarly stupid kind of reductionist who makes lots of “nothing-but” statements. “Man is nothing but a bag of enzymes and nucleotides” or “We can explain everything by just considering the structure of enzymes and nucleotides”. [*In fact Monod's work was largely responsible to the rejection of the programme of understanding the cell by considering the structure of active molecules. He told us in the car it took time persuading people this couldn't be done.*] This “Monod” is a man invented in large part by the people who wrote that book. There's another Monod, presented by John Lewis, who is sup-

posed to be a Cartesian dualist. Why he believes that I don't know. Probably because, in one short passage in the book, I recognize honestly that there is a dualism of mind and body which is simply a matter of our own experience. Every day we experience a phenomenal subjective dualism that we know is illusory: but we still have to live with it.

A.A. A charge that I've heard made against the picture of molecular genetics that is standardly expounded in paperback biology is of the degree of extrapolation involved from bacteria to eukaryotes. [*A eukaryote is an organism whose genetic material is contained in a membrane which forms the nucleus of the cell. Bacteria and all "prokaryotes" have no nucleus.*] After all, we know that the structure of eukaryotic chromosomes is much more complicated: there's a lot of protein whose function we aren't clear about. To what extent do you think that these greater complexities in the eukaryote mean that you can't generalize?

Monod. I think the principles can certainly be generalized: and the fact that you can even transcribe pieces of DNA of human origin with *E. Coli* extracts is an example of this. That being said, it's completely obvious that there are an immense number of controls which are essential in the organization of higher organisms which are not to be found in bacteria. From the controls of the bacteria, it is fairly clear that you could construct more complex machines.

But I would tend to believe that it is a matter of complexity and of controls and supercontrols that differentiates higher organisms, rather than elementary steps of control. There most probably are some new types of control to discover. I would say that where the extrapolation becomes rather audacious, even though I am confident in it, is in accepting what we have learnt of the expression of genes in terms of the automatic assembly of proteins in the test-tube and extrapolating to the development of higher organisms: to assume, as I recognize I do, that, while it is infinitely more complex, the elementary chemical interactions of recognition, assembly and so on will turn out to be basically similar to what we know of phage-heads or polymeric enzymes. [*Phages, or bacteriophages, in full, are viruses that are bacterial parasites,*

which have a "head" and a "tail". Their heads consist of proteins and D.N.A. and once these are produced by the genes they assemble without the aid of any catalyst. See T. to T. Vol. 7. IV Prototypic Organisms XI. Polymeric enzymes are made of several protein chains and these chains assemble into a unique 3-D structure in the chemical conditions of the cell, again without a catalyst.] I pointed out yesterday—and it's a very important point—that one of the unexpressed assumptions of the modern theory of evolution is that virtually everything heritable is programmed in the genes, and expressed by gene products which are we know exclusively RNA and proteins. That's a very strong statement—which is certainly verified . . . so far!

A.A. You wouldn't say that there was any evidence for any non-genetic inheritance? (Apart, that is from a few cases of cytoplasmic inheritance.)

Monod. Well these latter are genetic. For we know now that DNA exists in the organelles, in the mitochondria for example. [*Organelles are membrane-bound structures in the cytoplasm.*]

A.A. You don't think there is anything outside these cases?

Monod. The one possibility which I know of, which has some substance, is in research on certain protozoa. It may be necessary for correct organization of the cell and therefore correct expression of the genome, that there is a cytoplasmic continuity of certain structures. There is *some* evidence for that in work on *Paramecia*. But I don't think this could have anything to do with evolution, because you can have evolution only if the alterations that are introduced through accidents become automatically inherited. And there's no evidence for that anywhere that I know.

Let me explain it this way; suppose you were able to implant a nucleus into a frog, a nucleus from a very foreign species; it would not give rise either to a frog or to that other species. In other words there is an interlocking system which is an S-R system between the established DNA structure and whatever is in the cytoplasm. We cannot break that continuity. But I don't think that these considerations would not allow us still to say that everything is programmed in DNA.

A.A. That means that these are structures in the egg's cytoplasm which are necessary specific conditions of development?

Monod. Yes, that's well-established. But I would say that they are the necessary recipient of the programme not the programmers.

A.A. Perhaps we could discuss now the things you talked about in the latter part of your book; your notion of an ethic of knowledge and of the extent to which it is necessary that plausible morality should be consistent with whatever attitude we take to science and to scientific discovery.

Monod. Well, I will admit to begin with that this is one of the weaker points in the book. Not that I don't strongly believe in what I did say, but because it wasn't expounded clearly enough and hence left room for an enormous amount of misinterpretation. I've been criticized for example, for advocating a scientistic ethics, which is almost exactly the opposite of what I was trying to do. So it's my fault probably if I gave this wrong impression. In fact, what I was trying to do, was to see what the conditions would be for building a system which would not be in conflict with the principles that we have had to assume in order to build scientific knowledge. Now, one of these basic principles is what I've called the postulate of objectivity—and that has been misinterpreted too, which is also my fault. I should not have chosen the word "objectivity", because the contrast then immediately arises with subjectivity. I've been accused of being unable to recognize that scientists are in their own work not objective. What I actually mean by the postulate of objectivity is the systematic, axiomatic rejection of any teleological interpretation of the universe. That's all I mean by this principle, which, by the way, should be taken as a substitute for the classical principle of causality. The principle of causality cannot be used any more. And to my mind the axiomatic postulate of objectivity, the rejection of a certain type of explanation is quite enough as a starting point.

A.A. Let me just get this clear. What you're rejecting is the teleological explanation of the universe.

Monod. Or any phenomenon in it.

A.A. As a goal of science that might be all right. But surely

you can't give up teleological explanations of some sorts of animal behaviour?

Monod. Well, this is where a certain amount of wordplay comes in. Because of the association of teleology with Aristotelian interpretations, another word has to be coined to recognize the existence of goal-directedness in animals and to define it in a way that does not allow that it be interpreted in terms of "final causes". In fact *the* biological interpretation is evolution. But the goal-directedness of the system has been gradually built into it through mutation and selection. As I put it in my book, we have to assume from the postulate of objectivity that invariance precedes teleonomy. [*By this Monod means that the capacity of an organism to carry out projects that are adaptive depends upon the ability to pass information from one generation to another in the genes. This guarantees that the structure of the organism reflects the forces of selection.*] This is a major point of which I didn't perhaps make enough.

Now, to get back to ethics. What I was trying to look for was the logical condition for a system of ethics not to conflict with the principles on which scientific knowledge is based. And I would say that any system of ethics which pretends to have an independent basis, independent of man himself, is by definition a teleological system. For it assumes that values exist in the universe and implies a teleological interpretation of the universe itself, which is precisely what we are not allowed to do in science. So where are we going to find the basis for ethics? And what I've been trying to say is that an acceptable system of ethics would have to start with the recognition of the exclusion of teleology. I spoke of an ethic of knowledge not because I believed that ethics can be *derived* from scientific knowledge, but quite the reverse. Because it seems to me that the initial step in constructing scientific knowledge consists in accepting this first postulate of science: the rejection of teleology. This axiom is not derived from knowledge, it is an existential choice in fact. And therefore, far from saying that ethics could be derived from science, I try to point out that at the very base of science is an axiomatic existential choice: the choice of knowledge as a value. It's really all I tried to do; I've been

reproached—rightly, I think—for having given the impression that I thought this would be enough to build a system of social and personal ethics. It's quite obvious that it could not possibly be based exclusively on that. I would rather say that observance of the principle I try to derive would be the touchstone of a system which would have to embrace many other realities and choices.

M.F.P. In your book, you speak of a spiritual "sickness" . . .

Monod. You mean what I call the "*mal de l'âme*", of modern societies, which I have traced to the fact that science has robbed men of classical interpretations of the universe and of ethical systems based on religious assumptions which we cannot accept any more, so that we are left without a coherent system of ethics.

M.F.P. But isn't this sickness inevitable provided we aren't postulating the existence of a God, of a supreme being? Some form of teleology is obviously inevitable, isn't it?

Monod. You are asking the question that I do in the book. Will men ever be capable of accepting a system such as mine? I think so. I am convinced that the performances of the human brain and its capacity for accepting very new ideas including ethical ideas is still underestimated.

M.F.P. Is it a "sickness" to postulate a "form" of the good?

Monod. I don't think it's a sickness; but I think that it's logically wrong. A good? Where? Outside of man?

M.F.P. No, only *in conceptu*.

Monod. An absolute good: that seems meaningless to me. I always find it curious that if you read almost any textbook on ethics it begins with some sort of definition. It tells you that ethics is the method of distinguishing between good and bad. So they have posited the principle that here is something which is good and there is something which is bad. Whereas the very first question is just that. When you think about it, there is no way of discovering what is good; you have to choose what is good. The utilitarians will say it's the welfare of mankind. All right. It's an existential choice—except, they don't recognize it. Why choose the welfare of mankind? Nietzsche didn't. He chose the transcendence of a few. He is logically just as justified as the utilitarians. [*At this point we broke off discussion for a while and listened to an*

announcement about M. Monod's plane. We turned now to questions about various aspects of the religious traditions.]

A.A. I wonder if we might go back to get you to specify just what it is that you think the suspension of history consists in. You said that for religions based on Judaism history is suspended between two eternal moments. Which are the perfect state in the garden of Eden, and . . .?

Monod. Well, there is another perfect state expected by the apocalyptic tradition. As a matter of fact, I shall have to ask a theologian what the present stand of the Church is in this respect. You know, when you talk to Christians now, it's like talking to Communists. In the good old days, back in the 1950's, you didn't need to ask a Communist what he thought; you knew, before he had spoken; he was within a very rigid, perfectly defined framework. Not only did you know his framework in principle, but you could predict his comments or reactions on almost any events. You knew where he would stand. Now it's become far more complicated. And the same is true of the Catholics in particular. There are people who still consider themselves Catholic priests, celebrating Mass, who will accept almost any basis for discussion, including an atheist one.

A.A. Well, Richard Braithwaite, the predecessor in the Cambridge Moral Philosophy Chair of Bernard Williams whom you met yesterday, argued many years ago, in the 1950's, for a position that I should regard as Christian atheism and which he still supports. And this was long before the theologians started talking seriously about the "death of God": you probably know of the American movement which produced Altizer's "Gospel of Christian Atheism".

Monod. That is all becoming very fashionable. I received a visit the other day from an Indian journalist and writer together with a French Catholic priest who had lived a long time in India. The priest told me that his life's work was to build a new theology, which will be an atheist theology. How you manage that, I don't know. I hope he will send me a copy.

A.A. Well, it's a position I think I'd be willing to defend.

Monod. But aren't these novel attitudes of Christians and

Marxists away from the dogmatic rigid frame merely a method of maintaining the very basic instinctive ideologies at all costs?

M.F.P. Isn't it more a respect from the anthropological point of view for the instincts that originally inspired religion?

Monod. Yes, it can be described that way. I didn't say I lacked *respect* for such people.

M.F.P. In an attempt to understand why every civilization has had some form of religion, one can, I think formulate an atheistic theology: atheistic insofar as you can't postulate the actual existence of a Supreme Being.

Monod. I think I understand that. But I couldn't accept for myself a system designed to be comfortable. Even if I thought that having some sort of Supreme Being or Supreme Law would make me more comfortable, I couldn't accept it on that basis. That is in a way just another form of utilitarianism: we'll accept it because it makes up happy.

A.A. But that would be to live in a permanent state of false consciousness, which isn't compatible with being empiricist, and taking seriously the question "Is it true?"

Monod. I wouldn't put it in the form "Is it true?". Because defining "truth" is almost impossible. I would say "Is it consistent with the rest of our ideology and in particular with the structure and basis of scientific knowledge?" And I would have to answer "No, it isn't."

A.A. But scientific knowledge must have a place for verification, and if you make naive belief in a Supreme Being, or, as the Marxists do, in a transcendent historical process . . .

Monod. Of course, they'd deny that it was transcendent; but that is its function.

A.A. Well, if you make transcendentalism a condition of being a Christian or a Marxist, then it doesn't seem possible for an empiricist or someone of a scientific frame of mind to accept either of these ideological systems.

Monod. The appeal of Marxism to many scientists lies in the fact that it pretended to derive its principles from science.

A.A. I don't want to quibble about words. I don't mind whether or not you call someone a Christian. (Though it may

matter to him, we can be tolerant about language.) But it does seem to be possible to put yourself into, say, a Christian tradition and to be genuinely committed to Christian values and yet to be committed to them in full recognition of the problems you have raised.

Monod. With that I fully agree. Take everything that is best in the Christian ethical tradition. Accept it in such a way that it does not conflict with our other beliefs.

A.A. But it's also possible to be scientific about Christian non-moral beliefs. There's no doubt that Christianity—real live Christianity, not the Christianity of the theologians—makes empirical claims. It's possible to find amongst the Fathers of the Church quite specific claims that we would now call empirical. They claimed, for example, that following a particular process of meditation or prayer, defined operationally and not metaphysically or theologically, made a difference to their lives. They made almost physiological claims. They said that if you do this, you don't need to eat. They said this is one of the things that makes fasting possible. Now these claims—foolishly, I think—many theologians have given up. One of the things that has gone wrong with theology—and I think that a lot of modern theology is intellectually disastrous—is that it gave up the genuine empirical and moral claims, both of which a pragmatist or an empiricist can understand. Instead it started talking in vague and more and more removed abstract terms about transcendent realities for which there was no connection with experience; and therefore, no possibility of genuine grasp of the meaning of what they were talking about. It's become a fascinating but ultimately futile activity. If there is anything to be said for Christianity it's what can be said for any true account and any acceptable morality. The same can be said of Marxism; Marx's original economic analysis is still put to good use.

Monod. But it is claimed by some that a great deal of what remains of Marx's original analysis is already in Ricardo, for instance. I have no claim to being able to discuss that.

A.A. It seems to me, to return to Christianity, that while it may be necessary to give up theology . . .

(*M.F-P. shakes his head vigorously.*)

Monod. You don't agree, Mark?

M.F-P. No, I don't. To certain extent only because I love the theology of the Fathers and of the Neo-Platonist Christians, which I consider to be very fine . . .

Monod. Well, look, I read Pascal with profound respect and delight: if that's what you mean, I can accept it.

M.F-P. I think, that the system of allegories which was set up by St. Bonaventure in the thirteenth century, for example, is still valuable, even if it is, in your sense, teleological. It's a very lovely system and it is a valid system, from the point of view of allegory.

Monod. But don't you think that your attitude there brings in something which we have not discussed so far, namely, receptivity to art. In fact, that's one of the problems that I find most difficult and most fascinating. Creativity in art, receptivity to art, and the need for art in human nature.

A.A. Do you mean how can we account for it evolutionarily?

Monod. To what extent *can* we account for it in evolutionary terms? What status can we give it in our attempt to have a rational view of our universe? It's one of the most fascinating and most difficult problems that I know of. I have some beginnings of an idea about it. But they're really quite primitive. In fact it's one of the things I would like to put into another book: it would be a major chapter, but I don't know what it would contain!

I think we can say that evolution, for reasons that I think we can understand, has favoured the development of creative performances which are found even in animals. You know, there is some modern research on chimpanzees which gives evidence that they have some form of creative activity which we might consider belongs to the same general category as ours. They like to draw, they like to assemble coloured objects; that can surely be understood in terms of what I call the capacity for simulation in our brain. As a matter of fact, I think that what we call "thinking" we generally believe to be articulating statements in words. I strongly feel that there is a more profound basis for thinking which is an internal representation of events in the world or events in which we participate, the initial use of which was, of course, in preparing

for action, calculating what would be done, what would be possible. And I tend to the view that artistic activity belongs in the same category, and was favoured by selection because it enriched the Central Nervous System with creative experiences. In other words, it is a part of this capacity which we have, and which some animals have, not only to adapt to the environment, but actually to reconstruct it.

The second idea that I would want to introduce, which I owe to discussions I had years ago with a friend of mine, is that perception of beauty in art is perception of structure in space and time. But as soon as you have structure, time stops. In other words, the capacity to be moved by art is related to the instinctive desire to stop time. I think it's particularly clear in the case of music, especially because it is developed in time but in fact stops time.

M.F.P. It's a very strange thing this desire to stop time. You find it not only in mysticism of the old European type, but also in modern drug culture.

Monod. You speak of mysticism: don't you think it fulfills the same purpose in some respects, as a reconstruction of the universe—as you meditate—which has a certain beauty in it, which plays the function of a work of art?

A.A. Certainly there is in the mystical literature evidence of an aesthetic appreciation of the mystical experience . . .

Monod. I suspect there's a good deal of physiology too; especially in certain investigations of Hindu mysticism.

A.A. But if a Christian, or someone who is interested in the contemplative traditions, wants to study mysticism, surely he *must* study its physiology, presumably particularly the neurophysiology. He must study the effects of contemplation on potentialities for action. He must treat it as a "phenomenon", treat mystical experience in the way that a broad-minded empiricist should treat any experience, as something to be validated and explained.

Monod. Sorry, but your speaking of the physiology of mysticism reminds me of a charming work by an eighteenth century dilettante man of letters, who wrote about a visit to Italy. He gives

an account of a visit to a place where there is a very famous painting by a late sixteenth century artist of the mystical ecstasy of St. Theresa. He remarks dryly: "If that's mystical ecstasy, I've seen it before."

M.F.P. You'd probably reject any suggestion that you were yourself a bit of a mystic.

Monod. I would not be offended: I would say that I'm beginning to understand what you mean by mysticism.

M.F.P. Certainly the glint comes into your eye when you speak about our solitude or the irreversibility of time.

Monod. (Laughs.) But great works of art are not gay. The greatest art is almost always tragic. Listen to the last great chorus of the St. Matthew Passion. It is described often as the expression of a seething joy. In fact it's tragic.

A.A. That seems from an evolutionary point of view paradoxical.

Monod. It is, yes. Frankly, I don't know what the answer is. I don't think we can be too precise. One must be satisfied with a rather general interpretation.

[At this point Jacques Monod's plane was called, and we parted, with an invitation to visit him at the Pasteur Institute.]

Aliosha's way

JULIA DE BEAUSOBRE

Bolshevik rule established itself in Petrograd less than forty years after Aliosha Karamazov—the hero of Dostoevski's last novel—had caught the imagination of the Russian reading public and evoked interest throughout the Orthodox world. With the corpus of Dostoevski's work about to be suppressed, the religious, affectionate and trustful twenty-year-old Aliosha was assumed, even by his admirers, to have lost credibility. His absolute faith and limitless benevolence were dismissed as unrealistic when one-party rigours and marshalled enthusiasms were stifling originality of thought, let alone spontaneous self-expression. Yet, as Stalin hoisted himself into the position of an absolute potentate, the attractive nineteenth-century fictional character of Aliosha (that had at once been recognized as remarkably true to life) emerged as a national paradigm: in essentials Aliosha's approach to his outrageous family's rivalries and scandalous acts of internecine revenge—in which he was involved but which he could not affect—proved to have prefigured the attitude of many Russians to nation-wide calamities that they were caused but could neither prevent nor modify.

The speed with which replicas of Dostoevski's character arose in the U.S.S.R. was largely due to certain wounds, self-inflicted by the Russian nation during religious and political commotions which had well-nigh bled it to death in the seventeenth century. The involved and shameful conflicts had been sparked by the re-adjustment of some liturgical practices found to be faulty owing to much inexpert copying of

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manuscripts. Both the liturgical and the textural emendations were overdue; but they hit the priesthood and laity at a time when the Russians' self-esteem and their emphasis on Russia's supreme religious attainments had reached a fierce touchiness. Blinded with pride, thousands of Church people opposed the corrections, dismissing them as outrageous "Greek" innovations. Peter the Great—the Tsar of the day—was born, like many of his contemporaries, into a family split over the issue. As he grew up, the mutual detestation of two vociferous and bellicose groups hardened. Fratricidal extermination spread, and continued till the last leader on the losing side was killed, his humblest self-proclaimed follower murdered in one of the many local blood-baths, and a scattered remnant subjected to dire ostracism.

Yet even then universal distress was not over. Before the exhausted population recovered from shock and trauma, the Tsar—Peter himself—gave the faithful another blow by pushing through his eighteenth-century reforms of church administration. The incentive to the reforms can be traced to his visits abroad, and to his being impressed by the Protestant Churches' way of managing their affairs, in Greenwich and Amsterdam. Back in his new capital city, Peter used his zest and influence to refashion the Russian Orthodox Church's governance on the Protestant model, as near as could be done and in so far as a particular measure suited his particular purpose. The patriarch's function was adroitly shown to be more trouble than any patriarch was worth and, at the first opportunity, the office of patriarch was abolished. But in accordance with the Eastern Church's time-honoured alternative, the Synod (a collegiate body consisting of a quorum of bishops) was left to administer Church affairs as before. It is probable that if the Synod had been left entirely alone, the change, though not desired by the faithful, would have been accepted by them without protest or cavil. But dipping the pill in gall, the civil authorities invented a new post—that of an Over-Procurator, who was to be a civil servant in direct and almost absolute control of the Synod, and with responsibility only to the Tsar. Moreover, chosen and appointed because highly proficient (and dedicated to the spirit of change as manifested in eighteenth-century Russia),

the Over-Procurator did not have to be a member of the Russian Church; which suggested to the apprehensive that a Lutheran might some day be put in control of the Russian Church's governing body. The potential outrage at once generated sullen resentment among men too weary and perplexed for rebellion, or even to coin fiery phrases. Yet gradually, the priesthood and laity crystallized in their midst, a spearhead—an uninterrupted succession of men with disciplined passions and a single clear intention. Secure in reticent but nation-wide support, they strove almost gently to bring about a rescission of Peter's administrative reforms and the election of a patriarch by *sobor*—a plebiscite in which every member of the Church has a vote as direct as can be managed in so wide-flung an electorate. Early in the twentieth century the spearhead's unswerving determination ended in success. But the final stages of the great achievement fell in what Osip Mandelstam has called Kerenski's summer. While communist rule was consolidating itself, the first Russian patriarch of the twentieth century was elected in Moscow by universal acclaim. Less than half a millennium had passed since Constantinople had fallen to the Infidel, in 1453. The brash stronghold of Muscovy had then proudly styled itself the Third Rome—with no other to follow. But in the autumn of 1917 Patriarch Tikhon was there drawn out of obscurity onto an unprecedented way to Calvary.

Every plight and indignity that an embattled atheistic totalitarian regime can invent and enforce was, in time, inflicted in Soviet territory upon the Russian Church which, contrary to expectation, did not wither away. In the previous two hundred years—while the spearhead was unobtrusively in charge—the Church had gained a singular ability to survive. And, with relations between it and the Communist state worsening, this Church—experienced in patience—adopted a perplexing gambit that had become practicable. The hierarchy and laity followed distinct but complementary roads. The hierarchy, grown aware that its primary task, in a succession of inordinately disruptive situations, was to maintain the Church's continuity as a tangible presence in the land, proved itself pliable whenever necessary, and more often than not, suffered in silence. But the laity had grown

poignantly aware—in a tumult of atheistic slogans—that the demand on every Christian is to take up the cross of constant attendance upon his Maker. In order to do so, the laity assumed piecemeal the stance of unarmed and unprotected yet totally fearless, determined loners who could coalesce or disperse without causing serious damage to any organization. The Church as a whole (hierarchy and laity) had perceived, without pausing to formulate the discovery, that in the Soviet world abrupt changes were not achieved—as they had been formerly in Europe—by massive revolutionary formations advancing, with beating drums and flying banners, upon townships where depressed and disorientated crowds waited to be captured and led. In the wide fields of the Church's observation millions of Russians, who had coalesced centuries ago into a well-defined national entity, were losing their sense of organizational cohesion; and it was this loss that prompted the Church to adopt its "two-roads gambit".

It had been generally sensed, rather than realized, that most people—intent on self-preservation in proliferating turbulences—avoided loving or hating anyone whenever it was possible to refrain from doing either. Both emotions tangle the so-called "civically desirable bonds" between people, and render more vulnerable anyone who succumbs to the one or other. Presently, over the vast land, in the emptiness between grimly isolated people, a typically Karamazov trait began powerfully to spread. Even Alyosha, some fifty years before, had detected rudiments of it in himself. Ragged by his father and brothers as a "truly angelic boy", he had yet discerned "a hideous insect" lurking near his heart.

In Dostoevski's idiom, the concept "insect-man" pinpoints men's inherent delight in degrading each other. He had observed that men, who let themselves drift into this form of degeneration, end by adopting some habits of insect life. When presiding over a victim's annihilation, they pause to give the trapped man a well-aimed sting, and then contemplate at close range the captive's contortions, or his gradual collapse into a premature rigidity. In such a relationship between human beings the victim's personality is of little account. One victim serves the captor's

purpose as well as another; which is why an insect-man is the most lonely wretch on earth. And in the nineteen-twenties, insect-lechery was rampant in the U.S.S.R.

As the lurid loneliness spread, it brought in its wake a universal disintegration which came to be called, in grievous sorrow, the revolution's onward tread (*postup revolutsii*). This tread was also a shift, and it was particularly marked in armed and mounted bands loosely held together. While the civil war lasted, army headquarters in big towns often referred to such robber-bands as part of an army, their own or their opponents'. But the bands themselves had no fixed allegiance and wanted none. Assembled for plunder, they followed any ringleader with star qualities, though with no ability to plan operations more sophisticated than swift raids on villages or small towns. The bulk of such sporadic robber-bands was made up of single-minded and simple-minded ruffians. Always eager to enjoy a good blaze and a loud bang, they were reckless of lives, and of property that could not be carried away. Yet they were disinclined to linger among smouldering ruins. Not so the insect-men in their midst. These were always ready to savour a spectacle of pleasurable degradation.

Most politically unattached gangs (each of whom contained a hard core of insect-men) were called, throughout the former Russian empire, the "Greens", because they rode out of leafy thickets in spring and vanished with the first night-frosts. Although the more fanciful among them sometimes sported the name of a notorious local character, or of a Russian or a foreign revolutionary, this meant nothing. Ringleaders and gangs were significant, identifiable and memorable only regionally, though they were symptomatic of a stage in the country's life and contributed to shaping its future. As millions of men, women and children saw their families disintegrate in a gigantic swirling chaos that generated swarms of insect-men—be they Greens, Reds or Whites—the silent majority of villagers and townfolk longed, above all, for stability. Anything was better than a perpetuation of the insect-man's domain. And Stalin's regime consolidated itself during the fog of that millionfold longing. The Church's organizational problem was at the time not very different from the

state's. For both the problem was to survive. But due to the very special relationship between the hierarchy and the laity, the Church could have recourse to protective evasion—its two-road gambit; while Stalin's subsidiary task soon was to find suitable jobs for swarming insect-men.

The Church's solution (resorted to in the worst months of dislocation) had been prepared, unobserved and unintended, during the eighteenth and nineteenth centuries. The unhurried spearhead had played a great part in providing the two-road gambit with a suitable climate, indeed a psychological sheath, a corporate mood and mind of men and women who were both persistent and pliable. But other factors had also contributed to the gambit's emerging in the hour of need. Even Peter the Great—as ignorant of the future as were those who strove to annul his administrative church reform—had helped to develop the Church's skill in survival. When his stunned contemporaries realized that in losing their patriarch they had lost a shared object of tribal veneration, many looked around in great anguish of soul for substitute figures of absolute moral integrity and authority. Such figures they found in the nation's dim past. And, a hundred years later, Dostoevski, when pondering the Russians' distress in the previous century and observing the spiritual disarray of his contemporaries, perceived—through the prism of his genius—Aliosha Karamazov seeking out Zosima, to obtain from the old monk instructions on how not to despair of life. Zosima's hut, where Aliosha dossed down for a year, Dostoevski set in the government of Kaluga with its dense forest and open fields. The two-roomed hut itself he had visited in the enclosed annex of Optino—a monastery built in the eighteen-twenties a few miles away from the down-at-heel town of Kozelsk. But as the novel opens, Aliosha's year of apprenticeship is over, and Zosima's last advice is that this acolyte give up his plan of renouncing the world. Far from it, he is to rejoin his dissolute father and brothers in their town house and presently found a family of his own—but without ceasing to be constantly in attendance on the Lord; though he will have to manage somehow with no further guidance by word of mouth. Thus Dostoevski, working imaginatively on his country's

past and present, conjured up a prototype for Russian laymen who were to persist (some fifty years after Dostoevski's death) in the ancient practice of constant prayer, while their world and certain features of the prayer itself were undergoing unforeseeable changes. In a country that was falling apart and was ravaged by an epidemic of tremulous loneliness, no one could hope to give or receive the uninterrupted, meticulous guidance that had been traditional in the Christian East since the prayer had emerged as the paramount solace for souls in travail.

By the nineteen-thirties a new society had acquired shape and substance. It stretched across Europe and Asia from the Baltic sea to the Pacific ocean. Throughout those impenetrable immensities the old tradition of constant prayer imperceptibly flourished as Aliosha's way. Upon each of its pilgrims an unforeseen course of instruction was sprung by chance as it were; to cease abruptly after a very short while. From that moment, every pilgrim advanced in his own manner and at his own pace. Strange to tell, thousands did advance—men and women who only knew of each other, at sight, that they were of the same spirit.

To death and back

PHILIP MAIRET

Philip Mairet, who died in February at the age of 88, was one of the original supporters of *Theoria to Theory* and a frequent contributor. On one occasion, when we were having more than the usual editorial crisis over a number of *Theoria and Theory*, he and his friend Tom Heron, also in his 80's virtually got it out for us. *The Times* obituary of February 20th spoke of his work for the *New English Weekly* and *Christendom* and his biography of Patrick Geddes, the founder of studies of town planning. We do not publish obituaries in *Theoria to Theory*; we like our memorials to our friends to take the form of printing something they wrote. What follows are some extracts from an account he wrote for his friends of his experiences after his first stroke in 1972 when he was in hospital at the point of death. In fact he lived for nearly three years more, his mind perfectly clear. Four days before his death he was discussing W. Rees-Mogg's book *The Crisis of World Inflation* with his friend Tom Heron.

I lay awake for some time, feeling very sure—or almost sure—that this was the end of my life and I was about to die. And, rather to my own surprise, I did not feel fear. My friend Tom Heron (who had had a much more severe stroke than mine) has told me that he, too, had the same experience—and you will doubtless have heard from others, also, that, when obliged to look death straight in the face, as it were, they did not feel fear. The situation is, of course, felt as a *tremendous* event; perhaps too tremendous—too *cosmic*—to permit of any emotion so personal and petty as *fear*. It was mitigated also, for me, by the reassuring thought that, after all, here I was, alive and *not dead yet!* This led to a moment of speculation as to how long I might live—and I told myself it would be probably until the morning. I went on to the thought that I would live until the morning of the day after that. Then, or soon

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after, I fell into a mood of religious resignation, revolving some of the words and phrases of the Faith. I did not then recall anything directly from Holy Scripture, but a good many lyrics from the most familiar pages of the Book of Common Prayer. In particular, my mind fluttered to rest, as it were, upon the lines "O come, let us sing unto the Lord, let us heartily rejoice in *the strength* of our salvation". I suppose it was the present sense of prostrate impotence that made me grasp with such joy at this idea of the *strength* of the spirit of salvation—clutch and cling to it!

My recollection of these first days of illness are very clear—of certain moments—the order and sequence of events is, however, rather confused and unreliable.

One event, which now became of high significance, has occurred some little time—at least several days before this. I had visited the National Gallery of Paintings at Trafalgar Square. Here, in a room hung with rather early German or more probably Flemish paintings, I had been much interested in a picture of the women washing the body of our Lord, in preparation for his entombment . . . Now, one of the first things that happens to one, when taken in to a hospital, is—or at least very often is—to be stripped of one's clothing and bathed by the nurses. This happened to me, and as one of them took me under the shoulders and another under the knees, lifting me into the bath full of warm water, I said "In your wark, ye need to be braw lassies". I had known they were Scotch, and I suppose it was the old actor in me that made me try to imitate their accent, whether well or ill.

They laughed and said "Och ye're no very heavy"—which was true, for I had lost a good deal of weight during the last year or two, and had noticed before how skinny my legs looked when I was in my bath.

I told Neil [Neil Montgomery, a psychiatrist friend] about all this when I wrote to him. He expressed great interest and reminded me of a passage in Plato's account of the death of Socrates. I have not got his letter by me (tho' it has been kept) but the gist of what he said was as follows . . .

"You remember how Socrates, when he had accepted the cup of hemlock from the executioner and drunk it, went on conversing with his friends for awhile, but then excused himself, saying that

he must now go to take a bath to save trouble for the women who would 'lay him out' for burial." "You see," said Neil, "Socrates being a pagan, thought only of the practical question of saving the women's labour. You, being a Christian, wanted to make a ritual or sacrament of these ablutions as a kind of *'imitatio Christi'*." Perhaps this was a true interpretation of what I was feeling at the time. I believe what I was thinking was that I was undergoing, not so much a funerary rite, but something more like a baptismal ceremony. This would be in line with Neil's idea that I was passing through a kind of psycho-spiritual "re-birth". All I can say to this, is that I was thinking much, about and around this time, of the process of creation as being that of "death and resurrection"—even in more ways than we are usually taught.

I felt considerably moved by the attentions of my nurses, as they took me out of the water, dried me and sat me down a little way into the ward where they were still in sight of me. Indeed, I felt moved to tears: I felt that I now understood, for the first time, why, in the devotion books of the Middle Ages, there used to be a prayer "for the grace of tears". One of these two women, catching sight of my tearful state, came swiftly and silently to my bedside and said: "What is it dear; have you got a problem?" And this made me laugh. There was something so incongruous in her using, at this precious moment, this word borrowed from the contemporary jargon which labels everything "a *problem*". I said it was nothing that I could readily explain to her: but the thought had just occurred to me "How wonderful it is that young women like you—especially on such a lovely day" (as we could glimpse out of the windows, for somehow it was now morning: there seems to have been no order or sequence of time in these experiences—or not as I review them in memory) "how wonderful it is that you nurses can spend your precious time bathing, for instance, old men with wrinkled faces, shrunk shanks and knobbly knees—while there are so many more attractive and pleasant things that you might be doing. Have you thought . . ." I went on, warming to the theme, "that perhaps this could not happen—that you wouldn't be doing such a thing at all, but that the love of Christ is now everywhere, and encompasses us?"

While I was saying this the scene changed somehow, and instead

of being at the end of a hospital ward we were looking over the low wall of a bridge which the row of bedstead-ends had now changed into. And under this bridge was flowing a river (perhaps Jordan, anyhow some sacred river), flashing and twinkling with blue and golden lights, as its ripples reflect the dark of the sky or the glitter of the sunlight. This was quite glorious; might have been painted by Renoir. And this moving surface of gleaming water *was* at that moment what I had meant by saying “the love of Christ”; a spiritual movement carrying along innumerable human souls, informing and controlling all the innumerable good things it made them desire and choose to do—though these might be things not otherwise gratifying or desirable at all!

As I reflected upon these things, it occurred to me that perhaps I was really experiencing *something* of what is often referred to as “the other world”. Might I not have been, let me say partially and to some degree, on the other shore to which we are wafted in Charon’s ferry-boat?

I knew that to suffer a cerebral stroke is, in one sense, to come nearer to the state of *death* than we can, in any other way, without final and complete loss of life. The lesion in the brain does actually, and in proportion to its size and gravity, sever the mind from the body. Some such “strokes” are slight but in so far as the *brain*—the *organ* of consciousness—actually does *lose* a little of its innervation in the body we do, *to that extent or degree*, cease to be really “alive”; and I suppose this is why the sensation of having a “stroke” is, at the instant of its occurrence, an experience felt as so unique, a happening of an *importance* out of all proportion to the sensation it makes one feel—especially if (as in this case of mine) it is almost or entirely painless: if I felt anything at all within my head, it was something very slight indeed. But it gives a considerable jar to one’s consciousness—or to what I believe the doctors call one’s “cenesthesia”, meaning one’s total, comprehensive state of feeling, physical and psychic. You know it is physical, but it is a “shock” which is occurring in a more rarefied element, not even describable as psycho-spiritual. It is not emotional, like the shock of unexpected, bad or joyful news: in fact it is a spiritual shock; for it is a “little death”.

It seemed to me that I was now no longer “alive” though certainly not “dead” so I must be in some third “state” since I was certainly conscious—that is, I was still an “I”—in Descartes’ phrase, I was *thinking*; therefore I *was*: indeed I was thinking, not in the cold, thin, abstract and mathematical metaphysical sense of the word, but in all the variety, splendour and sumptuous range of the *imagination*. What, then, I asked myself, *was* this third state of mind I was now in. I don’t know: I wouldn’t say it was the intensified *higher consciousness*, the more vividly brilliant “awakeness” of which some of the mystics tell us—and which perhaps all the real mystics had experience of—perhaps it was some state in between that and the dreaming state but frankly I can’t tell, its nature was the central motif of the eager and voluminous correspondence that it now started between Dr. Neil Montgomery and me.

Neil and I had been in frequent and abundant correspondence for many years before this. We had a good many common interests in other cultural topics as well as physiology—where he had the special qualifications of a psychiatrist and brain specialist, and I had the amateur interests of a wide reading in the subject and the experience of having been an intimate pupil of Freud’s one-time colleague, Alfred Adler of Vienna.

In the course of our correspondence (often at more than weekly intervals) during 1972, Neil found quite as much interest in reading my letters as I did in writing them. He greeted them as “astounding”, “wonderful”, finally as “gorgeous”—for he did find himself reading them as *memoires d’outré-tombe* in a more real sense than Chateaubriand’s. Indeed Neil once wrote that he took them, as a doctor, to be revelations of that which every physician so painfully feels he does not know—namely, what happens to the patient just *after* he has passed out of all human care. And again after another of my letters, he wrote that, now and henceforth, he would have to treat me with the additional respect due to the “twice-born”, for he said I must have crossed the Styx and come back again. In that connexion he quoted T. S. Eliot’s “clerihew” about me—one of the several comic rhymes he once wrote about each and all of our group who conducted the *New English Weekly*:

Mr. Philip Mairet
 Crossed the Styx in a beret,
 Explaining to Charon

“I must keep my hair on”.

“Why,” said Neil, “that’s just what you have done,” (No, I had no beret on at the time) “and isn’t T.S.E. generally supposed to be knowledgeable in such matters?” I wrote back that I had no right to allow the title of “twice-born” to be applied to me; but that he, if he went to India, would find himself respected as a man of the “twice-born” caste of the Brahmins, by virtue of his profession as physician. And, in the Christian sense, as our Lord explained this to Nicodemus in the Gospel, I could only have said, like Joan of Arc, “If I am, God keep me so, and if not, God make me so”. (It is interesting, by the way, that “twice-born” (*dvija*) has a partly similar meaning in Hinduism as in Christianity.)

To go back to what I was saying about “the grace of tears”—this may be understood, I think, by reference to C. G. Jung’s conception of the four kinds of human faculties—those of thinking and sensation, and of intuition and feelings. Our *this worldly* life—and especially in such an age as ours in post-Renaissance Europe—over-works the thinking and sensation, while tending to the neglect or the repression of the *emotion* and the intuition. The “grace of tears” is a manifestation of a “release” of the inhibited emotion and/or intuition, and it is therefore marked by feelings of peace, happiness or sorrow, or sometimes by a mixture of happiness and sorrow—which last is not of course conducive to peace; but even so gives a sense of relief or unburdening. I would say that my illness in 1972—especially for the first few weeks—did give me much release from the tyranny of thinking and sensation over feeling and intuition. That is, no doubt, why I found myself, early this year, looking back upon the months of my illness as probably the most interesting and instructive—and indeed the happiest, in my recollection! And this may seem strange since I was suffering from a *mortal* illness—I mean mortal in character, partly irremediable—but then there was also a sense of reconciliation with death—a state which is anyhow, I suppose, easier to come to when one is over eighty; but I have been through a

powerful preparatory experience which seems to make the prospect of *thanatolysis* very much less frightening.

And now, fully a year later, I have a paper from Margaret Masterman,† one of the Epiphany Philosophers of Cambridge, which seems to me to have a bearing upon all that I have just now been writing. Miss Masterman says that Christian mysticism is distinguishable from the mysticism of the other great religions, by being of the character that she calls “passionist”—that is: that it regards all true mystical experience as related to the “passion”, or “undergoing” of some physical emotional or mental or otherwise vital *suffering, privation or deprivation* (I write from memory of a first cursory reading of her thesis, as I am temporarily unable to consult her manuscript). Now, this chimes with what I have inferred from my recent experience of the psycho-spiritual accompaniments of a cerebral haemorrhage; if—as I assume—this experience has been partly of a valid “mystical” nature. And this leads me to suppose that the “passionist” basis of such experience is *par excellence*, that of encountering, of expecting and/or resigning oneself to *death*:—though I suppose it might be also resignation to, or willing acceptance of any privation of a thing felt to be of vital value and/or importance to *oneself*.

If so, the whole process of *thanatolysis*—of the expectation, acceptance of and reconciliation with the *fact of death*, would be likely to be the occasion for Christian mystical experience. As, in a sense, I feel that my visions and experiences were at the time I have described. More specifically so, I suppose, was one experience that Mr. T. M. Heron had *just before or after* receiving the much more severe stroke that kept him in a coma for eight hours. While falling into or waking up from this condition, he had the (well-known) mystical experience of being “out of the body” and clearly looking down at himself, prostrate and fully clothed, on the floor—an experience which is psychic but not perhaps necessarily mystic—or not Christianly so. I myself had glimpses, very brief, of this condition, twice in my adolescence: and I was much

† “Elementary Christianity from an Advanced Point of View”. *T. to T.* Volume 7, No. 4.

impressed by it the first time; rather frightened the second time. If, as Miss Masterman says and I am disposed to believe, *Christian* mystical experiences are related to “passionist” states of consciousness, it is what we should expect in the context of a religion which envisages spiritual creation and redemption in terms of death and re-birth.

Down to earth with the UFO controversy

PAUL DAVIES

For the past twenty years there has been a sterile debate raging concerning the reality or otherwise of UFOs. On the one hand the scientific community has maintained that all UFO reports are explainable in terms of misidentification of known phenomena, while on the other hand large numbers of enthusiasts, sometimes supported by a few scientists, assert that the Earth is the recipient of frequent and persistent visitation by extraterrestrial spacecraft. The debate has therefore centred on whether or not UFOs are “flying saucers”. It rarely occurs to the protagonists of this dispute that there might be a large number of poorly-understood and potentially scientifically-valuable processes which occur in our atmosphere, and which would be expected to appear from time to time as UFO reports.

It is to be expected on general grounds that not everything which occurs in the sky is fully understood at any one time. Nevertheless, aerial phenomena have traditionally been categorized even when unexplained (for example, comets, meteors, aurorae) so that a report of an aerial event could be identified even though the physical mechanism responsible for the reported phenomenon might be obscure. Eventually, with accumulating knowledge, categorized events have become explained.

The general public is largely ignorant of the majority of astronomical and meteorological phenomena. Their unfamiliarity with transient and unusual events results in an inability to identify these events with categories better known to scientists. Such events then get reported as “unidentified flying objects”. It is well

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known that most of these reports can be fairly easily categorized in terms of well-understood phenomena given sufficient information. It is also well known that a small proportion of such reports have not been identified in this way, and these reports constitute what is known as the "residue".

There will obviously exist differing opinions about the significance of this residue. On the one hand it is frequently maintained that the inability to categorize the members of this residue is due either to the fraudulent or suspicious nature of the reports, or to lack of sufficient information necessary to reach a positive conclusion. Clearly, the residue will contain such cases. However, the assertion that the residue is exhausted by these cases necessarily supposes that all possible phenomena which may occur in our atmosphere have been categorized. This certainly was not true a hundred years ago and many scientists would be reluctant to suppose it now.

The alternative is to be aware of the possibility of new categories of phenomena, reports of which would naturally appear in the residue. Whether or not the residue contains descriptions of new categories depends on two parameters. Firstly, to what extent is the description of a phenomenon detailed enough and strange enough to justify the supposition of something new? Secondly, how consistently is this new phenomenon reported?

During the past fifty years an excellent example of the introduction of a new category of aerial phenomenon has occurred. Persistent reports have been made by ordinary members of the public, as well as some scientists, of luminous, spherical objects appearing without warning, sometimes from the clouds, sometimes localized near the ground, displaying unusual kinematical qualities such as motion against the wind, hovering and violent zig-zagging. These spheres may be encountered singly or in groups, and sometimes explode violently, occasionally causing physical damage.

Although the luminous spheres bear some resemblance to certain well-understood phenomena (luminous owls, after-images on the retina), the high strangeness and detail of many of the reports, and the consistency of description, strongly suggest the

introduction of a new category of event. Such a category has indeed been invented, and phenomena such as those described are now generally referred to as ball lightning. This name is merely a convenience because the category is continuous with phenomena which are not spherical, and which are not lightning. It is important to appreciate that although events of this character may now be identified as ball lightning, this phenomenon is not at all understood, and much active theorizing is taking place in the literature. Many of these theories (such as micrometeorites of antimatter), while exotic, would have profound consequences for science if correct. Thus identification does not imply explanation.

Some scientists who have worked closely with the residue data over a number of years propose that either the ball lightning category be widened somewhat to include cigar and disc shaped luminous objects, and to other similar objects which display comparable kinematic qualities to the spherical balls, but which are not self-luminous, being opaque. Alternatively, new categories could be invented in which to put these other events. The case for the establishment of such new categories by scientists must rest entirely on the above-mentioned criteria—consistency and strangeness. Whilst being unable to quote statistics, I would guess that these criteria were equally well satisfied by certain types of reported phenomena, for example some of the opaque objects, as by ball lightning.

If the scientific community had available properly organized data and statistics I imagine that it would be fairly easy to reach a consensus among scientists as to whether or not new categories should be introduced. If it was decided that they should be, then a name could be invented, theoretical models for these new phenomena could be proposed and criticized, and progress toward explaining the phenomena made in much the same way as is present occurring in the cause of ball lightning.

Unfortunately, this has not been the pattern of events regarding the above-mentioned residue, except for the component of the residue which—on apparently arbitrary grounds—has now been labelled “ball lightning”. The general public, always eager to accept the existence of superior intelligences, has not only inven-

ted its own category of object, it has simply lumped the whole of the residue into that category and given it a fanciful interpretation.

It is well known to historians and sociologists that unusual aerial phenomena are readily incorporated by the public into contemporary superstition and mythology. Thus, in their time, comets were interpreted as omens of bad tidings and meteorites regarded as bolts from heaven. It is perhaps not surprising that a thin veneer of technological civilization has little reduced the capacity of the general public to invent fanciful interpretations of unusual phenomena occurring in the sky on the flimsiest of evidence.

The only change that technological society has made is in dressing the language of the superstition in space-age terminology. Therefore, instead of discussing visitations by angels riding in chariots, today's believers discuss visitation by extraterrestrial intelligent beings riding in spacecraft, or flying saucers as they have become known.

It is hardly surprising that the scientific community dissociates itself from reports of unusual aerial events when described in this sort of language. Although currently-informed opinion accepts the possibility, even probability, of intelligent civilizations elsewhere in the galaxy, few of the features attributed in popular discussion to flying saucers seem to support the proposal that observation of extraterrestrial contact events have occurred. Such an opinion is not a denial of the possibility of such contact, but a recognition that the extremely small probability of physical contact would require much more than anecdotal evidence from a few members of the public for its recognition.

The upshot of this flying saucer mythology is that potentially-valuable scientific information may well be getting ignored by the scientific community. For even reports of unusual aerial events NOT made in flying saucer language are treated with ridicule. Just the innocuous words "aerial phenomena" are apt to bring a smile of dissociation to the face of many well-respected scientists. The reason for this is the justifiable one that enthusiasts have invented all sorts of scientific-surrounding pseudonyms to describe their

alien spacecraft. The most maligned expression of all is surely “unidentified flying object”, now generally accepted as synonymous with alien spacecraft or flying saucer, and yet by its very definition is not categorized. It is clear that as long as the public eagerly treats the residue of reported aerial events homogeneously as descriptions of flying saucers, the expression UFO—which is harmlessly supposed to describe this multistructured residue of uncategorized reports—will be decisively misunderstood by the scientific community.

Whilst the scientific community feels that it is experiencing an onslaught to convince it of the reality of alien spacecraft, any valuable information present in the residue about novel and interesting phenomena will be ignored. In view of the fact that very few scientists who assert the value of studying the residue further would wish to make a strong case for the extraterrestrial hypothesis, it seems very desirable to discontinue the use of the blanket UFO for the set of all uncategorized reports as though this set IS a category with uniform properties. Instead, specific names should be invented for any phenomena which are previously unrecognized, and for the existence of which sufficient evidence may be alleged.

Some scientists have already made strong assertions that new and novel phenomena exist as a stimulus to UFO reports. For many years they have accumulated vast quantities of data in the hope that a frontal assault on the scientific community would bring the existence of these phenomena to general acceptance through sheer weight of numbers of reports. This acceptance has not happened, and is unlikely to do so unless there is a marked improvement in the quality of the data. Any response by the scientific community so far has been directed almost exclusively to the refutation of the extraterrestrial visitation hypothesis. A good example of this is the Project carried out at Colorado University under Edward Condon in 1966. From the report of this Project† it is clear that a more or less arbitrary, mixed bunch of

† Condon, E. U. (Editor), 1968: *Scientific Study of Unidentified Flying Objects*; published by Bantam.

UFO reports were examined to see if they constituted evidence for extraterrestrial spacecraft. Not surprisingly little such evidence was found, though one or two members of this Project did invoke the extraterrestrial hypothesis as a consistent, or even likely, explanation of a few of the reports studied.

This sort of scientific study is highly unlikely to produce anything very useful because it is addressing itself to the wrong problem. If it is claimed that certain phenomena reported to be occurring in our atmospheres are extraterrestrial visitation events, then the onus of proof is upon the claimant. To date, no such proof has been forthcoming. On the other hand, if it is claimed that categories of specific phenomena occur with certain well-defined characteristics which cannot be understood in terms of known science, then the onus is upon the scientific community either to explain them, or to deny their reality. In this case, the existence of the residue of UFO reports decisively supports the claim.

It must be concluded that any further discussion about UFOs is futile unless the data is presented in the right fashion, and the precise point of issue well defined. Rapid progress could immediately be made if ball lightning investigations were widened somewhat to include ellipsoidal and discoid balls, as well as some very fast-moving objects (such as reported in the famous Lakenheath radar/visual case[‡]). Tentative electromagnetic models could perhaps be tried.

As a more radical departure, a conference on the "opaque disc" events could be held, with a view to gaining general acceptance of this strange phenomenon.

No identification of the phenomenon with flying saucers would be implied, and various conventional hypotheses could be attempted to establish whether or not these reports represented a genuinely new class of event, requiring an extension of current theory. If competent scientists could sit down together in a sensible atmosphere without any beliefs or preconceived opinions

[‡] *ibid*, page 163 et seq; page 248 et seq; Also *Astronautics and Aeronautics* 1971 September, pp 60-4.

and study properly-organized data presented in the appropriate way, then the long and meaningless debate about UFOs would soon come to a welcome end.

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- plus Scientific Panel Statement reprints available from CENTRE FOR UFO STUDIES.
- In addition, the following provide useful background material:
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- Minkaert, M. *The Nature of Light and Colour in the Open Air*. Dover Publications Inc (1954).
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- Many specialist books relating to UFO phenomena may be obtained from Lionel Beer, 15 Freshwater Ct., Crawford St., London W1E 1HS. List on request.

My person and my selves¹

PHILIP PETTIT

This is a sketch of some thoughts about topics in the familiar country of personal identity. It would be tiresome to chart the ground covered in an advance summary so I will just say this, that at the end of my itinerary I will attempt some definition of three notions in common use: those of being oneself, knowing oneself and—a Latin version of being downright self-interested—loving oneself.

To set out then on our journey, tackling first some rough if well-trodden ground. The problem of personal identity is that of saying 1. how we judge that PP at a later time is the same person as PP at an earlier and 2. what we are judging to be the case when we do so judge. In jargon, it is the problem of providing verification conditions and truth conditions for the statement of personal identity. The verification conditions are those which, if fulfilled, warrant the statement and there may be a number of sets, each sufficient—though perhaps for the most contingent of reasons—to ensure the truth of the statement, none—as it may happen—necessary to do so. The truth conditions of a statement are conditions which, if and only if they are fulfilled, make the statement true. They are both necessary and sufficient to guarantee its truth and they are so for more than contingent reasons: for someone who acknowledges them it may not be self-contradictory of a speaker to assert their fulfilment and deny the statement, or *vice versa*, but it will at least be to change the meaning of the statement.² The truth conditions will constitute a privileged set of verification conditions if they can be observed to be fulfilled. In this case I will describe them as “observational”, speaking elsewhere of “theoretical” truth conditions. (See note 2.)

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Taking up the statement of personal identity, the first thing to say is that there are many sets of verification conditions for the statement. Is PP now the same person as PP then? Well, we should want to ask, does he remember doing the things we know that PP did at the past time in question? If he does we will probably be happy to regard him as the same person even though it is abstractly possible that someone other than PP now should have exactly similar memories. But suppose PP now is subject to memory lapses or illusions. In that case we will want to know simply whether he has the same body as PP then. Is he of the right age and appearance? And does he have one or another distinctive mark?

So much for verification conditions, which derive broadly from evidence of psychological continuity or physical identity.³ What now of the truth conditions of the statement of personal identity? What are we judging to be the case when we say that PP now is the same person as PP then? On a natural assumption we are judging that more is the case than that they are psychologically continuous with one another or physically identical. After all, as we have already seen, they may not be psychologically continuous or someone other than PP now may also be psychologically continuous with PP then, just happening to have similar memories. And it seems conceivable that due to a freak operation or metamorphosis they may not be physically identical. So it would seem to follow that there is more to personal identity than meets the eye, that to assert such identity is to believe that some deep fact holds over and beyond the facts on the basis of which it is judged to hold.

To adopt this conclusion is to take the truth conditions of the statement of personal identity as non-observational and so to put a theoretical construction on the statement. In itself this is a reasonable move to make with a psychological statement, being that which we make, for example, when we take a statement of an agent's reason for acting to refer us to a causally effective state of mind.⁴ However there is a compelling reason why we shouldn't make the move with the statement of personal identity. It is that we have absolutely no idea what sort of theoretical fact personal

identity is supposed to constitute whereas we do know what a causally effective state of mind involves: if we are dualists we may expect to be able to discover such a state in introspection, if we are materialists we may expect physiologists to be able to identify it one day. It is respectable to invoke an unobservable entity in analysis of the truth conditions of a statement where we can say what it might be like to observe that entity, or at least to observe its effects. What we cannot do is to invoke an entity such that we have no clear idea of what it involves, which is what we would be doing if we took personal identity to consist in some deep fact. I conclude that we must reject the theoretical analysis, as it may be called, of the statement of personal identity.

The only alternative is to take personal identity as consisting simply in the psychological continuity or physical identity of which we have observational evidence. In view of the difficulties with establishing psychological continuity I will give a physical account of the truth conditions of a statement to the effect that PP now is the same person as PP at some previous time: that PP now has the same body as PP then. To say this is to make the set of verification conditions deriving from physical identity necessary as well as sufficient to guarantee the truth of the statement of personal identity, and it is to count that necessity and sufficiency a function of what people wish to communicate with the statement, not just a function of circumstance.

II.

In rejecting the theoretical construction of the statement of personal identity we have put aside what Derek Parfit calls the “simple” view of identity and adopted a version of his “complex” view.⁵ He suggests—rightly, I think—that the simple view is the natural and popular one and what we must now investigate is the consequence of choosing the complex alternative.

The thing to notice is that on the complex definition there is nothing “deep” about personal identity. The simple view makes something profound, if obscure, about being the same person over time, the complex view reduces its significance to that of having

the same body. The question is whether the complex view satisfies our intuition about what is involved in continuing the same—or changing—through time. My feeling is that it does not.

Consider this case with which Parfit confronts us—it comes originally from David Wiggins. I am told that I will have to undergo an operation in which my brain will be bisected and the halves housed in two new bodies; the result, I am assured, will be two people each of whom will remember doing the things I did, will act—at least initially—in accordance with my plans, attitudes and feelings and will retain most of my accomplishments, characteristics and so on. Clearly I will not be the same person as either since they do not have my body and, in any case, the grounds on which I might count as the same person as either would make me the same person as each, which is impossible granted the law that identical things have all properties in common at any time.⁶ Must I then look on the two new people as total strangers and on the operation as my death?

If personal identity is all that is involved in continuing through time then the answer must be, yes. But that answer is counter-intuitive for looking on the operation as death would seem to be excessively melancholic. It is possible that I should survive if half my brain is destroyed and it seems reasonable that I should regard myself as surviving even if the intact half were transplanted to a new body. Why then should I regard the double transplantation as death? Perhaps I should think of myself as surviving in one of the two new people but not in the other? But this does not sound very satisfactory for why should one rather than the other have a greater claim on me? The conclusion to which we are led, I think, is that I should regard myself as surviving in both of the people who come out of the operation.

If not personal identity, what is it that binds me to those two prospective people? We have already given the answer in postulating that each of them would have first person type memories of me, would be at least initially faithful to my projects and would retain my distinctive non-physical properties. These links are what Parfit calls psychological connections and they may tie me more closely to the two people I am to become than I am tied to

myself—this self-same person—as I was at one or another period in the past.

Psychological connectedness is what is involved, besides personal identity, in continuing the same—or changing—in the course of one's life. In fact it is something with which we concern ourselves much more keenly than we do with our personal identity: though if we stick with the simple view we will confuse the topics. The reason for this concern is that psychological connectedness is a relation of degrees, it being possible to speak of being more or less strongly connected with oneself at some time in the past, and for myself at any period in the past—a self which I can regard with some measure of objectivity—I am naturally anxious to establish the degree to which we are connected psychologically. There is no similar concern which I can have about personal identity.

Once we have recognized the importance of psychological connections we may wish to pursue a path which Parfit has opened up for those espousing his complex view. It is that of introducing a notion of self-identity, defined in terms of connectedness, which would allow me to say that though I am the same person as I was at some time in the past I am not the same self. I want to pursue this path though I will not follow exactly in Parfit's footsteps, adopting a somewhat different analysis of the statement of self-identity.

The reason why it is plausible to think of establishing a concept of self-identity, apart from the fact that it fits with certain common idioms of speech, is that in a man's life there will usually be points at which psychological connections with the past, or at least with the immediate past, are particularly weak. These are the points at which, due to a change of circumstances or some sort of conversion, he takes a new turn and becomes a different personality. At these points we can think of him very naturally as changing from one self to another.

The problem if we are to introduce formally a notion of self-identity is to give an account of the verification and truth conditions of the statement attributing such identity. The account which I wish to give depends on this assumption: that a person at

any time in his life—I am thinking only of adults—has an image, to use a common metaphor, of the sort of person he is. The evidence for the assumption is that a man always has some account to offer of a distinctive belief or piece of behaviour, one which serves to interpret the significance it has for him, explain its genesis and, more often than not, justify it. To be able to give such an account he must be keeping an eye on himself, so to speak, to see that he does not forget himself. And he must be holding in view an image of the sort of person he is. This image of course may be realistic or illusory since a person may deceive himself. I will say that it is realistic if it happens that though the man may occasionally think or act out of line with it, this is something which he can and does correct.

The truth conditions of the statement of self-identity are these: that the person is psychologically connected between the times in question and—something meant to ensure that the connections are relatively strong—has a realistic image of the sort of person he is which presents him, by ordinary standards, as more or less the same sort of person as his earlier image did, the earlier image also being realistic. And how is such a statement to be verified? The answer is, in the way so many psychological statements are verified, by reference to the sincere avowals of the agent and by examination, in the context of his first person accounts, of his beliefs and behaviour. The verification in question here is verification by an observer, in the third person. How is the statement to be verified in the first person? One way, which is like the observer's, involves the subject in reflecting on what he thinks and does and on the account of this which he spontaneously offers. But the statement of self-identity—or loss of identity—may be made in such a way in the first person that no verification is relevant. This occurs when someone “announces” self-identity, as he might “announce” a policy, intending to prove that he has not changed rather than reflecting on any lack of change.

The difficulty with the verification of a statement of self-identity is a difficulty common to psychological statements. Our focus of attention should be its truth conditions. There are a number of remarks which I want to make about the account we

have given, though I cannot expand on any of them. The first is that the account makes the attribution of self-identity or change of self to someone without a realistic image of the sort of person he is simply irrelevant: this seems to me intuitively tolerable since such a person can be described as being without a stable self. The second remark is that a person may, on the account offered, return to an earlier self at any time in his life or even oscillate between different selves for a particular stretch of his life: the oscillation may be a Jekyll and Hyde affair or an affair as ordinary as the boy-away-at-school and the boy-at-home. Finally, I want to remark that the account of self-identity does not envisage the question arising as to whether two different people have, at the same or different times, the same self. But neither does it exclude the question provided—as the transplantation experiment might provide—that they are psychologically connected. We will return to this question in a moment.

III.

In the first section we redefined personal identity to mean something more superficial than might have been found natural and in the second we defined a relatively novel notion of self-identity to compensate for our earlier move. In this final section I want to look at how the two sorts of identity compare with one another on these three dimensions: the ontological, the epistemological and the ethical. I will end the section with some definition of what is meant by being, knowing and loving oneself.

Ontologically considered personal identity is more basic than self-identity for the reason that we identify individuals through time primarily as persons, giving them names sustained by personal identity, and only secondarily as selves. However the more interesting ontological question is whether, once we recognize that it is natural to speak of selves and self-identity, we are forced to acknowledge selves as entities in their own right.

“No entity without identity” is a slogan which we may usefully invoke at this point. If we consider a relation like “being the same weight as” we can see its force. Grant that the relation is strict

identity, so that what it relates must have all properties in common, and we have weights as entities in their own right. Normally, it is true, we say that two physical objects are the same weight but, since these do not have all properties in common, we must take this way of speaking to be elliptical if we regard the relation as identity. What are identical are the weights of the two objects, something which we must now regard as distinct in each case from the object itself.⁷

Our question as to whether we should take selves as entities in their own right is really the question as to how we should construe the relation of “being the same self as”. If we construe it as strict identity then we have got to acknowledge selves as entities distinct from the persons at particular times who have selves and who may be said, elliptically, to be or not to be the same self. But must we construe it in this way? The answer is that there is no reason for doing so. We may quite easily take the relation as an equivalence of essentially the same kind as relations like being the same shape or size—or weight—as, which hold between otherwise distinct entities. The entities between which our relation would hold in that case are persons at particular times. To say of any person that he is at one time the same self as he was at another would be no more to commit oneself to selves as entities in their own right than saying that he was the same shape would be committing oneself to shapes.

To return briefly to the transplantation case, we may now ask whether it would make sense to speak of me being the same self as the two people who would result from the operation. We are dealing with me now and two other people at a later time and the question is whether I can be the same self as them, in which case they would be the same self as one another. Well, there is no difficulty in saying that I might be the same self as another person psychologically connected with me and possessed of the appropriate self-image. The difficulty is in saying that two people—those resulting from the operation—might be the same self as one another at the same time: they might be both psychologically connected with me now but would we want to say that they were so connected with one another? I will leave this question to the decision of the reader.

We have yet to relate personal identity and self-identity on epistemological and ethical dimensions. Epistemologically what I want to say can be summed up in a phrase: that personal identity is objective, self-identity subjective. The criteria for judging that someone picked out now is the same person as someone at a time past are firmly established and are not responsive to the man's own sense of who he is. I may have the most vivid illusions, and the most captivating aspirations, but it will do nothing to change the person I am: for that I need a body transplantation. On the other hand the self I am is something I can change, at least insofar as I can change my beliefs, policies, attitudes and even feelings, creating a new image to live up to. It is certainly true that a person often changes self in a passive sort of mutation, of which he may scarcely be aware: after all, one's self-image may be far from one's conscious mind. But it is quite possible, and frequently happens, that he changes in a moment of conversion, whether one occasioned by a striking circumstance or spontaneous reflection. In this sense what identity one has as a self is subjectively determinable whereas one's personal identity is objectively established.

To go on to the ethical dimension of comparison. The point I wish to make here is that once we see that it is not of great ontological significance, and is epistemologically subjective, we must recognize that the notion of self-identity cannot play a central role in moral argument. The role played traditionally by the notion of personal identity has been that of distributing rights and responsibilities through time: once incurred a right or responsibility attaches to a man so long as he does not dismiss or despatch it. I think it is clear that this role cannot be usurped by the notion of self-identity. If responsibility for a deed remains with a man only so long as he remains the same self, then he has a systematic way of cancelling it granted that he can change the self he is. We could allow an individual such a let-out from the responsibility only at the cost of utterly undermining our existing notions of credit and desert.

In the central area of rights and responsibilities the only significance I can see for the notion of self-identity is this, that if someone has changed self between the time of a deed and the time at which, say, he is to be punished for it, then the change of self

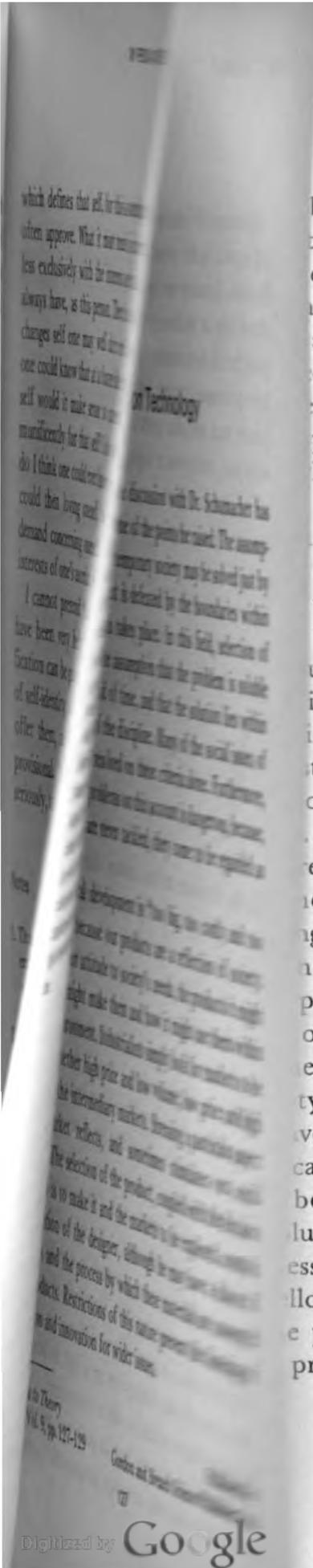
might well be quoted as grounds for giving him a lighter punishment than he would otherwise have received. This is not to detach the responsibility from his person but simply to point out that in the situation envisaged punishment would not have many of what are considered its ordinary uses.

But I do not want to give the impression that ethical thinking is not enriched in any way by the introduction of a notion of a self-identity which is not tied to personal identity. In the quasi-moral area of ethics, as it might be called, where we are concerned with matters such as authenticity and the good life that are often neglected in ordinary moral argument, I think that it helps us to be clearer about some of the things we may want to say.

One of the things we do say in this area is that it is important for a person to *be himself* in his behaviour. I think that we can see that there is nothing much which this can usefully mean. It cannot mean that a man should be the person he is for this is not something on which he needs to be harangued. It ought not to mean that he should be the self he is for we might well think a change of self desirable. It might be taken to say that the man should not for superficial reasons behave out of line with his self or, if that seems not worth saying, that he ought not to try to change his self for such reasons. This is right, I believe, but it stretches the intuitive sense of the slogan.

A second thing we say in the quasi-moral area is that it is good that a man should *know himself*. To this prescription the framework of persons and selves does allow us to give a useful meaning. Knowing oneself clearly cannot mean knowing the person one is since, for that, it probably counts as sufficient that one remembers one's name. What it can mean however is having a realistic image of the sort of person one is and this is something that naturally presents itself as desirable: it is even a condition, on our analysis, of having a self at all.

Finally, we say in the quasi-moral area of discussion that it is undesirable that someone should *love himself*, at least in the sense in which this means neglecting the claims—and perhaps charms—of others. What can loving oneself involve? It can hardly mean being attached to the self one is, that is, striving to live up to the image



about purpose and the difficulties have traditional role of Parliament has been of guiding and supervising technological the formula for success in science comes abstraction, disastrous in politics. Ordine are conditional in their application to a ly isolated, stationary and recurrent. possess these parameters and attempts to hat the only legitimate predictions are

policy making instrument, criteria have determination of goals. As has been to quantify goals to produce a ranking "best" or in economic terms the most urable returns in relation to the resources ing in the field of housing has to recogies work within the larger context of t any historical study shows that concern ousing is not mechanistically motivated, . Often idealistic objectives cannot be ecise terms for numerical quantification, es that are susceptible to determination. ng legislation are essentially grounded in n the overriding value given to human life. preservation of life at all costs descends of injury, maintenance of health and the e essence of the early legislation expresses ty, health, amenity, convenience; but the ve these objectives been achieved?" is not cal sense of the word. But however limited be, they can be of great assistance in lutions, especially in land use. They also ess that our actions affect our environment llows, which in turn leads to the examine point at which perhaps Dr Schumacher progress must begin.

BERYL GREEN

- only if, the (apparently) two bodies, considered as extended through time, occupy the same space for every moment of time. We verify such a statement, ideally, by tracing the spatiotemporal histories of the bodies.
4. I mention this example as the analysis in question has become the orthodox one since Davidson, Donald. "Actions, reasons, and causes", *Journal of Philosophy* 60 (1963).
 5. See Parfit, Derek. "Personal Identity", *Philosophical Review*, LXXX (1971). 'On "The importance of self-identity"', *Journal of Philosophy* LXVIII No. 20 (1971) and "Later selves and moral principles' in Montefiore, Alan ed. *Philosophy and Personal Relations*. Routledge Kegan Paul, London (1973). Note that Parfit analyses personal identity non-physically.
 6. To resort to Leibniz's law here is not simply to dismiss Peter Geach's views on the relativity of identity—that a and b are never just identical, but identical under a sortal concept, being the same F or the same G, and that their being identical under one such concept does not preclude their being non-identical under another. Someone with Geach's views would still have to say that if a and b are the same person they cannot differ in properties essential to persons, which is what would happen with the people resulting from the double transplantation. See Geach P. T. *Logic Matters*. Blackwell, Oxford (1972).
 7. Someone with Geach's views would not regard the weights in any case as being distinct objects. The question which we put as that of seeing the relation either as an equivalence or as a strict identity, obeying Leibniz's law, would be this question for such a philosopher: whether to see the relation as one which can be "derelativized" to "is a weight" in such a way that either relativism can be counted under that concept. If I have got this right I am indebted to Harold Noonan; if I haven't I have misunderstood him.

Comment

Fritz Schumacher on Technology

Reading the account of the discussion with Dr. Schumacher has prompted reflection on some of the points he raised. The assumption that problems of contemporary society may be solved just by technological development is defeated by the boundaries within which technical research takes place. In this field, selection of projects is based on the assumption that the problem is soluble within a defined period of time, and that the solution lies within the prevailing ideas of the discipline. Many of the social issues of our time cannot be resolved on these criteria alone. Furthermore, leaving intractable problems on this account is dangerous, because, if these questions are never tackled, they come to be regarded as unimportant.

If technological development is “too big, too costly and too violent”, it is because our products are a reflection of society. They reflect our attitude to society’s needs, the products it might have, how it might make them and how it might use them within the total environment. Industrialists simply look for markets to be explored, whether high price and low volume, low price and high volume, or the intermediary markets. Stressing a particular aspect of the market reflects, and sometimes stimulates our social attitudes. The selection of the product, coupled with the decision as to who is to make it and the markets to be explored, controls the intention of the designer, although he may have a choice of materials and the process by which these materials are converted into products. Restrictions of this nature prevent the fostering of invention and innovation for wider issues.

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Opportunities for industry to exploit invention have materialized because of modern scientific techniques and the speed of new discoveries. Technology uses ideas to solve the problem of where there is scope for evolutionary change, and in industry's limited sphere this is in the reduction of capital cost per unit of output, in higher performance standards, and the reduction of process losses. Industry treats new ideas gently at first and then selects those which justify development in keeping with the profit motive. The selected ideas are attacked rigorously before development in the hope that the long term assets are an interchange of ideas amongst personnel and more money for research. Success for industry comes by the combining of research and development. Experimental results are converted into processes which make products (the statement of society) and the products have to be converted into profitable sales.

Instead of condemning the motive and technology out of hand, let us examine the rigour of the process and speculate how the returns may be interpreted in terms of the mental and physical well being of man, and the means by which this may be achieved. Take the "skyscrapers and vast buildings" with the three "factors of exclusion", gigantism, complexity, costliness. Social attitudes to our fellows, to ourselves and the world in which we live, are also architectural attitudes. Architectural attitudes are translated into architectural forms, for example in terms of low rise or high rise with the range progressively dictated by density requirements. The selection inevitably produces a change in the total environment whilst the built form enables a change in plan form within the artefact. It must be acknowledged that often technology has made this possible, but perhaps invention and innovation could spring more profitably from the needs of the people re-assessed in the social and architectural context. It is at this level that society is loathe to spend its resources on research. In scientific research, such as the development of pesticides, harmful side effects may be eradicated within a short space of time. Unfortunately, in architectural research, where building costs are so high, the demolition rate ensures that our mistakes are with us for a century.

To say that we have "no hope for politicians and that the political crisis is becoming increasingly unmanageable" is perhaps

unhelpful. Politics are about purpose and the difficulties have arisen because, to the traditional role of Parliament has been added the difficult task of guiding and supervising technological change. Unfortunately the formula for success in science comes from simplification and abstraction, disastrous in politics. Ordinary predictions in science are conditional in their application to a system which is severely isolated, stationary and recurrent. Modern society does not possess these parameters and attempts to use models may mean that the only legitimate predictions are conditional warnings.

To use any model as a policy making instrument, criteria have to be selected for the determination of goals. As has been indicated, it is difficult to quantify goals to produce a ranking order. "Highest" implies "best" or in economic terms the most efficient in terms of measurable returns in relation to the resources expended. Anyone working in the field of housing has to recognize that housing policies work within the larger context of economic planning, whilst any historical study shows that concern for the importance of housing is not mechanistically motivated, but idealistic in origin. Often idealistic objectives cannot be defined in sufficiently precise terms for numerical quantification, and it is only the extremes that are susceptible to determination. The objectives of housing legislation are essentially grounded in human or life values, with the overriding value given to human life. The optimum value of preservation of life at all costs descends down to the prevention of injury, maintenance of health and the prevention of disease. The essence of the early legislation expresses this scale of values, safety, health, amenity, convenience; but the evaluation "how well have these objectives been achieved?" is not solved in the mathematical sense of the word. But however limited in value models may be, they can be of great assistance in exploring alternative solutions, especially in land use. They also lead to a greater awareness that our actions affect our environment and the lives of our fellows, which in turn leads to the examination of our values, the point at which perhaps Dr Schumacher would agree, our future progress must begin.

Lucy Cavendish College,
Cambridge.

BERYL GREEN

Comment

A look at Fritz Schumacher's ideas on education

In his book *Small is Beautiful* Fritz Schumacher calls Education our “greatest resource”. What he says about it seems to me both wise and relevant to his thesis—“A Study of Economics as if People Mattered”—yet I feel that his rather splendid *theoria* begs some questions when presented as theory. Nevertheless the issues he raises are surely important and deserve trial both by discussion and exploration.

What follows is an attempt briefly to summarize his ideas about Education (which I gather are not otherwise to be touched on in this issue of *Theoria to Theory*) and to suggest points for discussion and possible further examination.

He devotes twenty-one pages to “Education” in his book in a section which heads a long chapter on “Resources”. For he presupposes it agreed that both our culture and social viability depend on our education and he stresses the point that the transmission of mere “know-how”, however necessary, must take second place to the transmission of “ideas of value” if education is to “turn potentiality into reality to the benefit of man”. This he interprets variously as “to make life intelligible”, “to enable ordinary people to cope with the problems thrown up by scientific and technological progress” and “to lead him (man) out . . . of metaphysical confusion”.

Ideas, Schumacher emphasizes, will get transmitted whatever we may or may not do to transmit them, and that what in one generation may be a bold leap of the imagination into the

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unknown or the unknowable can become, after transmission and popularization, a stifling dogma for the next generation. He suggests that there were six “large ideas” of the nineteenth century which had an especially “bad, vicious and life-destroying” effect on our own age, not because they were untrue in their original contexts but because they became too universalized. They were these: (1) the idea of automatic biological evolution towards progress, resting exclusively on (2) “natural selection”; (3) Marx’s idea of an all-dominant class struggle and (4) Freud’s over-emphasis on the subconscious; (5) the relativism which denies all absolutes and (6) the positivism which reduces everything to observable facts. Schumacher adds, however, that “the great ideas of the nineteenth century may fill our minds in one way or another, but our hearts do not believe in them all the same. Mind and heart are at war with one another, not, as commonly asserted, reason and faith.” Education, therefore, he suggests, should lead us to a “clarification of metaphysics, that is to say of our fundamental convictions,” not by means of some superficial “studium generale” but by *deeper* study of all subjects presented and especially by the cultivation of a “metaphysical awareness” of “the place occupied by the natural sciences within the whole cosmos of human thought”. For all subjects are connected with a “centre . . . constituted by our most basic convictions . . . in other words . . . metaphysics and ethics and ideas that—whether we like it or not—transcend the world of facts”. Though however logically unprovable such ideas might be, they must also be true to reality, otherwise they would lead to disaster. The education which produced “whole men” could promote ever widening good because it would keep individuals in touch with their centre, sure of their basic convictions and of the meaning and purpose of life. This would *not* involve the propagation of identical ideas to all. But it would involve the greatest possible encouragement to each individual to “allow the light of consciousness to fall on the centre where he has to create for himself an orderly system of ideas about himself and about the world—so that he faces the question of his fundamental convictions”.

Nevertheless Schumacher puts forward three examples of

specific ideas which he feels would need to be at least held to the light of study by all teachers: (1) the notion of hierarchy or “levels of being”, suggesting that it is both possible and desirable for a man to attain a “higher degree of realization of his potentialities than that which comes to him naturally”, (2) the idea that by nature we think in opposites, and that therefore we have constantly to attempt to reconcile those things which, logically, cannot be reconciled—e.g. the demands of freedom and discipline in education (soluble only by the “higher level force” of love). Schumacher illustrates this point further by quoting G. N. M. Tyrell’s notion of “divergent” and ‘convergent” problems. “Convergent” problems Tyrell wrote† exist only as man-made artifacts. They were logical and could be solved logically and therefore easily transmitted by speech or writing. They were useful as prototypes but did not occur in real living (except in mechanical processes devoid of any human element.) “Divergent” problems, on the other hand, were what kept life going. They were insoluble by processes of logic but freed man to “strain himself to a level above himself”, demanding and provoking the supply of “forces from a higher level thus bringing love, beauty, goodness and truth into our lives”. It is only thus, affirms Schumacher, that opposites can be reconciled in a living situation. For the attempt to solve divergent problems by turning them into convergent problems by a power of reduction would result in “the loss of all higher forces to ennoble human life and the degradation not only of the emotional part of our nature but also, as Darwin‡ sensed, of our intellect and moral character.”

Finally, (3) Schumacher proposes the essential resurrection of ethics: to him all-important though at present virtually abandoned both as a study and as a guide to living. He deplors this overthrow which he attributes largely to the overthrow of metaphysics, but he admits that we cannot go back to “previous formalities”. We must rather try to understand the present world and choose how we should live in it.

† G. N. M. Tyrell *Circle of Significance*, London (1930).

‡ See quotation from Darwin’s *Autobiography* in *Small is Beautiful* p. 88-9.

Our educational problems would then not be solved by new organization or administration so much as by a “metaphysical clarification of our central convictions”. For this he feels we need to look again at the “traditional wisdom of mankind”, to the Cardinal Virtues—*prudentia, justitia, fortitudo* and *temperantia*—and above all to the re-ordering of our “inner house”.

The chief query I would like to make about this summons to a lead out of metaphysical confusion is this (but I am not sure of the answer):

Does Schumacher misleadingly reduce scientific knowledge to “know-how”, and does he, also misleadingly, imply that metaphysical problems can be tackled without any scientific knowledge? For instance, he reduces the Second Law of Thermodynamics to “a working hypothesis suitable for various types of scientific research.” All it really tells you, he says, is that “you cannot warm yourself on something that is colder than you are”. But surely the idea of the general breakdown of matter into energy in the physical sphere and the concomitant notion of the building up of matter from energy in the biological sphere is what Schumacher would call a “large idea”—with plenty of metaphysical overtones, helpful for the pondering of life’s meaning?

Then if we look again at the six ideas which he accuses of so corrupting the present age, are these not all by way of being based upon some scientific concept? Do they not therefore also depend for their validity or non-validity on certain experimental data? Granted that he uses them hyperbolically, might not the same hyperbole be turned against his argument so as to draw an exactly opposing conclusion? i.e. not that these ideas make bad ethics but that they make bad science, and that to counteract their ill effect we should be better educated in scientific method?

As regards further possible exploration, I should like to consider *how* society might learn and practise better ethics. Suppose that we grant that a precondition of good ethics is the acceptance of the existence of a hierarchy of levels of being and a realization that reality inevitably transcends the world of facts and that our awareness of it must be a matter of the heart as well as the head, how do we get even so far? Probably not by lectures on the

Cardinal Virtues, nor even by insisting that all knowledge, including scientific knowledge, be connected in study with “the whole cosmos of human thought”—though this might play splendid havoc with our present examination system and careers-orientated approach to Education. But in the present climate of opinions, drawn into our schools and universities from such a diversity of race, creed and habit of thinking, perhaps Wisdom—ancient and modern (which must be ultimately the same)—is better transmitted through experience and experiment than through formal instruction, though of course the study of great literature together with science can provide both experience and experiment. If teachers could explore a “lead out” from such elements of Schumacher’s *theoria* as may certainly already be found in our educational institutions, perhaps some sort of theory might emerge as to what is really involved by a “centre of basic convictions” in a culture now attempting to embrace the whole world. Could a step towards such an enterprise be a series of articles in *Theoria to Theory* by both teachers and learners in a diversity of schools and universities, reporting on personal experiences of what they felt was or could be “good ethics”?

Woodhall Cottage
Pentcaitland
East Lothian

KATHLEEN OLDFIELD

The firm that you had

This is the shed with the wooden door
Which began the firm that you had.

This is the man with ideas galore
Who took over the shed with the wooden door
Which began the firm that you had.

This is the money in a private store
Which came from a fleet of lorries four
Which worked for the man with ideas galore
Who took over the shed with the wooden door
Which began the firm that you had.

This is the man who enforces law
Who removed the man with ideas galore:
But the money remains in a private store
Which came from the fleet of lorries four
Which worked for the man I have mentioned before
Who took over the shed with the wooden door
Which began the firm that you had.

This is the company ostensibly pure
Approved by the man who enforces law
Who removed the man with ideas galore:
But the money remains in a private store
Which came from the fleet of lorries four
Which worked for the man I have mentioned before
Who took over the shed with the wooden door
Which began the firm that you had.

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This is the firm producing more
 Which bought up the company ostensibly pure
 Approved by the man who enforces law
 Who removed the man with ideas galore:
 But the money remains in a private store
 Which came from the fleet of lorries four
 Which worked for the man I have mentioned before
 Who took over the shed with the wooden door
 Which began the firm that you had.

This is the group Ubiquitor
 Which took over the firm producing more
 Which bought up the company ostensibly pure
 Approved by the man who enforces law
 Who removed the man with ideas galore:
 But the money remains in a private store
 Which came from the fleet of lorries four
 Which worked for the man I have mentioned before
 Who took over the shed with the wooden door
 Which began the firm that you had.

This is the international Corps.,
 Which merged with the group Ubiquitor
 Which took over the firm producing more
 Which bought out the company ostensibly pure
 Approved by the man who enforces law
 Who removed the man with ideas galore:
 But the money remains in a private store
 Which came from the fleet of lorries four
 Which worked for the man I have mentioned before
 Who took over the shed with the wooden door
 Which began the firm that you had.

And this is the shed with the plastic door
 Made by the International Ubiquitous Corps.

SANDRA BILLINGTON

Comment

Supernature

Your reprint of the Review Discussion of “Supernature” has finally reached me here in Bermuda where I am at present at work on a third generation descendant.

May I say at the outset that I enjoyed the reviews and that a measure of their worth is that in “The Romeo Error” which followed “Supernature” in 1974, I tried to deal in a similarly objective way with many of the topics which you so rightly criticized me for omitting in 1973.

And yet, I cannot help feeling that you have missed the real point.

Both books deliberately cover an extensive area. Both deal with a wide and disparate collection of subjects—but neither pretends to be an exhaustive nor comprehensive review. That is not what I am trying to do. There are many more able and more patient collators than I, all better suited to the task of building elaborate critical structures. Their time will come.

My task as I see it is to play the role of parascientific gadfly. I have the fortune to be schooled in most of the life sciences to a level which permits me to use all of them as tools when and as I choose, without being subject to the dependence which I believe comes from too great a reliance on any instrument other than the brain—and even that, as we know, has its limitations.

I am also greatly concerned by the limitations of the Scientific Method. The constraints of procedure and logic inherent in the method are right and useful up to a point, but it seems to have escaped general notice that a rigid adherence to strictly objective

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analysis can, far from illuminating a problem, also totally preclude the possibility of experiencing a whole category of phenomena. I find myself more and more sympathetic with people like Carlos Castaneda who, by deliberately breaking the rules and getting involved, have opened up a whole new area of intellectual (and I believe truly scientific) insight.

So, while acknowledging the truth of your criticisms of superficiality, inconsistency, incompleteness and unsupported extrapolation, I find myself also totally unrepentant . . . and determined to carry on in exactly the same way. All this on the hideously unscientific grounds that "it feels right".

I ask for my books to be regarded not as conclusive statements of final and irrevocable fact, but as position papers. Naturally I am happy that they sell well—the proceeds make it possible for me to follow whatever strange gods move me most—but I write in the first instance largely for my own benefit. Doing so helps me to sort out some of the snarls in the complex skein of information and ideation in which I find myself entangled. If they do even half as much for anyone else beset by the same doubts and difficulties, then I am well satisfied.

In brief, I am asking almost for a return to alchemy, because I believe those explorers got the balance between physical and spiritual investigation just about right.

Biologic
W.C.1.

LYALL WATSON

Review

Alternative Realities, by Andrew Rigby, Routledge. £4.95

Andrew Rigby examines communes as the central institutions for those who aim at social change through viable alternative life styles. He gives an account of the embryonic attempts to create such life styles and goes only some way to answering the question about how successful the communes are in achieving the utopian vision.

There are at least six types of communes. (1.) Self-actualizing. (2.) Activist. (3.) Practical. (4.) Therapeutic. (5.) Supportive. (6.) Religious. Of these, the self-actualizing and the activist types are of main concern. The activist commune is some sort of a red base within an urban area which would be involved in local campaigns and wider political action. In the self-actualizing commune people would regard the actual experiment of communal living as contributing towards the creation of new social order. The communes inspired by shared religious beliefs and purpose, like Findhorn in the North-east of Scotland, are the most successful in terms of longevity of life.

Rigby does a good job in describing all the different forms of communes in Britain. He also relates competently an account of the possible contemporary stresses which cause people to look at communes as a solution to their problems.

The communitarians are backing the past against the present and perhaps both against the technological future. They are turning away from impersonal industrial forces and politics towards a dream world in which hopefully their identity will be magically recovered.

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Rigby seems to accept at face value the communitarians' claim to have created a new social order, put their lives on the line and inspired others with visions of the future. But first, it is yet to be shown that the communes are a little more than parasites. Secondly the existing social order is well equipped at rendering harmless any new social experiment by exploiting and coopting it. Thirdly, it seems pathetic constantly to refer to the commune experiment as inspiration to others.

He quite rightly points out that the present commune movement rose out of the underground/hippie revolt. Yet there is a great difference in attitudes. Hippies were prepared to live their alternative life styles for the moment, on a temporary basis. There was an air of excitement and glimpses of amazing future visions while they rehearsed their parts, as it were. The communes described by Rigby are plodding in comparison.

As this is the first contemplative study of communes in Britain, it is bound to be on all reference shelves. So it's a pity that the book is perhaps a little cumbersome, repetitive and expensive.

Communes in Britian, by Andrew Rigby, Routledge. £3.50 & paperback £1.50

A competent companion volume to *Alternative Realities*. A description of five different communal experiments in Britain and a brief analysis of how they cope with their problems.

RUBY RAE

Sentences

From *Man on his Nature* by Charles Sherrington†

Our debt is great to the historian. He has dispensed much to us. Histories of kings, of cities, of countries, of this political movement and that, of philosophies, and of the chequered records of peoples and their leaders. Sometimes he has taken a whole continent's story of civilization. History grows. It reaches beyond written tradition. Pre-history becomes history. Palaeontology unfolds to us like a chaptered tale the shapes and powers and ways of lives which went before our own. Geology sets forth for him who will read the record of the rocks; astronomy tells of the becoming of the stars. But there is yet this other theme at once comprehensive and intimate. The history of our planet, all that it comprises and has done and made. It asks to be written, and so that all may read our planet's becoming which contains our own. It asks to be undertaken, after the same manner as was undertaken not so many centuries back the myth of the nine-fold heavens and of man's life at their fixed centre, set forth so that all pious Christendom could hear. So begs to be set forth this story of our planet in its newer light to be a frame to set our lives against and within. It is a story not remote for us because it is our own. The planet in travail with its children. With the Universe as heroic background for what to us is an intimate and an heroic epic. A birth in cataclysm. Aeons of seething and momentous shaping. A

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triple scum of rock and tide and vapour—the planet's side—swept on through day and night. Then from that side arising shape after shape, past fancy. And latterly among them some imbued with sense and thought. And still more latterly, some with thought eager for "values". The planet, furnace of molten rocks and metals, now yielding thoughts and "values"! Magic furnace. Beside its alchemy and transmutations the most impassioned dreams of Hermes Trismegistus and all his fellowship dwindle to paltry nothing.

Man in his mood may count himself in his day a brief spectator of his own shaping as it still progresses; so too of the planet's fertility, in commerce with its surroundings, even as he, the spectator, born from and attached to it. The commerce of both is with the sun and beyond that with what to the spectator has often seemed the illimitable, so far as the illimitable is thinkable by him. The human spectator has in mind that in this spectacle the planet is an offspring of the sun, and that he the spectator is in turn an offspring of the planet. He has in mind that all earth's tenantry, his fellow-tenantry, are as autochthonous as he. Earth's offspring, comprising rock and soil and sea and cloud and plant and brute and himself, man. In all that tenantry, he is among the latest come. The planet with its offspring, to him, its latest child looking around him, becomes something of a community. It counts for him as a something which although an aggregate of many parts is yet for him embraceable and intelligible as a unity. It is more to him than merely his setting and the home which houses him. It, with what it comprises, shapes before him to the likeness of a familial assembly, a community of related things. Of things which are parts of one greater thing. He sees the whole an organization, not static but progressive. Remembering life as a grade of organization he sees progressive organization in the planet include life and promise more life. At one time it had not that organization which means life. He envisages energy as the vehicle for mind, progressing under progressive organization of those

types of system which unfold life. The whole presents itself as one great graduated scale of surging organization. He reflects that at one time the planet can have had none of his particular variety of system. Now it has. That is, it has evolved recognizable mind. This has issued from its side, at the interface where atmosphere and other physical phases meet, under alternate day and night. The planet has thus latterly become a place of thinking. More it now harbours mind which values "values". It is a planet now with hopes and fears and tentative "right" and "wrong". A planet which is human. What will be to follow? Our pragmatic spectator watching his mother-earth believes that there will come forth from her side more mind, and still more mind. The further evolution of energy-systems will he thinks accomplish that. Perhaps for that they strive. In believing this, he is not doubtful of touch between energy and mind.

Notes on contributors

JULIA DE BEAUSOBRE (Lady Namier) was born in Russia of Russian parents, and spent her early childhood between St. Petersburg and Alexandrovka in the Government of Samara (beyond the Volga). In 1917 married Nicholas de Beausobre who was killed in the GPU prison of Moscow in January 1933 after she had been transferred from that prison to a concentration camp east of Moscow. Having left Russia for England in the spring of 1934, she published *The Woman Who Could Not Die* in 1938; was naturalized a British Subject in 1939; published *Flame in the Snow* in 1945; married L. B. Namier in June 1947; and has written his biography.

SANDRA BILLINGTON is a third year undergraduate at Lucy Cavendish College, reading English. She produced two of her own short plays at the Arts Theatre, Cambridge last June.

PAUL DAVIES is a lecturer in Mathematics at King's College, London. He has written a book on "The Physics of Time Assymetry", and his main research interests are cosmology and general relativity.

BERYL GREEN is completing a Ph.D in the University of Cambridge on "Preference in Housing and the effect of financial subsidy". She is a member of Lucy Cavendish College, and took a degree in Architecture in the University of Liverpool after having been Deputy Headmistress in three schools of different kinds.

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PHILIP MAIRET, who died in February, was of Swiss origins. Among his many writings, were *A Pioneer of Sociology* (the life of Patric Geddes) and an *A.B.C. of Adlerian Psychology*. He was Editor of the *New English weekly* until after the war, and a member of the Christendom Group. At one time he was an actor in Lilian Bayliss' company at the Old Vic.

JACQUES MONOD, the well-known molecular biologist, is a professor at the Collège de France and Director of the Cell Biochemistry work of the Pasteur Institute which he created in 1954. In 1965 he received the Nobel Prize. His best known book is *Le Hasard et le Nécessité (Chance and necessity)* Paris 1970.

KAY OLDFIELD, widow of the late Professor R. C. Oldfield, now lives in rural Scotland, rather immersed in local affairs, elderly relatives, grandchildren and her garden. But she tries to go on writing a book about Creation Myths. A founder member of the Soil Association, she has been for long an admirer of Dr. Schumacher and what he stands for.

PHILIP PETTIT is a Research Fellow in Philosophy at Trinity Hall, Cambridge. He works mainly in philosophy but wanders sometimes in less well-tended fields. He is author of *On the Idea of Phenomenology* Scepter Books, Dublin, 1969 and of *The Concept of Structuralism*, Gill and Macmillan, Dublin, and University of California Press, Los Angeles, 1975.

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RESEARCH DESIGNS IN GENERAL SEMANTICS

Proceedings of the First Conference of Research Designs in General Semantics, held at Pennsylvania State University

Edited by KENNETH G. JOHNSON, Department of Journalism, University of Wisconsin

At present, the study of semantics is such a novel area of study, that very little is known about it. The conference was designed to incorporate "research" aspects of this science in all their forms. As the conference progressed, it became evident that the "cross-pollination" effect, claimed for interdisciplinary fields, was at work. Due to the language, experiential barriers, and varied backgrounds of the participants, a great diversity of approach was experienced, and is duly reflected in the papers.

Generally, papers in the "behavioral" section view general semantics as a discipline whose applications and implications are to be tested. On the other hand, "humanistic" papers report applications of general semantics as a research tool.

The conference agreed that, as yet, too little research in general semantics has taken place. This volume should arouse much interest in this undiscovered science, and stimulate further investigation.

Chapter titles: Behavioral Approaches, Humanistic Approaches, Phenomenological Approaches, Interdisciplinary Approaches, Concerning Research, and Concerning the Conference.

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THEORIA to theory

Volume 9, Number 2 (1975)

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THEORIA
to theory

An International Journal of Science, Philosophy and
Contemplative Religion

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Volume 9, Number 3 (1975)

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THEORIA to theory

An International Journal of Science, Philosophy and Contemplative Religion

Editors

DOROTHY EMMET, *Fellow Emeritus of Lucy Cavendish College, Cambridge, England
and sometime Professor of Philosophy, the University of Manchester*

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King's College, Cambridge, England.*

Explorations in the sciences and technology that affect our understanding of religious and philosophical questions—these are the basis of this quarterly journal. *Theoria to Theory* holds that traditional religion has been primarily, and at best, concerned with mystical or contemplative experience; therefore it is important to a widened science in providing one source of insight. *Theoria* was the old Greek name for this insight; *Theory* here stands for an enlarged and revised scientific understanding. The journal represents an effort to keep the two terms with each other.

The journal was started in 1966, when this approach was outside current theological, philosophical and religious fashion, but times have changed, and the interests of *Theoria to Theory* have become those of an influential avant-garde. However, implementing the approach is not so easy. Real understanding proceeds at its own rate, and demands precisely the “waiting on God” that contemplatives should but do not always manage. Any other approach leads, on the one hand, to occultism, and, on the other, away from the spirit of adventure within science.

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JULY 1975 issue

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Editorial

Philosophy often ends with truisms. But how hard is the business of understanding and justifying them! And often in the face of these difficulties philosophers become convinced that the truisms are not true. This sort of position has recently been reached by some philosophers of science. In Paul Feyerabend's latest work "Against Method", for example, "Science" is presented as a necessarily arbitrary and unmethodical attempt to straightjacket us all into a unity of vision, a bogus objectivity. The truism that scientific method leads to a deepened understanding of the world is rejected. There is no scientific method, only an ideology that blinkers and obscures the freedom we have to choose to see the world how we will.

Nor is it easy to resist the appealing rhetoric of this "flippant Dadaist" (as he calls himself). Not only is there no satisfactory account of scientific method, the detailed studies of Kuhn and the sociologists of science show us a murky world in which every human weakness and every human strength conmingle to produce the tidy articles of the scientific journal and the even tidier world of the textbooks.

It is in the context of this wider problem of scientific objectivity that we see the importance of the discussion in this issue between members of our editorial group and the editor and deputy editor of *Nature*.

The immediate occasion for this excessively editorial performance was the publication in *Nature* of accounts of experiments with Uri Geller. For a long time *Nature*'s best known feature has been its letters to the editors, where new ideas and discoveries are put before a wide scientific public—in *Nature* unlike the "trade-journals" of various disciplines, the scientist can be read by the

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whole scientific community. But the problems raised for the *Nature* editors by the Geller article led into a more general discussion and the “messy” facts of individual human relationships, hopes and fears, dogma and anathema that are the substance of scientific life. Significantly both of the *Nature* men take this background as a matter of course in the normal problems of publishing.

But the facts or alleged facts surrounding Uri Geller gave rise to something that no one would describe as an ordinary publishing situation. In the popular press what may be called the “hard swearing syndrome” is universal. That is to say that editors take a line on the paranormal (that it is broadly genuine or broadly spurious) and all that they publish subsequently conforms to this policy—impervious to fact. One of us is going to address a large audience of schoolboys and schoolgirls. Another of the speakers at this meeting works on parapsychology. The third is Professor Hansel. So there are two speakers attempting to give a reasoned account of the efforts being made in the study of the paranormal, while the third (Hansel) has explained that nothing those gentlemen say is to be taken seriously. Since this had been announced in his abstract, it is certain that Hansel did not mean to be swayed by argument. Sparks used to fly about the steady-state theory in cosmology, but you didn’t get Prof. Martin Ryle quietly explaining to the audience that Prof. Hoyle and Dr. Gold were either misled by conjurors putting photographs in the telescopes or conditioned by their wishful thinking into seeing what wasn’t there.

But the editors of *Nature* have not been put off by the hard-swearing syndrome. Moreover their attitude contrasts sharply with the relativity of Feyerabend, for whom anything goes and one view of the world is as good as another, and you believe in the paranormal just as far as you like and as your social conditioning makes it comfortable.

The truism that scientific method offers us a hope of understanding is surely in need of intelligent defence. Not only is it of the deepest intellectual importance that we should understand

how science should and does work, it may be of great practical importance as we try to sift fact from fiction in parapsychology.

* * * * *

We also have an article by Ben Vincent showing striking resemblances between certain notions and practices of the early Quakers and the Cathars three hundred years after the suppression of Catharism in the Albigensian Crusade. There may have been underground survivals with contacts in England—he gives some evidence which he admits is not conclusive†—or this may be a case of the recurrence of certain forms of spirituality without direct influence. In T. to T. we are interested in mystical traditions and their roots in forms of experience rather than in chapters in the history of religions as such. Whatever conclusions we come to about possible connections between the Cathars and the early Quakers, the article brings out the power of a particular type of extreme unworldliness on the part of people still living in the world and practising ascetic spirituality without the support of monastic institutions. Probably few people nowadays are seriously concerned with the Catharist theology and its dualism of good and evil where the world is the creation of an evil power, though it at least shows how Eastern influences were not only present in early Christianity but were recurrent. There is considerable contemporary interest in the Cathars themselves, as shown by a spate of books, television programmes, and a broadcast play. This is partly because their suppression can be presented as a dramatic story of heroism as well as of horror. There is also a prophecy that they would return in seven hundred years—i.e. now— and there are people who believe that they are Cathar reincarnations. But, more importantly, there is the appeal of a strong form of lay spirituality—and here the resemblance with the early Quakers

† His original statement of the case in a letter to *The Times* was a strong one, and was questioned in a subsequent letter (Feb. 24th 1975) by Dr. R. L. de Lavigne, a mediaeval historian in the University of St. Andrew's. The present article takes these queries into account.

is relevant. Neither group has priests. The Cathar “bishops” were wandering elders who went round supervising the “house churches” and the hostels for the sick which they maintained. The Cathar leaders were *Perfecti*—people who had made an extreme and irrevocable renunciation of the world, and who could equally be women as men. They often had powers of ascetic endurance, for instance in fasting, which surprised monastics whose lives were adapted to this kind of thing; and there are reports of their powers of healing. The Cathars in thirteenth century Languedoc and the early Quakers in seventeenth century England lived in a world which was both cruel and pleasure-seeking, and they reacted by producing a form of lay mystical religion which stretched them. They were staunch towards each other under conditions of great danger, and they were concerned to serve the underdogs of society. All this may be why the Cathars are still remembered in parts of Southern France. Janet Howorth, who wrote the B.B.C. play “The Glow in the Embers” about them, tells us that round Montségur, where those who made a last stand were finally overcome and burnt, local people still honour them and speak of the massacre as though it were a recent happening. It is unlikely that these local people think that the whole natural world, and sex in particular, is the creation of an evil power; but heroic spirituality is another matter, and can make its imprint in the communal memory. The Quakers at their best have had a like dedication, without a rigid system of pessimistic theology to support it.

Discussion

But where is the Fringe in Scientific Publishing?

TED BASTIN and ANTHONY APPIAH, of the Editorial Group of *Theoria to Theory*, talk to David Davies, Editor, and Roger Woodham, Deputy Editor, of *Nature*.

T.B. As we have invited you to take part in a discussion, I suppose it is up to us to make a few remarks to set the stage. The first act on this particular stage began for us with the arrival of Uri Geller, and I know that in your editorial capacity you have had to bear in mind the likelihood that Geller's effects are produced fraudulently by conjuring, by subtle use of technology, or by exercising hypnosis on the watchers, or otherwise getting them into trance.

Let me just give a list of issues which the Geller arrival seems to me to have brought up; any or none of which may turn out to be where we should centre our discussion. First there's the odd situation where bodies like the Society for Psychical Research have been publishing accounts of paranormal effects for a very long time, and suddenly, people expect a journal like *Nature* to start as it were from scratch. Then we might want to talk about the way people demand a once-for-all experiment to validate the paranormal, assuming that there is just one issue that can be decided in one step.

Objectivity is a thing people worry about. Some feel science threatened by the paranormal, and one has to consider wherein scientific objectivity consists and whether one has to enlarge the particular frameworks in which we have been used to seeing it.

There are scientific questions as soon as one contemplates the possibility that Geller is for real. They range from general physical ones like whether our familiar range of physical fields and the

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associated instrumentation are the only media for the effects that we can consider, to generalized psychological ones like the effects that altered states of consciousness may have—certainly on perception but perhaps even on the effects direct.

Prima-facie the Geller effects show “thought forms” acting direct on matter. That’s strange. Even beyond that some would like to people the universe with psychic figures of various sorts, for which they say we get evidence from the paranormal. We may not want to talk much about the paranormal, but the appearance of Geller and all that is forcing us to take a new look at the problems of publishing way-out material.

D.D. Although both of us are one-time practising scientists Roger was a cosmic ray physicist, and I, a geophysicist—we are now publishers not scientists so we can only speak with experience about the problems of publishing evidence of the paranormal. Neither Roger Woodham nor myself is even an amateur in the field of attempting to observe the paranormal; indeed I don’t think I had given it a moment’s thought until a year ago when we received the paper of Targ and Puthoff from Stanford Research Institute. During this year we have done a bit of reading and looked at a few things we wouldn’t have looked at otherwise, but on the whole our involvement has been limited to trying to achieve fairness in decisions on papers and to seeing that the to-ings and fro-ings between authors and referees should run properly.

R.W. I think one should realise too, that the very nature of the refereeing process means that we sit on the sidelines to a certain extent. We have, of course, to arbitrate but basically the system is one of peer-review. We put the referee’s views on a paper to the author and vice-versa, but it is mostly referee and author between them who make the decision inevitable.

D.D. Yes. Mostly we can’t afford to come down off the fence on either side. On scientific matters, we are a sounding board rather than a leader of opinion.

R.W. Referees have their own views on objectivity and on scientific methods. In a case like that of the paranormal where objectivity is certainly a complicated matter, most of your referees are likely to take what one might call a rather traditional view of

how you apply the objectivity criterion. This means that one is likely to get fairly uniform negative responses and end up in a closed loop.

A.A. I suppose the fact that you select the kind of referees that you normally consult in itself gives you an influence.

D.D. Yes, we have thousands of referees, and, obviously, we cannot assert that all of them are always scrupulously fair. We quite regularly get into the situation where the referee roundly asserts one thing and the author another and then we've got to take a decision whom to back.

Scientists look to *Nature* as a journal where the amount of risk-taking is much higher than it could possibly be in the so-called learned journals. I don't mean to say that our referees are less competent, or anything like that, but people will send to us the paper that is "flying a kite" and the community will accept that the kite is quite likely to come crashing down within a year or two. I certainly think of *Nature* as dedicated to a Popperian view of science; that is, of taking the big and risky step, followed by exposure to possible falsification.

It is difficult to define what a *Nature* paper is but I knew that when I was a research scientist there were certain papers you wouldn't send to *Nature*—they were just following up standard lines. There were others that were quite risky. I wrote several papers published in *Nature* before I came to the journal and of those I reckon that of something like 50% I would now say—in Ron Ziegler's words—they are "inoperative". I had a limited perspective in those days. So, if you look back along the shelves of *Nature* you can't be sure that what any given paper said then will be concordant with any view that even the author holds now. There is a kind of time constant: if an idea has been floated in *Nature* and hasn't been picked up by somebody else in a couple of years then one doesn't regard it as a viable idea.

T.B. You are falling over backwards to be cautious, but when I phoned you a year ago you said you thought that circumstances had made you concerned about the aspects of parapsychology raised, for example, by Geller. How do you feel about that now?

D.D. Yes, we learnt a lot in deciding what to do with the

paper of Targ and Puthoff about Geller. The main lesson I learnt came the day after we published it. The press picked it up, and their attitude was “if it had got into *Nature*—distinguished international of science—it must be right”. Now I don’t think the idea “If it’s printed, it’s right” applies in any branch of science, but nevertheless the general public does look to somebody to reassure them—me or the President of the Royal Society or the Duke of Edinburgh or somebody.

This experience forced on me the realization that, whatever the public may want, publishing in *Nature* is about presentation and not authentication. There is no reason why one of two referees assessing a paper should be able to authenticate it. Science is not about authentication. Science exists as a consensus in certain people’s minds. You will trust so-and-so because he has always been reliable.

The question then does arise how in-groupy the decision is. Within science the in-group—the invisible college, if you like—exists very strongly. Suppose you go to a conference where there are 5,000 biochemists: are the 5,000 talking to each other at random? No, the five who go out to dinner together are the five most distinguished.

A.A. But there is more to truth than a consensus of the most famous. Or there ought to be. One ought to be able to show that with this way of going on, bad theories will ultimately die. A sociologist of knowledge would point out that you might get into what Lakatos called a “declining research programme”. And then the effect of your five people dining together might be bad in its effect on publication.

D.D. I don’t know if it helps them to get publication so much. It’s rather that they talk to each other and the ideas move round more rapidly. We referee every manuscript that comes in, with certain exceptions which are on the unfavourable side. You’d be surprised how often referees bounce out a paper by a person of eminence, and the greater the scientist, i.e. the greater-spirited, the less it will affect him because he will say “that is what the game is.”

R.W. We usually don’t choose one of the famous five to be a referee anyway: they are too busy.

D.D. There’s the important matter of age, too. We like to get

as referees the people who are a few years post-doctoral and really moving up to the stratosphere. Shaw liked to write about people who felt that—though physically younger—they had been born into a world which was more senior than the world into which their elders had been born; the real seniority had been reversed by profit from the world's experience. That applies to many scientists.

It certainly applies to theoretical work. The more formal theory there is, the less knowhow and background information seem to count. However, even in the knowhow field, experience won't help where there has been a real revolution. Geology is a case in point. It went through a revolution in 1968–70, and people who were in their 40's and 50's and who were old timers in the sense that they had spent years hitting rocks with hammers, and who didn't take any notice of the revolution, or who thought it couldn't affect them, are probably less good geologists now than they would have been if the revolution hadn't taken place.

A.A. I think that is important because it is often said that older people have a stranglehold on what gets through and what gets published and what you are saying is that this is by no means so.

D.D. I spent five years editing the *Geophysical Journal* which is a highly respectable journal. I was 27 then when I started and my co-editor was 35 to 40. They left it to us “Young Turks”.

T.B. Philosophically you have tended towards relativism over scientific truth—a rather popular position nowadays though one quite inconsistent with the lip service you paid to Popper. Now I think that a verificationist like Anthony would by a very long and gentle progress bring you back to acknowledging a form of objectivity—albeit a more sophisticated one. This progress could have taken the whole of our time. However, I feel obliged to take a Young Turkist attitude. In the particular case of the phenomena which we set out to discuss, I personally, have been in a position in which the glorious workings of the scientific establishment, which you have described at its slightly ponderous best, just wasn't doing its stuff. People were just not prepared to look at facts, and were prepared to put forward all sorts of arguments to excuse themselves from the exacting task.

The situation is already different from what it was now that there are quite a lot of subjects who can do some of what Geller has been able to do. If someone talks to you in Hall and says "I don't believe a word of it and I always find that all these reports of P.K. are second or third hand: You never actually see them at first hand", then you can nowadays reply: "If you will take the trouble I can put you in touch with somebody who will demonstrate it for you, and if P.K. is as incredible as you say, then that trouble ought not to be too much for you to take". It usually turns out that they don't want to take that much trouble, but it does shut them up. A few years ago you couldn't do this. You had to refer such people to the published experiments of people like Soal, and everything was indeed rather remote from direct experience.

Now, if the dissemination of scientific truth had been all you have cracked it up to be in the way of openness and flexibility, I feel that the situation sparked off by Geller ought not to have had to happen. The Geller impact has had to be used by people like me in ways that I myself feel to be not ideal but which I believe to have been made inevitable by the "don't want to know" of the scientific establishment. One had to appeal to a new court—that of scientifically uneducated popular opinion and reaction.

That was the point at which *Nature* stepped in. You remember that I appealed to you a year ago for help with what I might say about the as yet unpublished Puthoff/Targ paper, and you admitted to a concern for the situation over parapsychology, and thought there was a case for *Nature* to act to some extent as a medium in which views and facts about that field might sometimes be presented.

2. There is a fairly recent editorial on the need for science to confront the paranormal. I stand behind that. Of course that doesn't mean that we want to receive a flood of articles, but we must not lose sight of this area, and when I say "we" I mean more than *Nature*, I mean the scientific community. *Nature* hasn't the resources to go it alone, only to urge other people to get involved. We have to persuade them not to dismiss it as a wave of happenings which recurs every ten years.

Science is about criticism, you're not being a scientist if you can't provide rational criticism of something which is within your ken, and these phenomena are within more people's ken now than they ever have been before.

A.A. If I may get back to the problem of publication, the difficulty I find with all this is the format in which one can convey this sort of information if it is to have any sort of scientific stamp to it.

D.D. Scientists in general have come to terms with the scientific paper with all its restrictions as a format; and although we know that in a few thousand words they can't give you all that happened, we accept the abstracting rather as we accept that the football results give us what we really want to know about the game.

T.B. From the point of view of the lay public, certainly, there is a strong case for their getting to know about the untidy background. That may mean there is a case for more semi-autobiographical detail.

D.D. Jim Watson was a watershed in a way, wasn't he?† The scientific paper as the scientist understands it is a distillation—a football result rather than a description of every move, and indeed we have very tight restrictions on the lengths of papers. Very few complain about the length they are allowed—even if they have only 1,000 words.

A.A. One of the problems with restricting the sort of information that you permit to be transmitted is that in a new area you don't know what to allow. For example in that box there is a thing called a Schmidt machine. It's a device used by parapsychologists to look for psychokinesis. Most people know what a voltmeter is but almost nobody knows what a Schmidt machine is. Now if you are not working in an established pattern of research, it is often very difficult to convey what you did because you are using apparatus which nobody knows. A lot of trivial-looking explanation becomes necessary which can't be summarized in a phrase as it could be if the technique were well known.

† In his book *The Double Helix* (Ed.).

T.B. In fact if you are in a well-known field you really use strings of complicated procedures each of which is a kind of building block referred to by a word or phrase.

A.A. But here, you have to be extremely sophisticated in what you say the result of the experiment *means*, whereas an output from a biochemist's spectrophotometer means just what it says.

T.B. Are you making a general remark, Anthony, or one that pertains particularly to this machine?

A.A. It pertains particularly here because this is a new area—not in terms of the phenomena but in terms of a critical approach to the phenomena.

T.B. But is that because the area is new or because instrumentation doesn't have the inviolability that one normally assumes for it?

A.A. It is new for that reason, because we don't have established techniques. There isn't something that you can summarize by calling it an amino acid analysis—something that doesn't need explaining.

D.D. But is there going to be a formality, is there going to be a protocol in parapsychology?

A.A. I think that's what happens when a paradigm—to use another of these catch phrases—gets established. But more comes with it. It's not only a matter of acceptable theories and acceptable questions, but also of acceptable techniques and almost of acceptable students. Until you have all these—and of course which they turn out to be depends on what the facts are—it is much more difficult to say in 1,000 words what you are doing.

D.D. Can we go back to the earlier discussion on scientific publishing? First there is the rather trivial issue that arises because you may have many false starts and you only write up the solution that finally works. Then there's another issue that is much less trivial. Someone has an instrument that he goes to every day and uses. For 364 days in the year he doesn't get what he wants and on the 365th he gets just what he is looking for. So he extracts it and publishes it. One does see people looking for phenomena, waiting till they arrive and then putting a box round them.

A.A. If you take the example I was thinking of, of the bio-

chemist, you'll find him doing an experiment 10 times and he won't have a clue why it doesn't work, and it would be a nice problem to discover why in each case something went wrong. Then the next time it goes right. But you usually don't concern yourself further with the selection that went on in achieving repeatability.

D.D. Within the limits set by space available that may be all you can do, but one has to hope that there's an oral tradition that says "if its going to work you must do this and that." But you'll never find it in the literature.

The question whether you can distil *your* stuff into the format which most journals require is a much bigger question for me than perhaps it is for you. No one in the scientific publishing business can allow authors to run on in an anecdotal way. And anyway, how do you judge between different people's anecdotes? On the other hand, mind you, the anecdotal character of some studies may be a matter of importance.

T.B. Yes. And this area is at present largely anecdotal.

D.D. I think it is, and that's why this question is central to our discussion. You may say that we actually get more out of our anecdotes than we would by conforming them to equations.

T.B. To equations, quite certainly: what about a set of standard procedures? There's the battle-ground at the moment. For example you've got John Taylor.† I actually introduced Taylor to Geller and his phenomena, and his approach from the start was that we know what happens in the world—what forces and fields there are—because the detailed numerical success of so much physics could not exist unless these and only these were responsible for everything. Therefore, Taylor argues, one has to see *how* they are responsible for the Geller effects (which Taylor was incisive enough to accept as real very early on). I told him that he would be talking quite differently in a year's time, and he said "maybe, but we must go through the year first." So, in terms of our earlier discussion Taylor was assuming the conventional set of procedural building blocks and thinking he had a watertight case

† Professor of Mathematics at King's College, London. See discussion in T. to T. VIII 2.

for doing so. The question now is: given that one is going to be more sophisticated than that, does one have to go all the way to unrestricted anecdotage? If one does, that is one clear situation to be thought about from the point of view of information dissemination, but *is* it the best one can do? I brought this all up because it shows the remarkable extent to which the familiar building blocks of scientific procedure—X-ray analysis, high energy particle analysis, ultra-sonic analysis, and so on—are suspect as the right ultimate framework for our information.

In this situation, of course, we argue that we must continue to look at the anecdotes and to get a feel of the common thread through them. Then *perhaps* we shall be able to judge what probing experiments are possible, and then to get towards setting up classifying experiments. (I find myself suggesting this scheme for the first time: anecdotes—probing experiments—classifying experiments).

D.D. You are definitely moving it in the direction of a science. You want to do that, do you?

T.B. Yes. To judge from some of your previous remarks, I am perhaps more an objectivist than you are. But however that may be I am certainly after objectivity in the study of the paranormal. What that study forces us to see is the extent to which objectivity has been associated in the scientific mind with presupposed procedures and presupposed *Weltanschauungen* and conceptual frameworks. In particular, the last thing which has been thought tolerable has been for the person investigating to influence what happens. Moreover I say this in full awareness of the claim of quantum theorists, for I do not think they have succeeded at all in setting up an observer-based conceptual framework which in any way replaces the practical currency of the classical one.

Logically speaking, it doesn't make it less objective if—say—the state of mind of the observer influences what happens in the experiments.

D.D. It makes it more difficult to write out.

T.B. It makes it far more difficult to write out and far more difficult to be sure what happened, and to be a reliable witness. A

great deal goes into the melting pot, but my contention is that this only makes it more important to be objective because it alters the conventions within which the discussion of objectivity has hitherto been confined.

A.A. If it were the case that the involvement of the experimenter made objective science impossible, then there could be no science of psychology—at least not analytic psychology.

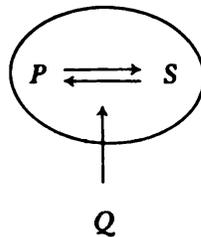
D.D. I think you may be on dangerous ground there. I am extremely sceptical whether psycho-analysis is a science, but I think the reason it isn't a science is nothing to do with the fact that the analyst gets involved with his patient.

A.A. Surely he has to be well aware *how* he is getting involved and what kind of differences this would be likely to make. Psycho-analysis is a rather special case.

R.W. It doesn't seem to be a necessary condition of making this point that you believe in psycho-analysis, because I don't: I don't think it contains any genuinely successful psychological theory, but, on the other hand, I don't think that has to do with the fact that the analyst is involved.

D.D. For the analyst to be able to report on psycho-analysis he has to talk philosophically: he can't put much into symbols. I think for that reason psycho-analysis is never going to be a science.

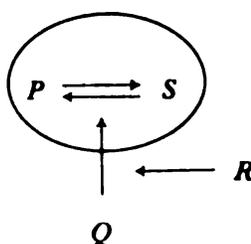
T.B. Well, this discussion does help me make clearer something I said about objectivity which I left obscure earlier. Consider a complicated relationship between psychoanalyst (*P*) and subject (*S*) represented by this diagram:



In order now to do whatever it is that the psychoanalyst wishes to do to the patient the psychoanalyst may have to become a part of the thinking of the subject, and form a unity represented by the oval line. However, there is no reason why another person *Q*, who

may be the original psychoanalyst at a later time, should not think about this process, as indeed I am now thinking about it, and make a scientific statement about what was then happening, and formulate theories about it which are testable in some way. The objectivity of such accounts then depends upon there being a person *Q* who is able to detach himself in that way.

R.W. Actually you could have a *Q* and an *R*, because the *Q* is going to specify the restrictions or interaction between *P* and *S* and then *R* is going to assess the *Q* report.



A.A. *R* is the referee?

R.W. That's right. *Q* has set the questions, and having done that he mustn't assess the way in which $P \rightleftharpoons S$ has answered or failed to answer them.

D.D. Suppose you had an observer noting things from the ceiling. Perhaps if the psychoanalyst were in love with the patient his heart might go bump when he heard the patient's steps. But that's not a thing the observer could observe even though it might be just that which cures the patient.

R.W. If he were any use as an observer he'd have an electrocardiograph.

T.B. Yes, it's up to him to do his best: and anyway who ever supposed that there was something called giving a complete description of any experimental situation: that's always an idealization, and objectivity and accuracy are always in the context of a given set of things which it is understood you are to look for.

Psycho-analysis is a good intermediate case between standard science and the psychic in one particular sense—namely the one we represented with our diagrams. But perhaps we might steer away from discussion of transference and get onto altered states of consciousness, or whatever the paranormal scene has to offer in the way of horrors for the philosopher of science.

A.A. It can't be the case that the causal involvement of the observer rules out the possibility of knowledge, because an experiment is precisely that. The observer takes a part in determining the result of the process. He puts the machinery together and sets it going.

D.D. We don't publish photographs of stars, we publish people's opinions about what the photographs tell you, and in that sense the observer is involved, but he is involved at one remove. However, in paranormal phenomena the observer is right in the thick of it, and I am just worried about how you will ever be able to persuade the scientist by means of a formal protocol. I think we are getting around to discussing the once-for-all experiment. If someone could bend a spoon in an evacuated sphere, and if a large number of sceptics had seen the sphere and had said "yes, this is absolutely remote from all other effects and it's going to be guarded by Securicor 24 hours a day" and so on, then the formalism would come much easier.

A.A. Yes, but it just isn't the case that science proceeds by taking one particular thing and saying "now we know this fact for certain."

T.B. But David was making a different point—I thought he was rather introducing the notion of a paradigm experiment, or something like it with science depending a lot on there being a certain set-up which people come to agree is definitive.

D.D. My point is that that happens afterwards; you can't set the experiment up, do it and have everyone agree that they will accept it beforehand.

T.B. Yes: it gets more and more like that. The Einstein-Rosen-Podolski experiment has gathered momentum over the years and now is really formidable. It took 40 years really to make its impact.

D.D. On the whole, in science there isn't a community waiting around with a shopping list and saying, "All I need is *that* to convince me that something exists, and we shall know that as soon as we've bought this machine which costs £1,000,000." Of course you talk to scientists afterwards and say "What was it that convinced you finally that continents drift?" And most of them will mention one or two papers, but beforehand you couldn't have said

to them, "What would it be that would convince you?" and have them say, "It would be a magnetic tape recording on the ocean bottom."

You raised the question of once-for-all experiments, and I do think we should talk about that in the context of your introductory remarks when you set the stage for this discussion by reminding us that in the case of Geller one usually had three simple possibilities in mind, namely:

- 1) Conjuring
- 2) Collective hypnosis or trance
- 3) Genuine psychokinetic effect.

A.A. I think that if people get too much concerned with trying to rule out conjuring, after a while their efforts get silly. You have to resort to a sweeping generalization to the effect that all the people concerned with the phenomena are trying very hard to fool us.

D.D. Yes, but that is the scientists' criticism.

A.A. But a Popperian should take the strongest hypothesis first—not the weakest—which is conjuring. If people go on indefinitely maintaining that not enough has been done to guard against conjuring then one gets to the point where one says, "What else would you like me to do? If you will give me the specification I will follow what you want, but having done so I am not prepared to have the same question opened on different grounds yet again. We had a man here who was a member of the Magic Circle, and he said he simply couldn't understand how anyone could think that Geller could have done these things by conjuring. His name was Clifford Davies and he is Television Correspondent of the *Daily Mirror*. He went round with John Taylor in the initial stages and saw several of his spoon-bending children. It is typical of the situation we are in that scientists quote the negative remarks of conjurers but you hear nothing of Clifford Davies.

R.W. You ought to talk to David Berglas: I spent an hour doing that and it was fascinating.

T.B. What the sophisticated stage magicians say-- and I know this is true of Berglas because I have also talked to him--is that

perception is a much more complicated thing than most people are prepared to accept. I think that in their defence one should say that the reason they insist on being called “magicians” rather than “conjurers” is because they have an expertise to offer which is bound to be unrecognized if one insists on this hard distinction between the paranormal and trickery. They are heirs of the tradition of magic which did not make this distinction, and the fact that, as I believe, they are not to be trusted in the context we are speaking of is because their profession requires them to blur the modern classifications.

D.D. I think we can't deal fully with conjuring, and should get back to discussing the experimental protocol for work which is to be published.

T.B. I think the unique point that has come up is your question of what investigators of the paranormal should do to get their papers assimilable in the current idiom of scientific publishing.

D.D. That is only if you feel that way: you may feel that the straightjacket of the scientific paper is not the right form and never will be.

T.B. I don't think the let-out that you are offering—namely to have our own universe of discourse and our own form of publishing—is one we should take. Rather we have to find our own sort of objectivity.

R.W. What seems the sort of procedure that looks to me interesting is where you have someone independently of the writer and the referee setting up criteria.

T.B. You are having an ombudsman, or someone who instructs you to do something, and if you can't it is no good coming up with something else. Is ombudsman the right word?

A.A. Moderator?

T.B. Yes, moderator. The moderator must also be allowed to say, “He hasn't done quite what I said, but I'll allow this.”

R.W. The ideal situation is where the moderator says, “you bent this instead of that”, and makes him do what was first asked for.

A.A. If I have a genetic theory which happens to be best

demonstrated with rats and I demonstrate it with mice, ought a moderator who told me to do it with rats to tell me this won't do?

T.B. This came up in a film in which Geller had a series of metal instruments. Somehow a pair of forceps got in the act and no one knows how, but it was a pretty convincing demonstration of how he was asked to deal with one set of objects and dealt with another.

A.A. Your objection is surely that if you have five spoons on the table which have been checked by the Cavendish and you point to one and say, "bend that" and he bends the second, you can't say he's done nothing.

R.W. Very often it won't be one of those five that goes, but something else, and if you say we weren't watching it, this would be inadmissible. But if there were a pile and if they were all being watched with video tape on them, you could in principle check any one of them.

T.B. Were you imagining as a matter of scientific procedure someone being appointed to do this moderator job?

D.D. People might not agree as to the right sort of person. But in a field where there is so much disagreement and people throw accusations of irrationality at one another, the more security the better, and while security is in the hands of the person who is getting the credit for saying "This is a major advance" he isn't entirely disinterested.

T.B. I want to bring up the following trouble about referees. One does sometimes feel when one is working inside this field that one can't win. People say, "We aren't going to allow your testimony because you have been working in this field for ten years so you can't be disinterested." But if you haven't been working in it you don't have the expertise and you don't know what to do. This is the sort of vicious situation which a decent scientist would not accept if put to him, because he could see it puts one in an impossible position, but it is often used against one. Your chap would be subject to that.

R.W. Even in "normal" science you often find a paper from Lab A is thought by Lab B to be just so much nonsense, to be a load of rubbish, instead of the greatest thing that ever happened. If

you send the paper to someone not in competition with Lab A and able to have an overview, asking him as an average informed reader if he would like to see that in print, you might get a view which was subjective, but at least it would help you to assess whether it would be likely to convince a wider community outside the particular field.

T.B. But in our Geller case, you didn't throw it to the wider scientific community. You had to throw it to the public at large, so severe was the clash.

R.W. But the public at large wants more to be for it than against it.

T.B. A lot of the public quite certainly aren't—they would like to see it all stopped. But I think on the whole the British public has come round to thinking Geller is all right, and that is a situation which had to be exploited.

A.A. It is often said by some people in the field that in the absence any adequate theory it is extremely difficult to get hold of these things experimentally. This goes back to the problem of evidence. We have to have some way of using it to guide our theorizing without taking it at its face value. If you have too rigid a system of moderation, you might rule out of court a mass of anecdotal evidence that might be extremely useful in guiding theory and experiments.

D.D. I am not convinced that the scientific paper is the way to do this. Books or novels may be the way to convey to the world at large how the thing works. It may be that the least useful communications are the ones that get into the scientific literature.

Quakerism and Catharism

BEN VINCENT

On April 4th 1975 there appeared a letter in *The Friend*, the weekly vehicle of debate among Quakers, discussing the age-old conundrum of whence come natural disasters. The writer, an elderly Friend, daughter of a Quaker scholar of a previous generation said: *The loving Father of whom Jesus told us is different in character from the creator of natural forces.* She gave the word creator no capital initial.

She has since indicated to me that she did not wish to imply that the teaching of Jesus was unnatural, though her doctrine remains formally dualist. It does not reflect any pronouncement of the Society of Friends, which is mercifully reticent on metaphysical subjects.¹ The writer, the editor and the readers would not regard it as bitheistical though literally it is and anyone uttering it would once have been burned alive.

For it is formally the heresy which Marcion taught in the second century and it has its roots in Gnosticism, which modern scholars regard as at least contemporary with Jesus. It flowered later in Persia, where Mani (Manichaeus) concocted a syncretism of it with Persian dualism. It spread east and west, notably to Bulgaria, where it took root as Paulicianism. In the 12th century William of Newburgh mentions "Publicani" who came to England. The word is a corruption of Pauliciani and was quite common because, of course, of the association of Publicans and sinners! Still later a certain Theophilus, known to the Slavs as Pop Bogomil (a translation of his Greek name, the Pop being our *Reverend* or *Father*) developed Paulicianism in, among other things, a pacifist direction and as Bogomilism it became for a time the pre-

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dominating faith of the Macedonians and Illyrians, though it still had branches as far east as Tarsus. A Bogomil cemetery may be visited by the determined traveller 30 miles inland from Dubrovnik, and a street in Split is still called Bogomil Lane.

Thence it spread across Italy to southern France where it was generally known as Catharism in the 13th century. The story of its suppression is told in Belperron (Pierre) *La Croisade contre les Albigeois*. He does his best to reduce the heat that the story of this crusade still engenders but the effect is only to chill the blood. Obolensky (Dmitri) *The Bogomils* is a full account of the earlier period and Runciman (Steven) *The Mediaeval Manichee* of the later. Many other works, including fiction, have been written about the "Albigensians" and their suppression by Simon de Montfort *père* aided by the Friars, though the doctrines of the Cathars of Albi, Béziers, Carcassonne, and in fact the whole of the Midi, remain little known to any but specialists. Christians have tended to keep quiet about them because, I suspect, they do offer some solution to the problem of evil which is still quite unacceptable to Protestant and Catholic alike.

Cathar means the same as Puritan, as Whitgift pointed out in 1572² though Cathar implies something further: purged, that is of this world, the flesh and the Demiurge who made it and who imprisoned in each baby a spark of the divine. The world is a prison and the flesh a tomb. The true church consisted of those who had celebrated their victory over the world and the flesh by taking the only sacrament of the Cathars, the *consolamentum*, after which they became *gyrovagi*, peripatetic ascetics, who were strictly celibate and travelled about in homosexual pairs of *socii*, which attracted an obvious reproach from the orthodox.³ It must be admitted that affection between people of the same sex might well have been regarded as preferable to heterosexual attachments, which could result in imprisoning yet another soul in the flesh, for the Cathars didn't believe more babies, more sparks. The sparks did not belong to any particular baby and, in fact, some if not all Cathars believed in reincarnation, as, in fact, do some Quakers and, I believe, some other Christians.⁴

The itinerant Cathar adepts were known as *parfaits*. The word

meant only that they had completed the process of becoming *Bons Chrétiens* (as they were also called) or even *Bonhommes*. They seem to have held that souls could be imprisoned in animals and refused to eat any meat except fish, which were not engendered by sexual intercourse. They ate extremely little of anything. They were absolute pacifists even under the most pitiless persecution. They took no oaths because these implied wordly obligations. They did no work but lived on the alms of the *croyants*, who, though not really quite Christians, yet could gain merit by feeding and sheltering them, often at appalling risk, from which the *croyants* do not seem to have shrunk, even though outwardly conforming to Catholic worship. The Bogomils positively encouraged formal conformity as they did not regard the orthodox church as real anyway: it was only a shadowy affair, soon to be swept away. There does not seem to have been any congregational worship but only house-parties, when the *parfaits* stood with arms outstretched while the *croyants* adored them.

Only *parfaits* would be saved, so *croyants* took the *consolamentum* if they thought death was near. If they recovered, there was no going back. One elderly gentlewoman in terminal illness took the *consolamentum*. The bishop heard of it and called on her, imploring her to recant. On her refusal he had her taken out and publicly burnt. (The *consolamentum* consisted in laying a copy of the New Testament on the head of the candidate while he took his promise to reject the world.)

Catharism retired from the scene in the Midi, though it undoubtedly lingered out of sight, for its characteristic tactic of outward conformity made this easier. Indeed, orthodox bishops had complained that many of their most devout communicants were secret Bogomils, while too many of the faithful were dissolute, lazy and corrupt. The meekness, good manners and respectful silence of heretics have often infuriated the muscular Christian more than their errors, which were a closed book to him anyway. This pattern has repeated itself over millennia, under Zoroastrian Emperors, Muslim Caliphs, Orthodox Emperors and Popes, and to a lesser extent under the Protector and the Monarchs of England.

Cathars actually infiltrated Catholic Orders, but some left France

and threw in their lot with the Piedmontese Waldenses, on the strength no doubt of *la haine partagée*, though their new hosts have never countenanced any doctrine that the natural world was made by any other than the Father of our Lord. Some also escaped to the Lowlands.

That Cathar *croyants* continued to live quietly in the hamlets of the Languedoc and to propagate themselves and their doctrines can hardly be doubted, though it is equally certain that their faith, in the absence of their *parfaits*, became modified by more orthodox beliefs. At the end of the eighteenth century a tiny group of peasants in two villages of Provence applied *en bloc* for affiliation to the English Society of Friends, saying they recognized in them kindred spirits. They assured the Quakers that like them they were neither Catholic or Protestant and that their ancestors had suffered terrible persecution, including *femmes délicates*. They had no outward sacraments and were pacifists and non-swearers. An American Quaker of French aristocratic background, Stephen Grellet, visited them later and reports, among other facts, that they had a bedtime prayer, which is a typical Cathar one, though Grellet does not comment. "My soul to God, my carcass to this palliassé."⁵ They formed the nucleus from which grew the existing *Société des Amis (Quakers)*.

The Cathars had many patrons among the gentry of the Languedoc, who would, of course, in the 13th century, have relatives in England. It seems certain, though it does not seem to be documented, that with or without their assistance some refugees came here, just as did the later Huguenots. The Lollard movement of the 14th century had similar patrons among the great squires. It was far from Catharist but it shared with the former Albigenses the mutual detestation of the Catholic authorities. The Lollards were the first heretics in England to be burned. Oldcastle ("Lord Cobham", as he was called by courtesy) at the stake announced that he would rise again at the third day. This utterance would certainly have shocked Friar Wycliffe, whose disciple he purported to be, but it is part of the whole Manichee syndrome that a leader became a surrogate Christ or a reincarnated Jesus, or even the Holy Ghost.⁶

It is no accident, I am convinced, that Lollardy grew up under the shelter of the Austin Friars, who took their name from “that Punic Manichee” as the Pelagians called Augustine of Hippo, who is considered by many of us (*pace* our Catholic friends) to have brought with him in his mental luggage when he submitted to Rome at least some of his collection of Eastern curios, which Cathars would find quite attractive. Put it this way: A Cathar could pass for a Lollard if he was discreet and a Lollard for an Austin Friar, though a discreet Lollard is hard to imagine. It need hardly be said that the three of them would insist that *formellement* their theology and metaphysics were not congruent.

It would be silly to think of all the multifarious sects and subsets of the 11th and the 17th centuries as discrete entities especially as their adherents were often unlettered peasants. It would be equally absurd to treat their notions as necessarily having genealogies. The same heresy can have repeated virgin births. Indeed the “heresy” of the writer I mention in my first sentence undoubtedly arose from her concerned meditation upon the problem of “evil” in “God’s world”, plus a Quaker integrity and refusal to accept uncritically any “received” notions, even from the Bible.

Although many Friends themselves are not aware of it, the first Quakers rejected the whole religion of their contemporaries. It wasn’t just a case of them being a bit shocked by Roundhead and Cavalier goings on. One of them, the gentle Edward Burrough, speaks of “the difference between . . . all sects . . . and us who are in scorn called Quakers . . . The controversy on our part is against them all . . . (we) deny their ministry, their church, their worship and the whole religion.” Penington too denies that the Quakers “have sprung up out of an old root into another appearance”. He makes it plain that they are far from a breakaway from the Puritans, a notion fostered by those who love to plot all ideas along a left-wing/right-wing scale. Fox also denies any descent from “the several Protestants and Papists”. They were committed to the doctrine of the Inward Light of Christ. During the Evangelical period of the Society attempts were made to base this concept on the Bible, and particularly, of course, the first chapter

of John's Gospel, but the fact is neither the Quaker phrase nor the concept itself figure largely in the Bible; it comes from the Manichee/Cathar cluster of dogmas. Friends have often insisted that this Light did not enlighten merely Christians and here again the universalism would be hard to square with most of the Bible. Penn went so far as to say that those who exhibited the Galatian fruits of the Spirit were "everywhere of one religion", a proposition which to this day upsets Catholics and, even more, Protestants of the Calvinist tradition. Penington reckoned that a man may be saved "though he should not know the literal name of Jesus or . . . of Christ", which is so worded as to be in formal contradiction to Acts IV:12.

The Inward Light was all. Men were to "turn in". They were to "seek that which is pure within you to lead you to God" and by "pure" it is clear that Fox meant purged of received notions and of self and its preferences.

It is not the place here to discuss the naive psychology of early Quakerism but to point resemblances to Catharism. The Inner Light was often called "that of God" a phrase which has given French Friends some trouble to translate. They have resorted to *l'étincelle*. "Spark" was also used by Fox, who, however, somewhat preferred "seed".

On "convincement", as Quakers say, many of the first Friends behaved exactly as Cathar *parfaits* did. They simply left home, abandoning wife and children "to the Lord's care".⁷ Nothing could be less like the behaviour of Puritans, who encouraged work, ambition and the maintenance of the "quiverful" among clergy and laity alike. Catholics too, though often featuring vagabond friars, have never encouraged them, especially if married, as Quakerism and Catharism both did, though in its second period the Society of Friends had to put a curb on this practice and invented what they called "liberation" to control anyone who felt moved to travel in the ministry . . . or to marry.⁸ At this point, I should perhaps advise anyone proposing to study early Quakerism that this "second period" began fairly soon after the Restoration, when the movement started to jell into a sect or denomination, and began to be a vested interest. Its "publick Friends" were

somewhat concerned to preserve it intact, to avoid provoking persecution and to soft-pedal its earlier excesses. A great deal of the earlier publications were re-edited, notably those of Nayler, so that it is hard to recognize from them what that manifest Cathar had been like in the days of his prime.⁹

The Quaker founding fathers had not been bound by any outward discipline, which became so top-heavy in the Society of later generations. It is often supposed that they at least consulted the Bible for their daily guidance. Nothing of the sort. Though steeped in it and certainly unconsciously shaped by it they never used it as a canon whether of doctrine or daily guidance. Some of them persuaded themselves that they had independently come to biblical conclusions entirely by introspection,¹⁰ but Fox shocked the “professors”, as he called those who claimed to be Bible-Christians, by shouting out on one occasion, “No, No! It is not the Scriptures!” It was, he went on to say, the Evangelists’ Christ within from which the Scriptures had sprung, and the same Christ is within us in equal measure. We should express it in our way as they did in theirs, and “answer” it in others. He meant by “answer”, *acknowledge*.¹¹

I have said that like the Cathars the Quakers believed that at birth each baby became endowed with the Spark but neither sect inferred from this that it was the duty of Christians to increase and multiply, as both Protestants and Catholics have consistently done until the current problem of overpopulation has caused them to reinterpret the biblical injunction to the Jews. The first Quakers, on conviction, often became celibate even when married. I cannot find that any of the leaders started or enlarged their families after conviction, and it is a striking fact that none of the many well-known “Quaker names” belong to any of the founding fathers, except Fox, and that is not the same family as George’s. (Compare the New England families which can trace their descent from the much earlier Pilgrim Fathers.) It is true that Penn had children, but he falls into a different category from the start, and resembles the Cathar gentry who, as *croyants*, gave shelter and encouragement to the *parfaits*. To read Penn is to be in a different world from that of Nayler, Fox, Burrough, Dewsbury,

Howgill, Hubberthorne, and even Penington. Barclay, who fathered a Quaker family and was a brilliant apologist also in the second period, was a bonnet laird, whose father had turned Quaker too.

This slight disparagement of marriage (as I believe, though I may exaggerate it) lies much deeper than the Apostle Paul's famous locus. Some Quakers and all Cathars (and Marcionites before them) thought it was much better to burn. There was no Quaker or Cathar form of wedding and the first generation of "birthright" Quakers were all the offspring of common-law marriages (since to marry in a "steeple-house" was unthinkable), though a couple contemplating marriage notified the Elders, who arranged an ordinary meeting for worship.¹² There exists in Penington's published letters one addressed to a couple which any modern pair would take as highly offensive in its total lack of congratulation. Much later, Grellet in his Journal tells how he attended a Quaker wedding and, apparently, confined himself to rebuking everyone present for wearing their best clothes.

The Quaker attitude to persecution was much more that of the Cathar than the Puritan (and, of course, Friends were the last sect to suffer major persecution in England). For one thing, it was absolutely non-resisting and this was not because of any Biblical injunction. It was expressly because weapons and wars are "outward"¹³ and "carnal". In this and in many other respects, as has recently been shown, Quakers deliberately avoided Biblical expressions even when citing Biblical precedents.¹⁴ (A nice example is when Fox defended his refusal to remove his hat in court by citing the fact that Shadrach, Mishach and Abednego had worn theirs into the fiery furnace!) They were highly selective in their Biblical texts anyway and their rejection of baptism and any form of eucharist shows that like Cathars they were very far from "fundamentalist".¹⁵ Again like them they found corroboration for their standpoint in John's Gospel rather than in any other, sensing, I feel sure, the pneumatic element in it as opposed to the "outward". This selectivity will immediately be recognized by theologians as in the tradition of Marcion, though Luke was his standby, and him edited.¹⁶

The chief element in Quakerism which distinguished it from Protestantism and Catholicism both, was its perfectionism, and one is immediately reminded that Cathar adepts were known as *parfaits*.¹⁷ It has an entirely different timbre from Protestant righteousness and Catholic saintliness. It marked men and women out for an extraordinary otherworldliness, resembling Eastern yogism or fakirism. It was no mere neoPelagianism of the sort current in the urbane Quakerism of today, which soft-pedals on "sin" without demanding any heroics, which it would regard as just as neurotic as a guilt-complex. It was neither monastic nor eremitical but peripatetic and was completely alien to the Calvinism of the time which, in Quaker phrase, "pleaded for sin".¹⁸ In the *Journal* s.v. 1650 Fox writes: *They asked me whether I was sanctified. I answered, "Sanctified? Yes!" for I was in the paradise of God. Then they asked me if I had no sin. I answered "Sin? Christ my Saviour has taken away my sin."* Elsewhere he states that he was in the state Adam was in before the fall.¹⁹

Bunyan in *Grace Abounding* accuses the Quakers of believing men could actually incarnate Christ, so that the resurrection of the body was for them a past event and the death of Christ upon the cross irrelevant. It is plain that Bunyan is reporting without rancour what he believed contemporary Friends were preaching. It is true that on one occasion Fox actually said: *I and my Father are one*.²⁰ On another he reports the following dialogue, which occurs in the original *Shorter Journal* s.v. 1653, though it was edited out of the *Great Journal*, which is on most Friends' bookshelves: *They asked me if I were the Son of God. I said yes. They asked if I had seen God's face. I said yes.*

During the terrible controversy over the adulation Nayler was receiving (see below) Margaret Fell, who later married Fox, wrote a famous letter which appears in page 250 of Braithwaite (W.C.) *The Beginnings of Quakerism*, in which, if words mean anything, she rebukes Nayler for not owning that it was Fox, not he who had been "given a name to which every knee must bow". She refers to him as the Lamb. Braithwaite does his utmost to reassure the Friends of 1911 and he repeatedly refers to Nayler's "fall", but never of Fox's. The fact remains that both of them seem to

have acted and spoken and even written in such a way as to justify an objective historian in drawing the conclusion that their Christology, like that of the Cathars, was reincarnational.

When Naylor rode into Bristol and his disciples cast their clothes before him and went bareheaded (hatlessness out of doors was a sign of the deepest reverence) and the women cried *Holy, Holy, Holy*, in a wailing tone associated with Lollards (whose name comes from the same root as lullaby), Fox disowned Naylor in the bitterest language, though a number of Friends continued to pay him divine honours throughout his appalling sufferings at the hands of the Parliamentary torturers. The scene is a Catharist one. Believing their *perfecti* were incarnate Christs, the *credentes* abased themselves physically before them.

The casting off of clothing is not itself known to have been a Catharist practice, though it was of many sects, including Gnostics. In the Coptic *Gospel of Thomas*²¹ Jesus is depicted as saying: *When you take off your clothing without being ashamed . . . as little children . . . then shall you behold the Son of the Living One and you shall not fear.* This was, in fact, a sign of Adamite innocence. So too, when Friends “went naked as a sign” it was of shedding the “outward”, the accretions of this world, or, as we should say, the artificialities of civilization. It was going “over” the world.²²

Some of the resemblances between Quakerism and Catharism are fairly deep, I suggest, but others, seemingly superficial, are to my mind even more likely to have been handed down by an esoteric tradition which is not Biblical. One of these is clothing. Belperron's description of the typical Cathar *parfait's* appearance would fit a Quaker of the 17th and 18th century: *Cheveux longs, visage rasé, vêtu de noir . . . un large béret.* (The ordinary English Puritan was not, I believe, so attired.) It is no accident that neither sect used the Puritan “brother” in addressing each other but “Friend” (*Socius*). “Brother” might suggest an “outward” relationship, and when Quakers used it literally, or “father”, they added “after the flesh”. I don't think there is any Biblical precedent for this. It is pure Catharism.

Neither sect celebrated Easter, Christmas or saints days, or used

the word saint in the singular. (Since they also avoided the word church, "St. Paul's Churchyard" became "Paul's Yard"). Cathars shocked their contemporaries by their disregard of corpses "carcasses" (*cadavres*) and their desecration of cemeteries. So too the first Quakers simply plonked their relatives' bodies in fields or gardens, without at first any gravestone whatever, so that we don't know where those of our first spiritual forbears lie, even the most famous such as William Penn. More than a hundred years after his death it was decided to erect an extremely simple headstone over what was presumed to be his grave but no one knows for certain that the right hummock in the garden at Jordans, Bucks, was chosen. Years ago I spoke of the burial of a certain Friend, and an Elder took me aside and explained that it was only his remains that were buried, not the Friend. This was from the beginning a testimony against the biblical doctrine of the resurrection of the body.²³ The attitudes of the two groups to crosses,²⁴ relics, clergy, icons, statues, and so on were far more rigorous than has ever been the case among Puritans and, of course, for a long time all pictures were anathema. I suggest that this extremism could have arisen only from a world-rejecting faith of ultimate Eastern origin, and that Islam itself derived it from the same Christian dualistic heresy as much as from Judaism.²⁵

Though the first Quakers never expressly repudiated the orthodox doctrine of the Atonement, so far as I know, they certainly taught that salvation comes forthwith to him who looks within and sees there his sin and the antidote of it. The personality of the convinced thereupon changes and, like Cathars, Friends began to refer to their baptismal names as if they were unreal. They talked of "the name by which I was known to the world but now I have a new name given me, which the world knows not of, written in the book of life".²⁶ What was crucified in them was selfhood, and though there are, of course, Pauline *loci* for this (and a change of name) it is not orthodox Christianity without the associated doctrine of Atonement. Abandonment of worldly names, by the way, is one of a number of congruences with Catholicism, rather than Protestantism, which Quakerism exhibits.

None of what I have written above proves that there was any



genealogy, however roundabout, from Catharism to Quakerism. It is just possible, that's all. In any case students may rightly point out that the doctrine of the inward spark of Christ in everyone is itself not identical with the Catharist version of the doctrine: in Quakerism it was probably far more closely related to praxis, amounting to something which in modern terms could be reduced to the proposition that if we all gave up our selfishness, our prejudices and our loyalties to received religious creeds, and collaborated, as scientists do (or should do) to build up from first principles an edifice in which all men of goodwill could worship, we should perhaps . . . succeed! The Cathar doctrine was a myth, overagainst the myths which contemporary religions also largely were. If it had psychological undertones, they were unaware of that. It was certainly not praxis: the very thought would have repelled them.

Braithwaite and Rufus Jones noticed the similarity of Quakerism to the faith and practice of such quietist movements as those of Boehme and the Familists in the Lowlands, though they admitted that the early Friends do not seem to mention them. Fox, as we have seen (note 10) was unwilling to admit that he had derived his faith from any man, but only from the Inner Light. Since we know that French Cathars fled to Holland I suggest that it is possible that those sects owed something to the refugees, so either way, it remains a respectable hypothesis, though yet to be proved, that Quakerism through them or some other channel was (is) in the Cathar tradition.

Let me now deal with some circumstances which lend colour to that hypothesis. The Quaker movement seems to have sprung into existence when James Nayler and George Fox started to make contact with coteries, including "Seekers" and "Ranters" which had separated from the existing communions as soon as the power of the great churches had been sufficiently broken to make this possible. They gathered separately in anarchic or protean shapes or lack of shape. They were rather like the more serious wing of the modern Hippies. Both men came from villages where a certain Puritan divine named Nutter had been incumbent, though Nayler had belonged to the Independent Church and Fox to the

Anglican.²⁷ We know a good deal more of Fox than of Nayler. Because of the latter's "fall", he suffered, let's face it, the fate that Trotsky suffered in the history books of the Communist Party, though Nayler was rehabilitated in the period when Fox too had ceased to talk of himself in terms which suggested that he was Christ incarnate. After many years of penitential obscurity, Nayler's works were actually published by Friends, though in a highly edited form, as a glance at them testifies. To read Fox's published *Journal* one might think Nayler was his merest acolyte, which is far from the case, and any modern Quaker reader, perusing the *Journal's* account of Nayler's alleged deviationism (Fox coyly refuses to specify what it was) finds Fox's refusal of Nayler's kiss of peace highly discreditable.²⁸

As a lad of nineteen Fox left home on a sudden impulse, which, of course, came from the Lord. He made his way to Lutterworth, about twenty miles away. He leaves us to suppose that it was the Lord that took him there and he makes no mention of the fact that he must have known that it was at Lutterworth that the Lollard Wycliffe ended his days and reputedly issued his last instructions to his disciples. We know from a famous incident at Lichfield that Fox believed the spirits of the dead, especially the persecuted dead, hung about the spots where in life they had made their testimony. It is more than possible that he went to Lutterworth for an oracle, though he did not receive one yet.

For three years he wandered about. (He does not reveal what he used for money.) He sounded clergy and dissenters and was caustically resentful that none could mediate to him the oracle he was seeking. Then it was that he heard his famous Voice telling him in effect that he should not put his trust in mediated messages but listen to the Christ within him and all men.²⁹ This is often spoken of in Quaker circles as if it were comparable to the sudden conversion of the Apostle Paul but a striking fact is revealed in the *Journal* itself: Fox had been building up to this for years. It was far from spontaneous, for he mentions in particular a woman whom he had consulted, Elizabeth Hooton. It is like him that he doesn't tell us how he came to call on her. Divine guidance presumably. Anyway, she became one of his close associates and

twenty four years later we find her accompanying him and his party to America. It is very much of a moot point who was whose disciple and whether they were not both disciples of Nayler. The plain fact is that all of them were dissenters from the dissenters and that they had more in common with the Austin Friar Wycliffe and such Lollards as Oldcastle than with their contemporary Calvinists, Baptists, Independents and Anglicans, Puritan or otherwise.³⁰

To return to the *Journal*. At the beginning of it Fox mentions that his father was "a Weaver by profession". Now he never used the word profession to mean trade or craft, but religious faith. For him a professor was one who adhered to one of the many sects of the time. Was there a sect of Weavers? I believe so. In *Henry the Fourth* Part I Act II Scene 4, Falstaff, who is the very incarnation (apt word) of the Catholic and High Anglican image of a Lollard, with his hypocrisy, unctuousness, Biblical quotations, cowardice (pacifism?) and so on,³¹ and who was actually called Oldcastle in early editions of the play, is made to utter in a despairing moment the Cathar opinion: *It is a bad world. Would I were a Weaver. I could sing Psalms or anything.* (The Cathars disparaged the Law and probably the Prophets, but not the whole O.T. as is often assumed, for there actually exists a Manichee edition of the Psalms.) I am convinced that Shakespeare is here referring to the Weaver sect, and not the trade of weaving, though annotators usually, I believe, speak of weavers who came across from Holland, and were Calvinists, and the *O.E.D.* has never heard of a Weaver sect. Since we know that Cathars fled to the Lowlands, it is perfectly possible that Cathars who came to England from there were thought to be Calvinists. What we do know is that the word *Tixeront* was used in the Midi for a Cathar *parfait*. The modern French is Tisserand, and it means Weaver! Poulenc has actually set to music an ancient lampoon about their laziness, secret conventicles and alleged feasts (though they never seemed to eat in public, of course). In *Twelfth Night*, too, Act 2 Scene 3, Sir Toby Belch talks about drawing three souls out of one Weaver, which again is a reference to the Cathar dogma of the soul being imprisoned in the body. There is another ancient saying: *The Devil*

would have been a Weaver but for the Temples. I can see no other meaning for this than that the Templars are an even more devilish coterie of heretics than the Weavers, and, of course, the Knights Templars were suppressed for alleged Manichee leanings. Then again: *Weavers' beef is Colchester* (= Sprats). As we have seen, the Cathars refused animal meat except fish.

No doubt this is far from conclusive proof that there was an actual Weaver sect in England, which was a descendant of the Tixeronts of Languedoc, and I should welcome any evidence either way. I have also been unable so far to discover any evidence of the occupation of "Righteous Christer" who was George Fox's father in the flesh, and was a church warden at the village now known as Fen Drayton, in Leicestershire but I shall be surprised if it turns out that he was a weaver *by trade*.

Fox says his mother's maiden name was Lago, and that she was "of the stock of the martyrs". How like Fox that he doesn't tell us what martyrs! A modern writer would say something like, "My mother was related to Glover, who was put to the stake in 1555 at Mancetter¹¹ or "Joyce Lewis in 1557 at Lichfield", though this, even if it was the case, would hardly justify the phrase "of the stock of the martyrs". Would Fox be proud of being descended from Protestant partisans of Princess Elizabeth? I doubt it. It is more likely that he was descended from Lollards, though Gairdner's monumental work mentions no Lago among them³² and that was the foreign-sounding name of Mrs. Fox. Two military men with similar names are mentioned in Braithwaite, but I find it extremely hard to connect these with her or martyrdom. Could those martyrs who sired Mary Lago have been the very same as those who, including *femmes délicates*, were the ancestors of the tiny company of *Gonfleurs* or *Conflaires*, as they called themselves, whose inner spirit moved them (or should we say blew them?) to throw in their lot with the English Quakers to such effect that they changed their name to *Trembleurs*? Alas, it is no more than just possible, nor is it certain that if they were they were Cathars.

It is necessary to point out that Fox does not seem to have believed in any doctrine of the inherent evil of the world, and I

should need stronger proof than I have so far that the Cathars did. Fox spoke of knowledge of the creation as “useful”, a somewhat tepid epithet but not one that should lead us to think he despised it. As a result, Quakers from the earliest days have studied the natural sciences. But they have only recently, I think, come to actually *like* the world. Fox and his comrades passed through breathtaking scenery on his travels in Britain and America, which would give a modern curate material for dozens of delightful sermons about the Great Artificer—or Demiurge. They ignored it. I can’t quite forgive the Apostle Paul for writing all those Epistles without giving an appreciative word of the stupendous scenery of south-western Turkey, of which I am particularly fond. I’m afraid Fox and Paul were both “above it”.³³ Of course other Puritans shared Fox’s horror of games, plays and fun, though none, I believe, his revulsion from all music, for which there is certainly no Biblical locus, by the way. Bells in particular, Fox says, “struck at my life”. Fox’s elderly widow, former spouse of Judge Fell, refers touchingly to the lovely colours of the hills, when she describes as “a silly doctrine” the obsession of Friends for subfusc clothing. Alas, this is one of the few occasions when the faithful disregarded her, until this century.

CODA

To reduce the blood pressure of my beloved fellow Friends I should end, I think, with an assurance that today we just love this world and are convinced that God made it, even if one or two of us may have a bit of a problem still about “Acts of God”, which seem to be synonymous with disasters, and so we devise various theories about them, such as that he appears in two roles in the cosmic drama, one in which he figures as a Creator who is a little remote and may even seem occasionally indifferent to the victims of drought, floods and earthquakes; and the other as the Abba of our Lord, who is all compassion and whose voice we hear within us telling us to alleviate the results of those disasters and even to study the world so as to be more able to anticipate them.

But we disown anything like real dualism and never stop insisting that spirit and matter are one and the same. One of our favourite non-Quaker quotations is Berdyaev’s *My bread is a*

material matter whereas the other man's bread is a spiritual matter. I quote from memory but it would certainly seem that Berdyaev regarded the whole controversy as a semantic matter. He once assured us that he was a neo-Gnostic, though in his *Towards a New Epoch* he carefully repudiates imputation of Manichaeism. Don't we all? But what a tangled web we weave!

Notes

1. Although the word Quakerism occurs early in the literature it was never a body of doctrine, which Fox would have contemptuously called a notion. He often spoke of "professors" of the faiths of all the other denominations but never of professors of Quakerism. Indeed, he often uses the word absolutely, and we can almost see the curled lip as he does so. People to this day are not "converted to Quakerism", they "join Friends". See also note 15 below, second para.
2. *Apud O.E.D. s.v. Puritan.*
3. I use the word without implying that the Cathars practised physical homosexuality. The Languedoc word for Bulgar came to imply that and does to this day.
4. The doctrine of a soul inhabiting a vile body from which at death it flits to anywhere, has never been orthodox Christian, though it is remarkably persistent in popular religion.
5. van Etten, Henry, *Histoire des Quakers Français.*
6. Mani, Bogomil and Montanus before them were the Holy Spirit.
7. *Christian Faith and Practice*, para 32. Other instances are Nayler and Dewsbury, though there are many more.
8. Penn at this time argued that *true goodness don't turn men out of the world but . . . excites their endeavours to mend it.* I am convinced he was thinking less of monasticism than of some of the young Quakers who were still a bit footloose, and defending his own political and extremely practical activities.
9. This discipline did however, become necessary quite early because of ranterdom, which was antinomian. See Hill, Christopher, *The World Turned Upside Down*, a sympathetic treatment. Much about early Quakerism appears in this book which is watered down in most works by modern Quakers on the subject. There was also the shock of Nayler's controversial (as we should say) demonstration (see below) and, after the Restoration, a necessity to distinguish Quakers from the Fifth Monarchy Men and other milleniarists, who attracted severe repression.
10. Fox rather like Paul in Galatians I: 2 says (*Journal* s.v. 1648) "This I saw in the pure openings of the Light, without the help of any man, neither did I then know where to find it in the Scriptures, though afterwards, searching the Scriptures I found it."
11. On another occasion he voiced a similar challenge when he interrupted a "professor" with the words, "Christ says this and the Apostles say this, but what canst thou say? Art thou a child of the Light?" *Christian Faith and Practice*, para 20.
12. A form of words was later devised though originally the couple spoke

- only as they were moved. From quite early times it became customary to notify the civil authority, and Quaker records of wedding Meetings are meticulously kept.
13. See *Christian Faith and Practice*, para 614.
 14. See Barbour, H. and Roberts, A. (eds.), *Early Quaker Writings*.
 15. The tradition continues as it always has through the somewhat frequent and embarrassing adaptations of the Society to current trends (if it doesn't lead those trends).
 16. Friends were the first denomination to acknowledge the value of the Higher Criticism of the New Testament, in an official booklet explaining the Quaker position with regard to the "outward sacrament" of the Lord's Supper.
 17. I repeat, perfectionism is not the same as faultlessness.
 18. *Journal* (ed. N. Penney), vol. 1, pp. 2-3 and letter to "Oliver" (sc Cromwell), pp. 161-2.
 19. It is easy for a modern student to dismiss Fox's attitude to the Bible as inconsistent, or else to attempt to resolve the contradictory utterances. There is no need. It is no disparagement of a great man to recognize that his implicit belief in the Bible and his anxious critique of it constituted a tension.
 20. The words occur in the same passage as referred to in note 18 above.
 21. Published English/Coptic ed. Guillaumont *et al.*, Brill, 1959.
 22. "Naked" in this context may not mean absolutely nude, but it was nude enough to excite the fascinated derision of the respectable, and was certainly intended to shock, and in one historic instance "stark naked" is used.
 23. To this day no Quaker gravestone or memorial plaque is supposed to bear more than the name and dates of the former tenant of the body.
 24. At a recent Quaker gathering in an ecumenical conference house, it was decided to leave a room and go to another because there was on the wall of the former a cross.
 25. C. Torrey, *The Jewish Origins of Islam*.
 26. Besse, Joseph, *A Collection of the Sufferings of the People Called Quakers*, 1753, vol. 2, pp. 201-2.
 27. Pickvance, Joseph, *George Fox and the Purefays*. Friends Historical Society, 1970.
 28. *Journal* s.v. 1656.
 29. "There is One Jesus Christ that can speak to thy condition."
 30. The association of the Austin Friars with Lollardy is documented in Gwynn, A., *The English Austin Friars in the Time of Wycliffe*. For the patronage of Lollardy by certain gentry see McFarlane, K. B., *Wycliffe*.
 31. See Simpson and Baeske: s.v. *Oldcastle apud the New Variorum* edition.
 32. Gairdner, J., *Lollardy and the Reformation*, 3 vols, 1908.
 33. In a famous utterance Fox exhorts us to "walk cheerfully (= courageously) over the world . . ." By "over", a preposition Fox often employs, he meant "above". When an enthusiastic woman cried "George Fox is over all" she did not mean he was the best debater but that he was "out of this world" as we might say.

Freewill and attention

COLIN EVANS

Is there some actual process for which the concept of freewill would be an accurate characterization? This is the question to be explored in this paper, and part of the exploration will lie in considering one possible answer to this question; the answer that the concept of freewill is an accurate characterization of the process known as the selective direction of attention.

This question arises for a person who has been introduced to the concept of freewill as a problematic concept. The concept is problematical for a person who has some understanding of it, but for whom the major issue posed by the concept is the issue whether or not it applies to anything in the real world. For such a person the real issue is this: can a freewill process be identified independently of the fact that it is a freewill process? It follows for anyone for whom the concept of freewill was introduced as a problematic concept that any answer to that question would be received by him as in the nature of a suggestion until he had been shown reason for thinking that the process pointed out to him possesses precisely the characteristics he would expect a freewill process to possess. This paper is addressed to such a person and its aim is to show him that there is reason for thinking that the process known as the selective direction of attention has precisely the characteristics he would expect a freewill process to possess.

What then are the characteristics we would expect a freewill process to have such that having those characteristics would make us want to call the process a freewill process? (A) It must be a process connected with the performing of overt actions: visible

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public behaviour. (B) It must be a process which can be brought under control. And (C) It must be a process in which control is in the hands of no one but the subject whose process it is. In sum (D) It must be a process of self-control.

The characterizations (C) and (D) hide an important ambiguity, and to remove that ambiguity a further characterization needs to be added. The ambiguity arises because a subject can be mistaken over the question whether he has control over the process or not. A subject may think that the control of a process is within his hands when in fact he could be under the control of an invisible mechanism. For instance, stimulated by subliminal advertising I get up to get an ice-cream fully thinking that I am performing an act of freewill, i.e. fully thinking that the doing of this act was something over which I had full control; that it was *my doing* in the deepest sense of those words. Thus we need the further characterization of freewill (E) that although the subject is sometimes mistaken when he thinks he is exercising his freewill, there are occasions in the lives of certain men when it is true to say of them that they are not mistaken when they in their primitive credulity believe that the act they are doing is wholly and completely within their own hands.¹

Although if I am right this characterization takes care of the ambiguity, we can make ourselves still clearer about it. There is a presumption that the only threat to our freewill is an act of coercion, or the threat of such, by our fellow men. Thus we may think that a subject has performed an act of freewill when there is no one around (in a physical or in a psychological sense) to interfere with the control of the process which results in the act he performs. As I hope to make clear an equally great threat to our freewill comes from the control over the process coming from the environment itself. This point will be very specifically dealt with in the body of this paper.

Now that we have before us a characterization of the properties any process must have in order for it to qualify as a freewill process, we are in a position to consider the suggestion that a process that actually occurs which has these properties is the process of selective direction of attention.

This suggestion has been made most recently by R. L. Franklin in his book *Freewill and Determinism*. As he says,

The picture at which we arrive is that in serious cases of deliberation and choice there is a frequent selective directing of attention, which I suggest should be seen as the basis of Libertarianism.²

My purpose in this paper is to carry the discussion of Franklin's suggestion further than he himself has done. Basically I accept his suggestion but I think that it is necessary to identify some of the complexities of the idea if its persuasiveness is to be fully appreciated.

Before I go through the argument to show that the actual process of selective directing of attention has the characteristics enumerated, and thus qualifies as the correct identification of the freewill process, I would like to connect this discussion with some of the work that has been done by experimental psychologists on attention. For the purpose of making my own points I would also like to use some of the terminology psychologists working in this area have developed.

A summary of the work done on attention in a number of laboratories has been given by Neville Moray in the book *Attention*,³ and this is the source book I shall use for the purpose I have just indicated. The terminology employed by Moray which I wish to adopt contains the words "input space" and "output space". These words are themselves used as differentiations of "information space". We owe this terminology to D. Broadbent who suggested that,

It may be desirable to think of the stimuli used in any experiment as having positions in an "information space" made up of all the dimensions discriminable by the sense organs.⁴

Taking this point of departure Moray adds,

We shall say that any signal or event which occurs at or after the receptors in a sensory pathway may be described as occurring in some region of "signal space". When dealing with the initial reception and transduction of signals we will call this the "input space", and when dealing with the organization and initiation of responses we will call it the "output space".

Input space can be thought of as a space of many dimensions. Any stimulus may be defined as a point or region in this space.⁵

In addition to the terminological reasons for making reference to work on attention done by experimental psychologists, I have the further reason that in referring to this work I am referring to evidence for the proposition that there actually is such a process as the selective directing of attention. We are certainly dealing with a process which actually exists if we are dealing with a process which has received detailed investigation in a number of laboratories. A final reason for referring to this work is that I intend to utilize some of the striking findings that this research has produced as a point around which my whole argument turns.

What, then, is the typical laboratory experiment on attention? Here is the answer Moray gives:

A signal is therefore presented in some region of input space, and in a typical attention experiment another will be presented simultaneously in another region of input space. The observer's task is therefore to select one region of input space and to discriminate between the signals (identify the signals) which occur in that region. If he can succeed, and in particular if he can enhance his discrimination of signals in that region and reduce the discriminability of signals in a neighbouring region, then we say that he can pay attention to that region.⁶

At this point I would like the reader to note that Moray describes these experiments as cases in which the observer (subject) is *selecting*, and thus the above passage gives at least *prima facie* plausibility to Franklin's thesis that freewill and selective directing of attention are one and the same thing.

The experimental situation Moray has just described in scientific language can also be described in ordinary language by describing a particular type of experiment which is an instance of the experimental situation. The experiment consists of putting a pair of stereo headphones on a subject, and feeding different messages into each ear. The subject is then told to pay attention to the message coming in through the right ear. In a further refinement of this experiment the subject is also asked to repeat the message from the selected region of input space as he hears it. This process is known as shadowing. Shadowing helps to lock attention into the selected region of input space, and to block out the message of the unwanted alternative region of input space. In shadowing a certain region of output space is related to a certain region of input space.

Of great interest in these experiments is the fact that although the subject succeeds in blocking the message coming from the rejected region of input space, he does not cease to hear signals from that region of input space. Nevertheless he has only the haziest of ideas as to what the signals are. C. Cherry found the following.

When the listeners were asked what they could report about the rejected message their responses suggested that its semantic content had been completely blocked. They were able to say whether it had been speech or some other kind of signal, whether in a man's or woman's voice, often whether it was a list of words or continuous prose, but never could they report the content. Indeed the language of the rejected message could change from English to French to German to Latin to reversed English and back to English, and the listeners would not notice. Apparently there was a complete blocking of the message except for what have come to be called its "general physical characteristics".⁷

It is worth noting that Cherry's experiment was an experiment in shadowing.

In my own thinking on attention as set out in my book *The Subject of Consciousness*, I distinguished two aspects of consciousness, which I called projected consciousness and unprojected consciousness.⁸ I now suggest that Cherry's experiment provides experimental evidence of the existence of both projected consciousness (the message which is the object of attention), and unprojected consciousness (the message rejected). The phenomenological characteristics I assigned to unprojected consciousness are exactly those possessed by the rejected message in Cherry's experiment. Henceforth by unprojected consciousness is to be understood the sum total of signals from regions of input space that are rejected when selective attention is "on" a given region of input space.

The assumption made in these attention experiments is that the subjects are being given tasks involving processes over which they have voluntary control. In other words, the assumption is made that the subject can switch his attention at will, and that he keeps his attention on a given region of input space as a result of his decision to do so. Although the subject has been asked to perform these tasks, the assumption is that he is cooperating freely.

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It has been found that under certain conditions the attention of a subject can be switched to the rejected region of input space by a signal from that region without his having any control over the process. When this happens I shall say that an attention mechanism is at work over which the subject does not have voluntary control. This is the fact that I regard as of crucial importance for my thinking in this paper—what I have called in advance its turning point. For this reason I am going to describe the conditions under which it has been found to occur.

Moray has found that a signal from the rejected region of input space could cause attention to switch to it and away from the region of input space being shadowed when it is a signal of a special kind; namely, the mention of the subject's name.

if commands such as "Stop now" or "Change to this ear" were inserted into the non-shadowed message they were neither obeyed nor heard, but if the command was prefixed by the listener's own name ("John Smith change ears now") it was heard in about one-third of the trials when listeners were not expecting it.⁹

Another case in which an attention mechanism causes attention to switch from a signal from the selected region of input space to a signal from a rejected region of input space has been experimentally discovered by A. Triesman. Listeners were asked to repeat a message they heard through one particular ear, emphasizing that their task was to keep to that ear rather than to the message in it.

The two messages were completely different prose passages, and half way through the presentation they changed sides, so that the message which had been on the left ear was now on the right ear, and vice versa. She found that at the moment when the messages changed sides listeners would repeat one or two words from what was now the wrong ear, and then revert to the correct ear, although unaware of the fact that they had not kept to the same ear the whole time.¹⁰

In respect of discoveries such as these Moray remarks,

We have, then, something of a paradox. On the one hand it appears that a listener cannot hear the content of a rejected message while shadowing a different message localised at the opposite ear. On the other hand some

special signals can cause a change in behaviour It is in the attempt to resolve this paradox that the various theories have been developed.¹¹

The passage does not make as clear as it might the fact that the special signals which can cause a change of behaviour (a change of attention) belong to the class of signals from the rejected region of input space. In the language of consciousness, attention can be caused to switch by an element in unprojected consciousness from the occurrent object of attention to that unprojected element which in the process replaces the occurrent object of attention with itself. Furthermore this can happen without the subject knowing that his attention has switched. This means that the subject can think that he has had control over his attention switching all the time during an experiment when in fact he has not. And this in turn means that he can think of his attention switching during that time as an act of freewill on his part, when in respect of some of the claims he will in fact be mistaken.

Now Franklin himself has recognized that not all attention processes are ones over which we have voluntary control, and he attempts to exclude all cases over which we do not have control and to identify freewill with the remaining cases over which we do have control. On this basis he writes,

Now within this directing of attention, which is itself a sub-class of the changes in our attention, there is a yet smaller sub-sub-class which seems to me to correspond strictly to the notion of choice; and indeed is a genuine choice, though of a minute kind. This arises when we consciously decide between pursuing, or dwelling on, this consideration or that.¹²

Now the trouble is that the sorts of case Franklin rules out are not the sorts of case suggested to us by the experiments of Moray, Cherry, and Treisman. He is ruling out such a case as returning attention to a matter as soon as it has been noticed that one's mind has wandered. This is not a case of voluntary attention according to Franklin, since realization by the subject of the fact that his attention has wandered automatically restores his attention to the activity to which he had set himself to pay attention. However, the significant point is that even in the sort of case Franklin has in mind, in which the subject "consciously decides"

between pursuing, or dwelling on, this consideration or that—the process he calls selective directing of attention—an attention switch can be brought about by an element in unprojected consciousness, and an attention switch which he believes is one he has voluntarily made will then in fact be one made for him by the attention mechanism which enables an element of unprojected consciousness to select itself for attention. Thus the fact that a subject in general has voluntary control over certain cases of attention switching does not rule out the possibility that on a given occasion he has not got voluntary control over the switch although he thinks he has. In other words, the subject's subjective impression that he has made a voluntary switch is nothing like an infallible guide when it comes to telling whether a particular attention switch was voluntary or not.

I now wish to argue that the cases in which a person thinks he has voluntary control over his attention switching when in fact he has not may not at all be isolated cases, but systematic cases such that the subject is mistaken in believing that a whole line of thinking is one over which he has voluntary control when he does not. The argument depends upon identifying a possibility that is not touched upon in Moray's book, but which can be looked upon as a possibility quite in keeping with the findings I have been reporting. The possibility is that a signal from a rejected region of input space (an element of unprojected consciousness) can cause an attention switch to an object of attention other than itself. Thus the subject can believe that he voluntarily transferred his attention from A to B, whereas in fact his attention was transferred from A to B because of the intervention of a signal from a rejected region of input space, without that signal itself ever becoming an object of attention. Because the triggering signal remains in a rejected region of input space and hence is not noticed, the subject does not know of the intervening causative factor, and thus supposes that he himself consciously decided to switch his attention from A to B. The subject supposes in other words that the switching was his doing in a full agency sense of those words, when in respect of the switch he was acted upon rather than being the actor. In yet other words, the subject

supposes that in switching attention from A to B he was exercising control over his attention process.

This possibility I take very seriously, and I wish to claim that it is not only a possibility but a very common fact of life. I wish therefore to describe this possibility in a way which dramatises it. I begin by drawing attention to the fact that when attention is switched from a signal in one region of input space, the signal (message) from the rejected region has to have importance for the subject in order for it to over-ride the fact that attention is locked into a different region of input space. This is why a person's name will do the trick.

Now let us give a special name *captions* to those signals from a rejected region of input space that cause attention to switch not to themselves but to something else. Let us also say that when attention has been switched by a caption it is possible for a sequence of attention switches to follow, all of which are the result of the intervention of the caption. The caption must be seen as giving order and coherence to the sequence of attention switches. The caption gives the theme of the sequence of attention switches. Such a sequence of attention switches united by such a theme can be brought closer to the imagination if we imagine them as following a storyline.¹³ Captions cause the occurrence of storylines in our attention sequences, but since the existence of the caption is unknown, the storyline is interpreted by the subject as a sequence of attention switches over which he is exercising control, or in other words selectively directing his attention.

If we are unaware of the influence of captions on our lives, we may believe that we are fully in control of the storylines of our thinking—that we are consciously deciding whether to pursue this or dwell on that—when in fact the selection is all along being made for us by these captions. Our usual surroundings, our homes, are full of objects functioning as captions on our attention sequences. The books, the records, the letters we leave lying around, all sorts of paraphernalia, make up the captions of our attention processes.

Before we can say that an attention switch came about as a result of the exercise of control over the attention process, we

need to eliminate the possibility that the attention switch was caused by a caption.

It also follows that we can exercise control over our attention processes by consciously surrounding ourselves with a new set of captions. Thus if we spend a lot of time living through depressing storylines, we can consider the possibility that a particular set of captions is causing those depressing storylines. We can replace the unhappy captions with happier ones, and in this way we can alter our storylines. Another method of eliminating unpleasant captions is not to eliminate the object bearing the caption, but instead to alter our attitude to the object bearing the caption. We can give objects new captions. This we can do by training ourselves to recognize our captions and switching attention when we recognize them to a different storyline from the one to which the caption had in the past been switching attention. One way to gain control over our attention processes is to become conscious of captions and then to refuse to let them cause their usual storylines.

Of course not all storylines are the result of captions. Many of them are the result of what I should like to call exemplary incidents: telltale incidents that occur in life and in terms of which a subject identifies his life situation. However, when a storyline is brought about by an exemplary incident the subject is under no illusion that the storyline is an attention sequence that has come about because the subject has consciously decided to make the attention switches.

The difference between a caption and an exemplary incident lies in the fact that captions exist for unprojected consciousness (the rejected region of input space) while exemplary incidents exist for projected consciousness (the selected region of input space).

The examination of the processes of attention switching has been carried to the point at which it becomes possible to consider the five characteristics I listed as necessary if an attention process is to be identified as a freewill process.

I now propose to go through these five characteristics showing that selective directing of attention does indeed possess them. I will take them in the reverse order, so that I begin with a charac-

teristic that connects up most immediately with the discussion which has just been completed; namely the one about captions and exemplary incidents. Characteristic (E) makes allowance for the fact that a person might on a given occasion think that he is exercising freewill when he is not. Characteristic (E) is possessed by certain cases of attention switching, namely those cases in which the attention switching is caused by captions. Since the subject is not aware of the caption he thinks he is in control of the process of attention switching when he is not. Attention processes satisfy characteristic (E).

Part of the ambiguity which characteristic (E) was meant to eliminate was connected with the idea that only another person could constitute a threat to a subject's freewill, and I made the point that the environment itself could constitute such a threat.

This idea can now be understood in the following way. On the interpretation of the freewill process as an attention process we have the situation that the environment, in the form of captions, may have control over an attention process. Similarly, the environment, in the form of exemplary incidents, may have control over an attention process. Thus the claim that the freewill process is threatened by the environment is paralleled by the claim that the subject's control over his attention process is also threatened by the environment; specifically, because of the effects on it of captions and exemplary incidents. Of these two, however, it is the caption which is the greatest threat. It is the invisible mechanism. A paradigm instance of such an invisible mechanism, a caption, is subliminal advertising.

The conclusion to the discussion of characteristic (E) is that on the theory proposed, a person falsely thinks he is performing an act of freewill, when the act he is performing is or follows from an act of attention switching which he thinks is attributable to his voluntary control over the attention process, when in actual fact the attention switch was brought about by a caption.

Characteristics (B), (C), and (D) can be taken together. They are characteristics of a single process and cannot be dealt with apart from one another. Thus we postulate a process which is not under any control. We postulate a process of gaining control over a

process. And we postulate a process in which the control over the process is in the hands of the subject whose process it is. These three postulates are satisfied in the case of a person's control over his own attention switching. First of all attention switching is a process that is subject to attention mechanisms which occur spontaneously. Attention mechanisms are built into the human organism. Secondly, the attention process is a process which can be brought under control through application of knowledge of these attention mechanisms. And thirdly, the subject himself can learn to control the attention process, through learning to apply his knowledge of the existence of attention mechanisms controlling his own attention process.

By interpreting the freewill process as an attention process over which the subject has gained voluntary control we obtain a number of related answers to the questions "Is man free?" In the case of a man whose attention process has characteristic (B) but not characteristic (C), or in other words, in the case of a man whose attention process is controlled by attention mechanisms which he does not know exist, the man lacks freedom altogether. However, because such a man is innocent of the existence of controlling attention mechanisms, in his primitive credulity he will believe that every attention switch he makes is an exercise of freewill. The assumption of such a man is that freedom is a birthright. But he is deluded by his attention mechanisms—his captions. Thinking that his every act is free, such a man is completely determined in all his acts.

A man who learns that his attention process is controlled by attention mechanisms, and that he can exercise control over his attention process by applying his knowledge of the existence of attention mechanisms to that process is a man who has entered the stage of freeing himself from the attention mechanisms operating in him. A man who applies this knowledge to his own attention process is a man exercising his freewill. Such a man has become free.

If we compare the two cases we can treat the word "free" as an either/or word. Either a man is free, as the second man is, or he is not free, as the first man is. There is no in between.

But the second case may be the case of a man who has only just realized that he has the power (through being able to apply the knowledge of what his attention mechanisms are) to exercise control over his attention mechanisms. He may not have exercised this power very often. Such a man will have very little freedom as compared with a man who is near ultimate control over his attention process as a result of continuous application of control over his attention mechanisms. When we compare the second man with this new third man, we can see that we now have a sense of "free" according to which freedom admits of degree, and we can say that one person has a greater degree of freedom than another.

The identification of the freewill process with the process of self-control over the subject's own attention process thus gives us an interesting synthesis of the various senses of the word "free". In asserting that the second man is free and the first man is not, we are asserting an absolute difference between the two men. In asserting that the second man is a beginner down the path to freedom and the third man an adept, we are asserting only a relative difference between the two men. The two senses of "free" are related in that a man must be free in the absolute sense before he can be free in the relative sense. Thus relative freedom presupposes absolute freedom. A process that begins as self-control if carried on ends as self-liberation. One freedom turns into another. It is also worth remarking that for a person with relative freedom freedom is always growing. The more the subject practices self-control the more his freedom grows.

The conclusion to the discussion of characteristics (B), (C), and (D) is that on the proposed theory a person correctly thinks he is performing an act of freewill when the act he is performing is or follows from an act of voluntary control over an attention mechanism. The further conclusion was drawn that voluntary control is acquired through the process of gaining control over a process, and this fact generated two senses of the word "free" such that one sense of the word conceptually arises out of another sense. These two senses of "free" can be understood as having antithetical meanings to the extent that the first freedom, freedom in the absolute sense is a freedom from . . . control by the

attention process, while the second freedom, freedom in the relative sense is a freedom to . . . exercise voluntary control over the attention process.

There remains the examination of characteristic (A). With this examination the paper ends, and with this examination we return to the beginning of the paper, and to the theory offered by Franklin. Let me repeat (A) It must be a process connected with the performing of overt actions: visible public behaviour. Willing is essentially a process connected with action—with the execution of deeds. In much ordinary thinking the assumption is made that between the making of the decision and the carrying out of the act embodying the decision there has to occur the act of willing, which is the act of executing a decision. Now Franklin's theory, the theory that freewill is the selective directing of attention, does not seem to satisfy this characteristic of an act of freewill. For an act of selective directing of attention will more often be a case of switching attention to a perceptual object, or to an object of mental life, than to the doing of a deed. The executive element seems to be missing from the equation. For the theory that freewill is the selective directing of attention to succeed there must exist a connection, an intrinsic connection, between the selective directing of attention and action (the doing of a deed). This tie-in between attention theory and the philosophy of action needs to be made if the case is to be made out that the identification of freewill with the selective directing of attention is to have plausibility.

In fact, that there is a very strong tie-in between selectively directing attention and action it is one of the merits of the theory to point out. The theory is strongest at precisely the point at which it seemed most weak; the point at which in fact some explanation seems called for. The explanation is as follows. By attention a region of input space becomes an information space upon which attention is focused. This information space I identify with the object of attention, and I also identify it with projected consciousness. Attention turns a region of input space into a text. By this I mean that meanings can be read off from information space. Attention cannot turn one region of input space into a text

without turning all other regions into a non-text. Let us call the non-text “noise”. The noisy regions of input space I identify with unprojected consciousness. When the text is read, there is a process of understanding what the text means, and an agreement that a certain portion of the text contains one message. These single messages we call thoughts. Thus the reading of the text is at the same time a process of attention switches between a sequence of thoughts. Now among these thoughts are thoughts to do something, such as the thought “Let’s play tennis.” If, therefore, the selective directing of attention is a process whereby we choose either to dwell on a thought and by so doing pursue it, or to switch attention to another thought, and by so doing reject it, then the selective directing of attention is a process of selection over actions. In selecting or rejecting among thoughts which have action possibilities attached to them, we have to that extent control over action possibilities themselves. For example suppose I voluntarily make my attention dwell on the thought of playing tennis which has come up. This dwelling consists in tennis becoming the storyline for a sequence of thoughts and images and actions having to do with tennis. This sequence has its natural outcome on the tennis court. No willing towards that end will have to have taken place, apart from the natural propensity of the thought itself to ripen into action on the thought. The subject’s freewill in respect of playing or not playing tennis consists in his ability to stop dwelling on the thought, and this necessitates his ability to stop the storyline by switching his attention to something else. If the subject has this ability and yet on a particular occasion fails to use it and accordingly allows the storyline to run on of its own accord, then we can say that the subject has exercised his freedom of choice in not stopping storyline. If a subject does not stop a storyline whose consequences include actions, then the subject is a free agent in respect of those actions. He must accept authorship for them, and own up to them as his alone.

I would like to point out that on the view presented here the existence of freewill does not presuppose the ability of a man to choose the contents of his own thoughts. Even if the contents of

his thoughts do not originate as the novel product of his own creative thinking, but are on the contrary assumed to have been planted in his mind (by a caption let us say), his freedom of the will is not thereby impaired. Even when the thoughts themselves are pre-given, even when whole storylines are pre-given, a man retains his freedom of the will because his control over the selective directing of attention allows him to choose which action possibilities of which thoughts to bring to life. If man had the capacity to create thoughts *ex nihilo*, then that fact alone would be enough to guarantee him freedom of the will, since freewill would then come in at the point of thought creation. Failing that possibility the freedom of man is necessarily circumscribed. We do not choose action possibilities themselves, when our thoughts are pre-given, but we still have a choice between action possibilities, and that choice comes about because the control we acquire over attention mechanisms allows us to select for attention the thought of that action possibility. By dwelling on that thought a particular storyline would have been set going, and the implementation of the action possibility of that thought would belong to the storyline and would occur at its natural place as the storyline unfolds.

There is one situation in which we can claim a more direct authorship for our thoughts than the above paragraph makes allowance for. By an act of selective directing of attention a particular storyline can be kept alive long after attention would have switched to another storyline if the attention mechanism had been left to work on its own. But this means that the thoughts in the storyline that belong to the stretch of storyline which has been sustained artificially would not have occurred had it not been for the selection of that storyline. In respect of such thoughts the subject has a right to claim authorship. He could truly assert "If it weren't for me (my directing attention to that storyline) that thought would not have occurred." If such a thought happens to be a thought with an action possibility implicit in it, and as a result of having that thought that action possibility become a reality, we can say that in respect of that action the subject was doubly free.

I conclude with the following point, which sums up much of

what the paper is about. Suppose a person thinks that freedom consists in using a mechanism called the will, but a mechanism nevertheless that he does not believe he has, how then can he free himself? Who can point out to him the existence of this mechanism called the will? But the selective direction of attention is something that can be pointed out to a man, and when he comes to see how attention is directed—what the mechanisms are—he can plan a course of action for himself with that knowledge. He can apply that knowledge, and teach himself to become free. There is something he can *do*, and it is easy to show him how to do it. He can learn to recognize and alter the captions that dictate the storylines of his thinking, and by so doing change his life. A person who can do this has discovered freedom of the will.

Notes and references

1. For the notion of primitive credulity see Price, H. H., *Belief* (London, 1969), p. 212ff.
2. Franklin, R. L. *Freewill and Determinism* (London, 1968), p. 78.
3. Moray, N., *Attention* (Hutchinson Educational, 1969).
4. *Attention*, p. 11.
5. *Attention*, p. 11.
6. *Attention*, p. 12.
7. *Attention*, p. 50.
8. Evans, C. O., *The Subject of Consciousness* (London, 1972).
9. *Attention*, p. 52.
10. *Attention*, p. 56.
11. *Attention*, p. 52-3.
12. *Freewill and Determinism*, p. 73.
13. The use of "storyline" in this context is the innovation of David Ward, Department of Philosophy, University of Otago.

Reflections on *Evolution and Christian Hope*

DAVID BRITTON

Evolution and Christian Hope by Ernst Benz (Gollancz) must surely join the select company of those half-dozen or so really interesting works that come out of each decade. What it does is to outline the tradition of thought (though with certain important omissions the book could, with profit, have been twice as long of which Teilhard de Chardin is the 20th-century heir. It is part of the book's importance and originality also that it puts Chardin in his place, in more than one sense. He is shown to be an unwitting heir, largely unaware of the tradition, and unaware of the work of German contemporaries like Dacqué and Ziegler.¹ He is therefore not the only, and probably not the best, modern worker in this field.

The main concept of this tradition, implicit when not explicit, is the understanding of creation as continuous. The world is therefore seen as unfinished and developing in accordance with laws, some of them overt, some of them hidden, or accessible only to inspired thought. To put it more organically, a living interdependent hierarchically organized spiritual world manifests itself, or develops its potentialities in an order determined by its own internal relations. In more specifically Christian terms, one can speak of the "pre-existent Christ" or, better still, of "Sophia", the pre-existent Divine Wisdom, developing its potentialities through cosmic evolution to its goal in the fulfilled "body of Christ". I find it interesting (but rather saddening all the same) that so unaware have most Christian theologians been of this mode of

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thinking that its implications for Christology have never been fully worked out—or, where they have, they have not been generally accepted, either by theologians or the majority of believing Christians. In fact, the implications for Christology have been most clearly pointed out by whatever Jew, or Jews, wrote the article “Adam Kadmon” in the Jewish Encyclopaedia. Adam Kadmon is, in the Jewish Kabbalistic tradition, the Primal Heavenly Man (or Sophia), whose potentialities are fulfilled in creation. How this concept is dealt with in Paul’s writings about the first and second Adam is very interestingly expounded by the Jewish author/s.

However, in spite of their neglect, and their lack of development, these ideas do exist within the Christian tradition, and go back to the earliest Christian era. Our usual picture of that era today is that there was a passionate expectation of the early arrival of the Kingdom through the second coming of Christ; followed by disillusion, and a gradual re-adjustment, issuing in an inwardly-turned mysticism on the one hand, and, on the other, in a Church institutionalism which proclaimed *itself* as the kingdom and Body of Christ (with the beastly corollary “Nulla salus extra ecclesiam”). Benz shows clearly that this is far from being the whole truth about those early centuries. The early expectation of the kingdom didn’t entirely dominate Christian thinking at the time, and so, the disillusion was correspondingly less severe, and the adjustment, or adjustments, made perhaps far less drastic than has been supposed. In all, it was a complex situation, with several, not just one or two, strands of thought co-existing, and sometimes joining together. Benz sheds enough light on it to require us to abandon our simple picture, and to treat the tradition of thought that his book examines with due respect, but not enough light to enable us to have a satisfactory picture of all the interrelationships. However, that is a task that can wait. The main thing is that he establishes there is an “evolutionary” tradition of thought. The 2nd-century Montanists quite clearly proclaim the development of man. “The just will shine like the sun.” The imitation of Christ is not merely a pursuit of moral virtues, but an acquirement of the **gifts** of the Spirit, and of the kind of splendour and miraculous

vitality that Jesus himself exemplified, in his life, and in his resurrection from death. Resurrection itself should be seen neither as a unique attribute of Jesus the Christ, nor as being “in the gift of” some transcendent and totally inscrutable (and arbitrary) God, to bestow or withhold according to his unsearchable will (as is the conception even today of certain Christian theologians, mostly Protestant, and German), but as the perfectly comprehensible and attainable goal of our evolution, our birthright in fact, not to be filched from us by theological timidity or divine caprice. Benz’s quotation from Hennecke indicates how far most Christian traditions are from accepting this revolutionary and visionary Montanist outlook. Hennecke writes: “Such hyperbolic expressions were part of the tendencies of that time. It was a doubtful approximation of Christian thinking and pagan ideas, which aimed towards the highest aristocratic status instead of working for the formation of the simple Christian personality.” Benz comments on the historical inaccuracy of Hennecke’s picture, which he describes as a projection of the Protestant ideal upon the early Church, and goes on to say “The idea of the superman is a genuinely Christian idea. By their spiritual experience, they were raised to an unimaginable extent above the level of normal men.” It is indeed good, and gratifying, to find scholarly support for my own sentiment that “the simple Christian personality” can go jump in the lake if it so desires!

Jesus the Christ is therefore seen by this tradition as the prototype of the fully developed man, whose development is a matter of the operation of the Holy Spirit in men. Christians in general, however, have never had much time for the Holy Spirit, or for eschatology, with the result that the manifestations of both have tended to be distorted—taking the form of volcanic eruptions after centuries of unhealthy repression; or crude minds *possessed by* what subtler minds should have been in possession of. That, in a nutshell, is the history of the Spirit and of eschatology, especially in medieval times.

At this point I think I should say that Benz’s book would be more coherent, and even more interesting than it is, had he included in this early part a consideration of Christian Neo-Platonist

philosophy, whose main structures support this kind of thinking. Also, stepping outside a specifically Christian framework, there are the Hermeticists, and some of the Gnostics, who should be taken seriously, and who are perhaps closer to the main theme of the book than the Christian groups mentioned by Benz. Moreover, even within the Christian tradition he is considering, Benz is sometimes underemphatic, failing to bring out the evolutionary significance of St. Paul's well-known words about the "groaning and travailing" of "the whole creation". He seems, unless I misunderstand him here, almost to acquiesce in the view which sees Paul as exemplifying a one-sided mysticism of inwardness.

Benz thus makes a huge leap from early Christianity to Joachim of Fiore (12th century), leaving out all these people, and leaving out Plotinus as well (who is *always* being left out when he shouldn't be).—Joachim of Fiore brought back the Holy Spirit, the clearly discernible progress to the goal, which is freedom as a friend, rather than a mere child, of God (and the prototype which is Christ himself in his life on earth). The Churches have never cared much for the visionary Joachim, which is not surprising, in that they have hardly believed in the Holy Spirit, and, for the most part, emphatically prefer Christians to be children than to be adults. Also, there is the desire to retain Christ as an external figure to be worshipped rather than imitated in the full sense. So Joachim comes to be the inspiration of crude forces of rebellion, exploding rather than evolving into the Christian scene, and thus we get Thomas Munzer and the violent excesses of Anabaptist dominion, and we have Luther screaming "Kill them! Kill them!": after that Europe closes with a sigh of relief the book of the Spirit, and prefers not to think at all along those lines. Until the next eruption occurs. And so on.

For this melancholy state of affairs most of the eschatologists and "men of the Spirit" have perhaps been as responsible as their opponents, in that both sides have often shared a common "Christian" fear that the orderly operation of laws somehow threatens the transcendence of God, and therefore an irrational and arbitrary mode of operation is preferred as a concept. This has probably been a prime factor in inhibiting any continuity of

Christian thought through the centuries on evolutionary and eschatological themes.

It is, however, refreshing and inspiring to pick up the thread of this tradition again in Boehme, and in his German successors Oetinger, Schelling, Beth, and, in the 20th century, Edgar Dacqué and Leopold Ziegler. The vision of evolution is now extended to the entire universe, with, in Dacqué particularly, a clear conception of a hierarchic organism, or "Body of God", and a concept of the evolution of life on our earth which stands Darwinism and Neo-Darwinism completely on its head. As Dacqué puts it, man's original form ("Adam Kadmon" in the Kabbalistic tradition) was metaphysically present in the organic kingdom millions of years ago, and it was man who released representatives of the animal world from his breed, and not *vice versa*. (The only other modern proponents of this startling conception that I know of are Steiner's Anthroposophists, but there is no mention of Steiner in Benz's book.) Dacqué sees earthly man as aiming, in his innermost being, towards the new form of man, whose prototype was Jesus Christ. Everything, in fact, in its own way, will recover to partake of the new transfiguration, to live in a hierarchically organized Kingdom as a fulfilled "body of God"!

Ziegler's thought is along the same lines, the Universal Man exercising the forward pull on the evolutionary process. Each stage of evolution fulfils an image of promise which flashed up in the previous stage as a model of future development. "Life will always be geared either to surpass itself or to disavow itself as something provisional."

In mentioning Teilhard de Chardin at this point, it is significant that one hardly needs to bring in any fresh concepts. Except for Chardin's strong emphasis on the Eucharist as prefiguring the transformation of the cosmos, most of what is good in Chardin is not new, and most of what is new is not good. In this latter category, we have Chardin's frequent callousness, seeing both Verdun in 1916, and Hiroshima in 1945, as wonderful "moments" (in the Hegelian sense) in the world-process.² Chardin therefore welcomes collectivization, whereas the true import of this organic tradition of thought points clearly in the direction of the small

decentralized and diversified community. It is the City-State, not the World-State, which has the mandate of heaven.

Benz also steps out of the main Christian tradition to write a wonderful chapter on the unorthodox Hindu, Sri Aurobindo. Aurobindo has most of the concepts of this Christian tradition, and if he is not quite Christian enough for Benz, he certainly goes far enough for me. Aurobindo is able to emphasize the superman while at the same time correcting Nietzsche, with his "violent half ideas". Benz says he was at first puzzled by this statement inscribed somewhere in Aurobindo's ashram "It is not a crucified body but a glorified body that overcomes the evil of the world." Since Aurobindo has none of Nietzsche's hysterical arrogance, and is careful to emphasize the necessity of the crucifixion of the ego in all self-development, I must say that it is Benz's puzzlement which puzzles me.

Chardin could not publish his ideas while he lived; Ziegler and Dacqué worked in isolation, ignored by colleagues, and their works remain untranslated into English to this day. Why is this? Benz reserves all his asperity for the Existentialists, who have obviously grated very sharply on his nerves over the years. The living ideas of Ziegler have been thwarted, he says, by the "Bonjour Tristesse" of Existentialism, which he sees as a mere "fashion of revolt", which has become "an empty formula", "an element of literary style used by intellectuals who have long ago become bourgeois". This, he says, has been "holding the universities of Germany in its grip". But their day is over, Benz thinks, "a new generation has emerged today, which is getting tired of having its life poisoned by people like Kierkegaard."

I agree, and would only like to add to the diagnosis that strong element in Christianity which prefers arbitrariness in God (to "protect" his transcendence) to the operation of laws. Chardin and his forbears will not be understood until that deformation of thought is abandoned.

Notes

1. Edgar Dacqué was a Paleontologist and one-time director of the Munich museum of Paleontology. Principal work: *Die Ungestalt* (1940). Leopold Ziegler's major work is *Lehrgesprach von allgemeinen Menschen*, 1956.
2. At Verdun on 23rd August 1916: "at the sight of this place of bitter affliction, I was deeply moved that I had the honour to be present at one of the two or three points at which, in this hour, all life of the universe converges and recedes. These are painful points but—I believe it more and more—a great future will emerge from here." On the development and testing of the atomic bomb: "Isn't it the supreme duty of every man to push the creative forces of understanding and action to their extreme limits? And incidentally, is there a power in the world capable of halting the progress of human thinking along any path which it has taken?" (from *The Future of Man*, Fontana Edition, p. 145). "Despite their military setting, the recent explosions at Bikini therefore show a humanity which is at peace both internally and externally. They announce the coming of the spirit of the earth" (p. 152).

The age of madness

Ideology and Insanity, by Thomas S. Szasz,
(Calder and Boyars) 1973. £1.50 (paper)

Dr. Szasz is what one might call a meta-psychiatrist: he diagnoses the disorders of psychiatrists rather than those of patients, and he concludes not only that their case is pretty hopeless, but that they are becoming dangerous and should perhaps be put under restraint. As you may imagine, he is not popular among his colleagues, although an increasing number of laymen have smelled a rat for some time and suspect and hope he may be right. He has had to resort to Bertrand Russell's device after he was removed from his Yale professorship, of listing his qualifications and honours in some detail on the title page, so as to make clear that his criticisms are not those of an amateur.

There are three prongs to Szasz's attack: first, he wants to break the psychiatry-medicine analogy, and deny the claim that psychiatry diagnoses, treats and cures mental *diseases*, in the way that medicine does physical diseases. Secondly, he wants to attack the extraordinary *folies de grandeur* of his fellow psychiatrists: that we are all mad really and need their highly paid help, and moreover, that the general social and political problems of our time would also yield to their ministrations if we would only see it. Szasz is good at finding the knife-twisting quote, as when from an article entitled "Psychiatry and foreign affairs: the expanding competence of psychiatry" he extracts the sentence "Actually no less than the entire world is a proper catchment area for psychiatry, and psychiatry need not be appalled by the magnitude of

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the task." Szasz is appalled, and not only by the magnitude of the task.

Thirdly, and this will be a more familiar point to many readers, modern psychiatry denies personal responsibility, which Szasz considers irreducible to anything else, and the foundation of civilized society. I once spent some time, as neither a patient nor a doctor, in a large London hospital, where the therapeutic technique of the principal psychiatrist was to say to patients very clearly and definitely "PULL YOURSELF TOGETHER". He was the sort of therapist of whom Szasz might well have approved, and anyway his cure rates were no worse than anyone else's.

It will be clear that Szasz's attack is not at all the sort of criticism of Freudianism that was once a philosophical staple: that it was an intellectually incoherent, or empirically untestable, system. Szasz's attacks are on the whole spectrum of practice: behavioral, electrical, chemical and analytic. He is not denying that there *is* such a thing as the treatment of psychiatric conditions, as the earlier critics were. He is arguing that, as therapy is practiced in modern Western society, it induces mass dependence on an irresponsible class of men. He draws the rather familiar parallel between psychiatry and the practice of medieval Christianity in its more exotic manifestations, but makes the point in a new and interesting way.

Szasz is therefore a member of that small band of men who have taken on the overweening but invisible ideologies of our time, and tackled them head on because of the dependence relations they create. Their pretensions are enormous, and their premisses accepted almost without question, so much so that to fight back is made to seem like being against Goodness itself. His intellectual companions are Illich on medicine, and Illich and Goodman on modern education. His general social views, however, are very different from Illich's, for the latter believes in a more primitive, more organic society, just as Goodman believed in some delicate state of anarchy. Szasz, I suspect, prefers the robust individualism of the Fathers of the American Constitution. However, and as we shall see, his connexions with European existentialism make his overall view unusual.

The book is a series of essays, whose titles are: The myth of mental illness; The mental health ethic; The rhetoric of rejection; Mental health as ideology; What Psychiatry can and cannot do; Bootlegging humanistic values through psychiatry; The insanity plea and the insanity verdict; Involuntary mental hospitalization; Mental health services in the schools; Psychiatry, the State and the University, Psychiatric classification as a strategy of personal restraint, and Whither Psychiatry?

A number of main themes reappear throughout the essays, but the book is not repetitive. Szasz writes rather well, is quite strong on philosophical analysis of his terms, and has lots of blood-chilling examples of the venality of the psychiatric underworld, and of the bureaucrats who administer the big business empire that psychiatry now is in the United States (there is nothing in the book to give the British any comfort from drawing contrasts). Szasz brings our attention to an official report on the recent establishment of Community Medicine in the U.S. As he puts it "What I found particularly disturbing about this report was that although many . . . were uncertain about what community psychiatry is or might be, all declared their intention to play a leading role in it. Said a psychiatrist from a midwestern state hospital 'Whatever community psychiatry is we'd better have a part in it. We'd better assume leadership or we'll get the part relegated to us Unless we participate and take the dominant part, we'll be relegated to the bottom of the heap' " (pp. 31-32).

Much of Szasz's anger is directed against sham description: of discussion of quackery as if it were science, of criminal behavior as if it were madness, and of desire for abortion as if it were mental incapacity to have children. Its form is a mixture of (familiar) attacks on those who misuse language and (less familiar) on those with good old Sartrean bad faith. One important question about Szasz's position, and it is a complicated position, is whether or not he wants to see something more than a relabelling of conditions and situations: whether his reforms would "leave everything as it was", or whether there would be actual changes in social and clinical practice. I shall return to this point later.

Let me set out briefly three principal, connected, themes of the

book, and then raise three important points that Szasz ought to clarify.

1) Szasz argues that the psychiatrist's false claim to a scientific detachment is intimately connected with his pretence of neutrality in conflicts that involve the patient. He argues forcefully that the psychiatrist is in fact forced to take sides in such conflicts, in a way that a doctor is not. Thus, if he commits the patient, he takes society's side against the patient; if he merely listens to the patient's complaints about a spouse and advises him, he implicitly takes the patient's side. Indeed, in a ruling last January, the California Supreme Court ruled that a psychiatrist *must* warn the authorities of any threat of violence by the patient, if directed against specific individuals.

Szasz's point is that the patient is involved in real conflicts, with others or with the authorities, and that the truth is not served by a pretence of neutrality in a bland world of therapy in which all conflicts are only apparent.

Szasz is thus at a junction point of agreement between Marxists, existentialists and conservative American Republicans: the belief that human conflicts are real, and ultimately irreconcilable. He also adopts an extended position close to that of the existential psychiatrists, of whom Laing is the best known in Britain, that the 'mad role.' is one *chosen* in the face of irreconcilable conflicts, and is in some sense a rational response to his situation by the patient. The contrast with Freud's early position is fairly clear: for Freud too the hysteric, say, was in a position of irreconcilable, though very real, conflict with someone or something; but could not be said to have *chosen* the hysteric way out, but was, on the contrary, subject to forces beyond her or his control.

2) Szasz then argues that, if the mad role is freely chosen, then the patient is responsible for his subsequent acts, even if they are criminal, and so the insanity defence should be abolished. He supports this conclusion in three rather novel ways (in addition to the standard complaint that no statement of what constitutes criminal insanity has been clear, from M'Naughten's time to our own).

First, that the insanity plea is normally falsely chosen, and so

falls under the general rubric of psychiatry—as sham-description. Szasz produces convincing figures concerning the high proportion of those accused in the U.S. who plead insanity as a matter of course.

Secondly, he produces considerable evidence that in the U.S. inmates are better off in prison than in “prison hospitals”, and that those with experience of both unhesitatingly choose prison, where they have some degree of civil rights, definite expectation of release and so on.

Thirdly, he argues that those who *accept* the insanity plea are dishonest, and he quotes the great passage from Mill, arguing that, when it was proposed to burn atheists, many charitable persons wanted them incarcerated in madhouses instead, and then “applauded themselves, because, instead of persecuting for religion, they had adopted so humane and Christian a mode of treating these unfortunates, not without a silent satisfaction at their having thereby obtained their deserts”.

Szasz’s point is in the last line, and its importance may be brought home to British readers by recalling a recent case, that of the murder of his wife by one Taylor immediately after a service of exorcism. Taylor’s plea of insanity was accepted, but it is now generally agreed that, although in Broadmoor, he is perfectly sane. Szasz’s question—and it must have crossed the minds of many—would be that if he was not guilty because of insanity, but is now sane, why is he in prison hospital at all, *unless* he is in the position of Mill’s atheists, in which case the authorities are being confused or dishonest.

3) The mad role is increasingly thrust upon those who disagree with their masters. This is perhaps the theme about which Szasz feels most strongly, and he has recently devoted a whole book to it, that of involuntary hospitalization. His most forceful examples all come from the USSR where psychiatry is being used to control political dissent, but he brings up the confinement of Ezra Pound in an asylum after the war, and without benefit of trial, as a warning to Americans that they are capable of more than they realize.

Szasz widens his target from political cases to a range of

“nuisances” certified so as to minimize trouble: old people who will not change their wills to suit their relatives are a favourite example. In all these cases his position is simple, and the same as in point (2) earlier: if people have committed a criminal act, punish them openly by the approved methods. If they have not, then do not create a twilight world of mental offences but just leave them alone.

Amnesty International recently set up a commission on the use of psychiatry for political purposes, and they intend to look outside as well as inside the communist world. It is a sign of increasing concern with a topic that Szasz has been discussing from the housetops for some time.

Three important questions occurred to me while reading him, and I find no clear answer in this book.

First, does he really believe there are mad people or not? He admits there are psychiatric “conditions” even though he refuses to call them diseases. He writes that “an assertion that a person is mentally ill involves rendering a moral judgement about him” (p. 26), which suggests that a diagnosis of madness may be *no more than* a moral judgement that a person’s behaviour is objectionable to us in some way. But that will not do, of course, for we can and do say of people that they are “good but mad”. Again, Szasz is preoccupied with criminal behaviour, but a great number of people are plainly mad, in some sense, but do nothing more harmful than taking their clothes off in Woolworth’s. Sometimes they just sit and do nothing at all! I suspect that the truth is that Szasz does believe that there are mad, irresponsible, people but, in cases where their behaviour appears criminal, then he holds it is better all round *to behave as if* they were responsible, and for the reasons set out under (2) above.

Secondly, and as I asked earlier, is Szasz actually neutral about incarceration? If prison hospitals were relabelled prisons, and many asylums were relabelled “Refuge for those unable to cope” (and the etymology of “asylum” is relevant here), would he then be satisfied, bad faith and incoherent usage having been abolished? Clearly not, because he is against all involuntary in-

carceration other than in prisons. Nonetheless, there is a strong ‘relabelling’ element in his proposals; proposals that would leave many people in the same but renamed institutions. There is certainly no evidence that he would want to behave like Governor Regan of California, another conservative Republican though probably not an existentialist, who began simply to shut down the asylums of California, and turn the inmates out.

On the other hand, I cannot tell from the book whether or not Szasz advocates the provision of “refuges”, paid for from public funds, that those unable to cope can enter at will. He describes some such cases sympathetically: mothers, with too many children and drunken husbands, who are now often classified as neurotic. Szasz accepts that they need refuge and that *only* classification as neurotic will now get it for them. Yet it is not clear whether or not he thinks they should really “pull themselves together” instead.

Thirdly, and lastly, Szasz reserves much scorn for his vision of a nation of patients, all dependent on some therapist or psychiatric institution. He wants a return to a race of freer, more responsible and self-determining individuals. But the thought that crosses my mind, and I have no figures to prove or disprove it, is that the causal relation between individualism and mass hospitalization may be rather different from what Szasz assumes it to be. He assumes without question that the latter is eroding the former, but I suspect that the extraordinary competitive individualism of the U.S., and elsewhere, may be *causing* the mass psychiatric dependence that Szasz so dislikes. Non-anecdotal evidence of social individualism is not easy to define, though it is clear that many aspects of what is considered benign individualism in the U.S., such as keeping an artillery piece in one’s garden *and* firing it, would be considered rampant lunacy here. The acceptable level of madness is simply different in different societies, and that makes the hypothesis under discussion very hard to state precisely. Nonetheless, Szasz should at least consider the possibility that the relation between individualism (sanity) and dependence (madness) is not as simple as he thinks, and that, in a book as good as this in

many ways is, the virtues of untrammelled individualism must be argued for and not simply assumed.

YORICK WILKS

Comment

Alternative Technology, Politics and Education

Alternative technology was discussed in Volume 9, No. 1 of *Theoria to Theory*. Is the major problem political or technical or something else? The food shortage is an example of a problem which might be solved by an alternative approach. In some ways it is the most pressing and the most depressing of all the world's problems. Famine is a threat in many countries and a fact in a few. Yet rich people everywhere, including almost everyone in Europe and America, continue to eat two or more meals a day, rich in animal protein. The evidence has been with us for a long time that man can be very healthy with no such protein, but many people still teach, learn, believe that they need their daily egg, cheese, milk, meat, fish. I have settled down in the canteen with a plate of chips and baked beans to be greeted with sad comments like "what a lot of starch", as though protein were in some way less fattening than potato. Nutritionists are now realizing that there is about the right amount of protein in the "starch" foods to provide all a person needs. Vegetables will provide the vitamins needed. It would be strange if this were not so, since many vegans and poor races have lived on such a diet for centuries without apparent ill-effect.

The political answer to this greed might be to ration luxury foods, as we did in the war. Even after the war there was a time when food was rationed in England to help the Indian sub-continent. At that time there was no great outcry, but probably people have become more selfish since then. This is only a partial answer, while the means of distributing food at the needy end are so poor. Massive corruption can lead to a black-market in the grain, supposedly destined for people with no money at all.

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The technological answer must lie in harnessing the sun's energy better, or in harvesting better the food that grows. About 25 tons of wood or plants grow each year for every person alive (ignoring the oceans, which could provide a further 12 tons). Agriculture provides about two tons, most of which is inedible but half of the edible part is fed to animals rather than people, in order to enliven the diets of the rich. So that it should be possible to grow a lot more food using the land better, and even so this would entail capturing only 0.1 per cent of our sunlight. If more sun is converted to food then up to four times more food might be grown on the present agricultural acreage. However, better farming, or new uses for forest and jungle land would again require political initiatives, since the countries with the land do not have the agricultural knowledge, and those with the knowledge do not have the land. It looks then as though the problems are technical *and* political, and the same can probably be said of all the other major problems (population, health, shelter, transport).

In the ideal world perhaps there would be ample training of skilled people, ample use of solar energy (as energy and for making food), adequate means of getting from one place to the other, and permission to do so, and at the same time enough thought given to the environment to prevent the formation of dust bowls, overgrazed deserts, poisoned rivers and seas. How could we get from here to there? One well known group, specializing in looking at new types of technology for developing nations, approached Oxfam for further money. Oxfam asked to see the work done so far, and a number of impressive prototypes were demonstrated. Oxfam felt that the group had indeed shown very high competence and then asked about marketing. The prototypes had been announced, one or two had been sold abroad and there were several enquiries from various nations. But in total the marketing effort had been nearly nil. Oxfam offered a grant to increase the sales of the existing prototypes, but the group explained patiently that it was solely concerned with development, not marketing. So Oxfam kept its money and the group's ideas continue (I suppose) to go unused. So one type of initiative which comes into the category of neither politics or technology is selling. It isn't easy

either, as many contraceptive-pushing groups have found. Only when a full pre-natal and post-natal care service is offered will Kenyan women volunteer in large numbers to try contraceptive techniques. If they are getting the sort of natal care they need then more than 40 per cent will take up a method of contraception. To offer such a service is far more than ordinary "selling" but it is none-the-less the only way to sell the idea of birth control. A barefoot doctor service (i.e. only trained for a few months to give the most frequently-needed help) is likely to be needed for effective population policies. Similarly farmers will generally adopt only those techniques that they have seen used by other farmers in their village. So it becomes necessary to have trained farmers in every village, who will almost certainly have to come from the village in the first place.

It seems to me that wherever there are massive problems the solutions are often known, or at least can be found quite easily. The major difficulty lies in getting the solutions adopted, which while partly a political matter, is far more a question of "education". I have used quote marks to distinguish this from what has normally been thought of as education by all but a tiny handful of educators.

As examples of this handful I will describe briefly the work of Asfaw Yemiru in Ethiopia, and David McClelland, who comes from Harvard but has done his interesting work in India, Mexico, Harlem and depressed communities of America's Black South. (See McClelland and Winter, "Motivating Economic Achievement".)

Yemiru went to the General Wingate public school in Addis Ababa on a scholarship at 12. By the age of 15 he had started to teach orphans how to read and write in the local grave-yard. He had 300 students. He has now a school of 3,000 students, including 400 in-boarding orphans. He regularly achieves the best scholastic results of any school in Ethiopia, but is far from happy with this, since it leads people to feel superior to their origins, and to reject manual or rural work. He has therefore started to train all his students in pottery, animal husbandry, farming, carpentry, building and weaving which are all essential skills for self-sufficiency. He only accepts the children of poor parents, since his

school is free. Most of the parents are themselves illiterate and Yemiru insists that the children teach their parents to read and write. He even sets an exam for each child to administer to his parents so as to check whether the child is following the required syllabus, each year. Yemiru sleeps in a bunk-bed with a group of the smallest orphans, most of whom share their beds with one or two others. He does all the school building with the children, constructs his own looms to his own design, spends every spare minute he can haranguing the embassies in Addis Ababa for grants to keep the school going. He never builds in brick if he can use wood and wattle. As a result he builds at a price of a few shilling a square foot. There are so many orphans in Addis that if one applies to join the school Asfaw will admit him only after a year or more on the streets, during which time he will be fed but not housed. This approach is almost diametrically opposed to conventional schooling in East Africa, with an emphasis on self-reliance, practical skills and little scholasticism.

David McClelland is a psychologist who teaches people to achieve more. He has done a lot of work on measurement of what he calls "achievement motivation" and on how some people have so much more will-to-achieve than others. He is entirely concerned with achievement of targets of "excellence" which he distinguishes very sharply from "power". He has taken groups of businessmen, each owning a small shop or other little firm, and trained them for one week, with enormous success. Typically such a group will generate new employment at a cost of less than \$100 per job for training. This is several orders of magnitude less expensive than conventional business-training, or conventional methods of increasing employment in a depressed area. Briefly, McClelland teaches the would-be businessman how to think as achieving people think, how to set targets, how to measure their own performance, how to find ways round difficulties and so forth. The training is almost entirely concerned with the method of approach and style of behaviour, rather than with any business techniques as such. It is also applicable to many other professions such as teaching, administration, engineering, etc.

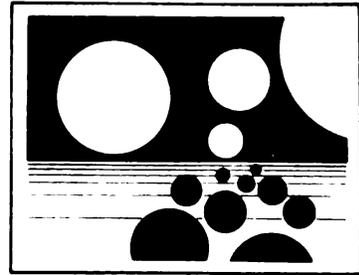
Neither of these people has any wide following, though both are

COMMENT POLITICS AND EDUCATION

well known within their own fields. Both of them show how much can be done with new educational approaches, rather than by means of technology or politics.

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Comment

Uri Geller and the Conjurors

Two of us from the Editorial Group spent a morning talking to Mr. James Randi at King's College, London on July 19th. Mr. Randi is an American conjuror (his term) who is convinced that all Uri Geller's phenomena are conjuring tricks. Mr. Randi gave a demonstration in which one of us held the ends of a spoon which he grasped with finger and thumb in the middle and moved it up and down. The force he used was not great enough to have broken the spoon in the ordinary way, but it seemed to go plastic and fell into two pieces. Mr. Randi had in fact substituted a treated spoon for the one he had called for from the laboratory supply.

Mr. Randi refused to bend an ordinary EPNS table-spoon that we had brought, saying that he was a conjuror. His consistent line was that, although we were under the impression that Geller had undertaken tasks with objects supplied by us, Geller had in fact fooled us in ways like Mr. Randi's own.

When we gave accounts of instances where Geller had treated objects which then continued to bend under our eyes but with Geller clearly separated from them, Mr. Randi's simple case was that we had failed to spot the substitution by him of the spoon, and that in each of our instances there must have been similar trickery which Mr. Randi would have been able to spot if he had been there. There seemed little point in describing phenomena of more sophisticated kinds and not open to conjuring tricks in the same way, since Mr. Randi had nothing further to say. Mr. Randi had apparently stimulated a geiger counter a day or two earlier by introducing radioactive material into the King's College laboratory, but no discussion had taken place of the details of the instrumental

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reaction which had been quite unlike that of the direct radioactive material in the case of the experiments conducted at Birbeck college and reported in *Nature* and earlier in this journal. (See *Theoria to Theory* Volume VIII, No. 2).

Mr. Randi's appearance in London follows closely on the receipt by us of a letter of affidavit from a conjuror from Georgia, Mr. Emil Zorka, who asserts that conjurors cannot perform all the tasks he has seen Geller do. Mr. Zorka claims to represent the American Society of Magicians, but he does not state the names of the colleagues who watched Geller with him. There were also the journalists on the *Daily Express* who had been responsible for a full scale attack on Geller and who took the trouble to go and see him, upon which they decided that at least some of the phenomena were genuine, and they published a full retraction. The earlier article, containing the attack on Geller appeared in the *Daily Express* of January 19th 1974. In it the *Express* writer Don Coolican states that after only one lesson from Professor Kelson of Tel Aviv University, who had studied and learned the methods used by professional magicians, he was able to repeat successfully Geller's watch, spoon-bending and telepathic phenomena using the magicians methods taught him by Dr. Kelson. At this point Coolican had not met Geller nor seen a personal demonstration of those phenomena. Subsequently Coolican flew to Copenhagen to ask Geller to answer "face to face" the accusation that Coolican had made that Geller's phenomena were produced by trickery. Coolican was accompanied by his colleagues Andrew Fyall and photographer Harry Dempster, and the result of the encounter was published in the *Daily Express* of January 25th 1974. In this article Coolican states that the interview took place in his own hotel room and Geller had no chance to set up any magicians' apparatus beforehand. Geller was then thoroughly searched by Coolican, his pockets emptied, his sleeves rolled up to above the elbow, and his hands and arms thoroughly scrubbed. Fyall and Dempster kept a close watch on Geller, and Coolican asserts that there were no distractions. Coolican then selected a heavy key which he had brought with him and asked Geller to bend that key without removing it from his possession. According to Coolican the key never left his hand for a second and Geller required

only to touch the tip of the key while he held it. After 20 seconds the key bent still in Coolican's hand and continued to bend after Geller moved several feet away. This key was then sealed in a thick envelope and continued to bend inside the envelope whilst it was in Coolican's pocket some hours later. The movement produced by the key bending could be felt by Coolican through the thickness of the envelope. This envelope was delivered still sealed to a metallurgist in London. Coolican concludes the article by referring to the encounter as "by any standards, a most impressive and baffling experience".

Mr. Randi apparently has got a group of scientists, including Professor Wilkins of King's College, London, to sign a statement to say that future tests on Geller ought to be conducted with a conjuror present. Certainly we were grateful for the benefit of Mr. Randi's experience and advice, but there seems to be dangerous possibilities in treating the conjuror as the "Delphic Oracle". One is reminded of the apocryphal statement in the laws of Cricket "Two umpires shall be appointed—one for each end (not one for each side)".

TED BASTIN
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RESEARCH DESIGNS IN GENERAL SEMANTICS

Proceedings of the First Conference of Research Designs in General Semantics, held at Pennsylvania State University

Edited by KENNETH G. JOHNSON, Department of Journalism, University of Wisconsin

At present, the study of semantics is such a novel area of study, that very little is known about it. The conference was designed to incorporate "research" aspects of this science in all their forms. As the conference progressed, it became evident that the "cross-pollination" effect, claimed for interdisciplinary fields, was at work. Due to the language, experiential barriers, and varied backgrounds of the participants, a great diversity of approach was experienced, and is duly reflected in the papers.

Generally, papers in the "behavioral" section view general semantics as a discipline whose applications and implications are to be tested. On the other hand, "humanistic" papers report applications of general semantics as a research tool.

The conference agreed that, as yet, too little research in general semantics has taken place. This volume should arouse much interest in this undiscovered science, and stimulate further investigation.

Chapter titles: Behavioral Approaches, Humanistic Approaches, Phenomenological Approaches, Interdisciplinary Approaches, Concerning Research, and Concerning the Conference.

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Sentences

Passages from James Nayler†

Ere I came into the Kingdom of Christ, my pure rest, I met with many hardships and great travails, and many temptations and trials within and without; but the greatest enemies were yet within me, which would upon every hardship be tempting with unbelief to destroy this faith and hope, which was all that I had set before me to encourage me to endure such hardships, and to follow the Light in a way I had not known, and to walk in the clouds to meet the Lord, and to leave my former knowledge and wisdom and glory and riches to go into a way I had not walked. . . And this work was not wrought in me by the knowledge of Christ after the flesh but as I came to learn him in spirit, for spiritual wickedness had taken my soul captive, and by the spirit it must be sanctified and set free. And I came to see that if I had been in his company here on earth as long as his disciples were, in the flesh, and (had) seen as much as they did, and heard from his own mouth, I should have been short of this work as they were, in whom the Child was un-born when he went away in the flesh. And they knew not what spirits they were of until he came again to them in spirit and was revealed in them.

“What the possession of the living faith is” (1659)

† For James Nayler’s story, see above, p. 179. The first two of these passages were written in 1659 after his imprisonment for blasphemy. Those that follow were his last words, spoken a few hours before his death in 1660. He had been found in a field near Huntingdon, bound and robbed, and was taken to a Friend’s house where he subsequently died. We owe the references to these passages to the Quaker publication *Christian Faith and Practice*, in the Experience of *The Society of Friends*.

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The lower God doth bring me, and the nearer to himself, the more doth Love and Tenderness spring and spread towards the poor, simple and despised ones, who are poor in spirit, meek and lowly Suffering Lambs, and with those I choose to suffer, and do suffer, wherever they are found.

“To all the dearly beloved people of God” (1659)

There is a spirit which I feel that delights to do no evil, nor to revenge any wrong, but delights to endure all things, in hope to enjoy its own in the end. Its hope is to outlive all wrath and contention, and to weary out all exaltation and cruelty, or whatever is of a nature contrary to itself. It sees to the end of all temptations. As it bears no evil in itself, so it conceives none in thoughts to any other. If it be betrayed, it bears it, for its ground and spring is the mercies and forgiveness of God. Its crown is meekness, its life is everlasting love unfeigned; it takes its kingdom with entreaty and not with contention, and keeps it by lowliness of mind. In God alone it can rejoice, though none else regard it, or can own its life. It's conceived in sorrow, and brought forth without any to pity it, nor doth it murmur at grief and oppression. It never rejoiceth but through sufferings; for with the world's joy it is murdered. I found it alone, being forsaken. I have fellowship therein with them who lived in dens and desolate places in the earth, who through death obtained its resurrection and eternal holy life.

Thou wast with me when I fled from the face of mine enemies: then didst Thou warn me in the night: Thou carriedst me in Thy power into the hiding-place Thou hadst prepared for me: there Thou coveredst me with Thy Hand that in time Thou mightst bring me forth a rock before all the world. When I was weak Thou stayedst me with Thy Hand, that in Thy time Thou mightst present me to the world in Thy strength in which I stand, and cannot be moved. Praise the Lord, O my soul. Let this be written for those that come after. Praise the Lord. J.N.

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THEORIA

to theory

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**An International Journal of Science, Philosophy and
Contemplative Religion**

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THEORIA to theory

An International Journal of Science, Philosophy and Contemplative Religion

Editors

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Explorations in the sciences and technology that affect our understanding of religious and philosophical questions—these are the basis of this quarterly journal. *Theoria to Theory* holds that traditional religion has been primarily, and at best, concerned with mystical or contemplative experience; therefore it is important to a widened science in providing one source of insight. *Theoria* was the old Greek name for this insight; *Theory* here stands for an enlarged and revised scientific understanding. The journal represents an effort to keep the two terms with each other.

The journal was started in 1966, when this approach was outside current theological, philosophical and religious fashion, but times have changed, and the interests of *Theoria to Theory* have become those of an influential avant-garde. However, implementing the approach is not so easy. Real understanding proceeds at its own rate, and demands precisely the "waiting on God" that contemplatives should but do not always manage. Any other approach leads, on the one hand, to occultism, and, on the other, away from the spirit of adventure within science.

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Editorial

Several articles in this number raise in various ways the questions of Justice and of mutual respect in people's dealings with each other. In the discussion with Ted Matchett a method is described which is designed to bring out people's creative potential, mainly in the context of jobs. He is interested in encouraging a sensitivity which makes people alert to non-obvious possibilities: he clearly minds about mutual respect, but does not say much about situations where there are strong divergences of interest, and what is needed is also fairness in recognizing other people's claims. Laurence King's article based on Anne Sayre's life of Rosalind Franklin gives a notable example. James Watson's widely read book *The Double Helix* contained personal remarks about Rosalind Franklin which deflected attention from his failure to acknowledge her achievements in the work which went into the discovery of the structure of DNA. The injustice was not properly repaired by an epilogue in which this was partly acknowledged, since the original passages were left unaltered. Barry Hallen writes about how a philosopher can collaborate with diviners in a traditional African society in interpreting their beliefs. He treats the masters of these as highly intelligent (which they are) and as *colleagues* in an enterprise which can be of interest to both parties. They are not simply seen as subjects supplying information for someone's PhD, a form of relationship which can be less than just. Lastly, Kathleen Gibberd writes about how old people need respect rather than "loving care".

All this led us to think about Justice, and we wanted to find some passages about it for our *Sentences*. They proved hard to find. Pieces from the poets, yes. ("Only the actions of the just Smell sweet and blossom in the dust", and so on.) The philosophers? Plato, of course, but his Justice as "minding your own business" was not what

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we wanted. Other philosophers have made careful analyses of formal procedural Justice as the impartial application of whatever rules one happens to have; of distinctions between distributive and corrective Justice; of different theories of punishment; and, most recently, there has been John Rawls' monumental attempt to define just arrangements as those rational men would accept in a putative Social Contract made under a "veil of ignorance" which prevents them from knowing what their own interests would be (*A Theory of Justice*, Harvard 1971). All admirable, but singularly unquotable.

So we turned to the lawyers, who are supposed to be professionally concerned with Justice. Or are they? They are concerned to administer the law, and are bound to interpret the law as it stands. The judges' oath is "to do justice according to the law", and that of Justices of the Peace to "do right to all manner of people after the laws and usages of the realm without fear or favour, affection or ill-will". Here we have procedural justice — impartiality in the administration of laws. But we have also an expression of an intention to "do justice", or to "do right". Is this only a matter of applying the law? It sounds like a wider concern which could guide its interpretation. So we looked for passages in the pronouncements of judges and lawyers which said something (quotable) about this, and could find very little. Nor could two professors of Law whom we asked to help us. One said that "Justice" did not so much as appear in the index of many of the fifteen books he consulted, and he "felt a bit shattered in consequence". This should not make us merely cynical about any connection between Law and Justice. There is indeed a necessary connection (in the logical sense) between the notion of a rule and its application in a like way to like cases. This does not itself make the rule a just one; but such procedural justice is not to be despised, as can be seen where the administration of the law is open to fear or favour. There is the view of the Natural Law which says that only just laws are properly laws ("*Lex iniusta non est lex*"). But this is rejected — in our view rightly — by most lawyers, who see it as confusing the function of the courts with that of the legislature. If a law has been duly passed by the legislature then it is a law, and a judge cannot refuse to recognize it as law because it does not accord with his own moral sense. A law may be

iniquitous while still being law. This puts the judge concerned to do justice according to the law into a position where he is bound by the law, but this need not mean that his own moral sense is inoperative, and some judges show this more than others. It can come out in their *obiter dicta*, where they make comments on the law as it stands; it can also be shown in the ways they interpret it and in the kind of sentences they give. This is expressed in some remarks of Lord Wright's which we quote. The concern for Justice in its substantive as distinct from its procedural sense is shown in these manners of giving legal judgments, and the limitations of this context may be why judges and lawyers say little about Justice as such. One certainly cannot go to them for the rhetoric of Justice. Whatever they say must be guarded with qualifications against any possible misunderstanding, so that it tends to be either formal or complex.

Lawyers, then, have professionally to apply the law. But the law is made by a legislature which, at any rate in a democracy, is influenced by currents of opinion as to what is fair, as well as by what Plato called "The interest of the stronger". Social morality will play upon the minds both of those who make the law and of those who administer it, and such morality can be more and it can be less concerned with Justice. Sometimes even slight differences in the interpretation of a law can serve to bring judgments nearer to people's contemporary moral and social sense by judges being prepared to ask what evils Parliament was seeking to correct.

Of course Justice is not only a matter of transactions regulated by law. Justinian's description of it as "a constant and sustained determination to give everyone his due (see *Sentences*) is perhaps as good a one as we can find. To see what is due to people requires thought and appreciation of their position; it is a form of personal morality which is not superseded by love. As Aristotle said (also see *Sentences*) it is an ingredient in friendship.

Procedural Justice, then, is the administration of laws without "respect of persons". Substantive Justice depends on respect *for* persons, and this can call for another quality besides Justice. How shall we describe it?

In Plato's *Protagoras* Zeus gives mankind two gifts, *dike* and

aidos, "in order that they may be able to live together in civil association and friendship". *Dike* can be translated "Justice"; *aidos* is more difficult. "Reverence" perhaps, which also means respect of man for man. In this it is akin to the Latin *Pietas*. "Piety" is a word which has degenerated in English usage. In our *Sentences* we also quote some paragraphs from an essay by Charles Browne who uses it in the old sense of *Pietas*, where reverence for God is shown also in sensitive consideration for one's fellow men. Charles Browne was one of the original supporters of *T. to T.* and he continued his support through a long and incapacitating illness. He died last spring, and we quote these passages in his memory.

£50 Prize Competition

What the Archbishops should have said

The Archbishops of Canterbury and York had the courage to exhort the community to ponder deeply on what was wrong with our outlook and our conduct. Not everyone approved of what they had to say.

A prize of £50 is offered to the winner of a competition, in the form of a letter to be read from the pulpit, expressing what the entrant thinks the Archbishops should have said (1500 words maximum).

The winning entry and a selection of the runners up will be published in *Theoria to Theory*. Members of the Editorial Board can compete, but are not eligible for the prize, which is offered by a founder subscriber.

The judges will be:

Lord Ashby (until recently Master of Clare College Cambridge)

David Lane, M.P. for Cambridge.

Professor Dorothy Emmet (Editor, *Theoria to Theory*) and the donor.

Entries should be sent to The Editors, *Theoria to Theory*, 20 Millington Road, Cambridge, CB3 9HW by Monday, February 16th 1976.

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Interview

Tuning the human instrument

TED MATCHETT (*E.M.*) talks to a member of the Editorial Group of *Theoria to Theory*. (*q.*)

(*Ted Matchett, an engineer and adviser in business management, has developed a method by which he helps people to increase their creative potential. His work has been mainly, though not exclusively, with industrial groups. We thought that his views would be of interest in the context of our concern with "technology to enhance life", and also with how we need to change our ways of thinking and living in a changing economic world. So one of the Editorial Group – here called Questioner – interviewed him.*)

q. We have a series in *Theoria to Theory* called “Enhancing Life through Technology” in which we asked engineers in particular to talk about ideas they had with respect to how technology could do this. We are continually hearing how technology is ruining the environment but we found these people were showing imagination as to how the world might be made a better place to live in. This series was started by Lewis Braithwaite who is now in environmental studies at Birmingham University. All of these articles had a practical approach with a philosophical background. I believe your own work has a theoretical and philosophical base which translates into forms that are highly practical. Could you then explain or give examples of your approach? I believe you base it on what you call the “3M equation” – *matter, media* and *meaning*, but I am not clear what these stand for or how you would relate them.

E.M. Certainly. The 3M equation is for appropriate form in any field or situation. Stated simply, appropriate form exists or comes into being whenever there is a meaningful relationship established between that which exists – i.e. *matter* – and that which requires existence—which I call *media*. A point of *meaning* occurs—and therefore a point of appropriateness occurs—when there is an exact

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matching, a dynamic fit—a resonance—between *matter* and *media*. In the glass industry at Pilkington Brothers where I did much of the early proving of this theory, I have to base the teaching on the 3M equation. We are concerned in using the theory to make new glasses, to make organizational structures, and to find ways of opening up new markets etc.

Actually it is difficult to show this in practice because we are getting in touch with possibilities through all sorts of sensory and emotional channels. The philosophy is pushing you to do that. The moment you do get in touch it is rather like plugging into a telephone switchboard. Perhaps it could best be explained by expanding on the 3M equation.

q. Yes—please do this.

E.M. By *matter* I mean anything you can touch and handle or can handle with instruments. Of course there is always the problem here of how far down in size it is possible to do this, but *matter* means everything that already has form; bone, skin, cloth—anything. It is substance and is therefore equated with the past as it has already arrived and come into being.

When I talk about *media* I am also talking about a realm that has form—but an invisible form. But in a very important sense *media* is nothing: it is no thing. It is nothing that as yet exists but that which requires existence. So we seem to be putting in a sort of value system, but what I must point out is that it is not a value system produced by man at any rate which will decide what does require existence in the scheme of things. Because of the difficulty of describing this, I have very often started from, for example, the idea of a healthy organism. Let us assume that this healthy organism—of any order of complexity—begins to become unhealthy. There is a *media* requirement in my terms to bring about change. A “*media stream*” is formed and is requiring something to be added or something to be changed that will bring it back into a state of health. That is something that does not actually exist; but the actual thing that exists in that organism can not continue to exist unless this “no thing” begins to be satisfied. That is one of the ways that I try to get people to think of what *media* is.

Another way to look at this business of growth is exemplified by

the sort of forces that Teilhard de Chardin talks about—pulling towards Omega. Whether or not most people believe that things are being pulled towards Omega, they would imagine that they are going somewhere. They may not believe that they are being pulled somewhere but they may safely assume that they are going somewhere beyond where they are. I have a very strong belief that it's not just an arbitrary thing or just a matter of chance as to the direction that the whole evolutionary process is going. It is in fact being pulled somewhere and what is doing the pulling is what I quite loosely label "*media streams*".

So I talk about *media* as being communication, but communication of that which is needed but does not as yet exist. I see *media* as holes and I often use the phrase "holes in the Universe". *Media* is a gap—it is always dynamic. But it is not the sort of patterns that some religious people talk about. (I don't think that I fall into the trap of the idea of these beautiful patterns up in heaven which should have earthly correspondences; I don't think it's like that.) There is a tremendous amount of freedom in this thinking. Let me try to put this in simple terms.

I believe I have what I call a fairly strong immediate sense and I know at certain times that something quite complex and massive has a chance of being realized at a particular moment in time. Because a lot of these patterns are very complex, they cannot be met and satisfied by any one individual, however clever or sensitive that person might be. These patterns are very like those that the weather man shows us every night on TV, where the charts show areas of depression and so on. Let us assume that the order of complexity of a particular pattern requires at least six people to do their particular thing in order that something new can emerge or some new balance be restored to a situation. And let us also assume that one of them does not do it. As a result the pattern dissolves in the form that it was—it is very time dependent. There is still a hole in the universe, still a gap to be filled, but now it reforms as quite a different gap and, as it were, cries out to a different group of people which might include some who are already involved in doing other things. It is this dynamic kind of movement behind and beyond things that I call *media*.

q. We normally use the term *media* as a means of communication. Why did you choose it?

E.M. I did not choose it—as with a lot of things in my work it chose itself! I said “No” and it said “Yes”, and we had a battle and finally it won. I did not know why at the time, but it has this ring of truth about it. I had to accept it. A lot of my thinking is like that. For example, whilst working on a complex problem there appears in my imagination an abstract diagram, a circle; and I would say, “Ah, yes, that’s like the world”, and then I see people on it, except that all the people are standing on their heads; they are inside the world. Then I tell my imagination to put them on the outside, and the result is a tension inside myself, a conflict. I put them there, but they go back again to where they wanted to be and I begin to wonder why. Then I notice that the lines or chords seem to connect them to a pattern, as it were. This points out that, provided I submit to the discipline that is being imposed on me, then I very soon understand a truth which otherwise I would not have seen. It is a certain reciprocity between me and the image that is forming inside me. I must work with it strongly and do all I can to remain alert—to question it and so on. But I must not be more clever than that which is forming. If I am, and am presuming to be totally wise, and I assume that that which is forming on my mental screen has no wisdom at all, then I learn nothing of any consequence. It is this sort of battle that I often find myself in (and I find my students in) because I try to put them in a position where they are prepared to battle with this kind of inner experience. It was on one of these occasions that this thing came up and called itself “*media*”, and I had to accept it as I explained earlier.

I do mean communication; but with the intelligence that is behind things and the intelligence that is deep within man: right in the Soul, or deepest being or whatever you call it. When I talk about *media* I believe we are referring to the primal intelligence of the universe, although I would rarely say that kind of thing in the open, as people get annoyed if you talk about intelligence in anything other than man. Intelligence in man’s deepest being is quite different from that with which he solves most of his problems.

q. Whether one calls it intelligence or not, there is some kind

of rapport with that which is further called for; or that which you are trying to call into being. Is it the link between this and your mind what you call *media*?

E.M. Yes. Let me illustrate this. Say this is a lump of glass. It is matter and is therefore completely dead, or so it would seem. But if I can get into a certain relationship with it I shall begin to feel what is pulling it forth in the evolutionary process to be more than it now is and, that thing which seems to have an independent existence, I would say (although again I would have to be very careful where I said it because some people would lock me up!) that it is not as disconnected as it might think it was if it could think. Let me replace it by myself and yourself. Here am I sitting here, feeling fairly independent (it would be easy to say that I am not as independent as all that, as one is conditioned a lot by one's environment). But what is not obvious is that I am linked by thousands of chords to the rest of creation that exists and the creation that is being called into being. I can be asleep or unaware of any of the chords or I can fool myself that I am totally free but alternatively I can build up a sensitivity to at least some of those chords. If I do, I build up a sensitivity to what some people might call a vocation or hunch. When we become aware of these chords we begin to realize that nothing exists in its own right—not even man. We are all part of a whole and the vast majority of this whole is invisible as it has not yet started to form. I believe the universe is opening up at a vast rate and will open up for millions of years to come. Perhaps time does not mean very much in this context. I accept the notion of the what Teilhard calls “complexification” of things—up to a point; one can't help but accept it is one of the laws within the *media stream*. *Media* has certain laws and one of them is complexity.

For me this must not be just a view in a vacuum. If we then follow some of these lines, or chords, we can see where they take us. But to do this we have to build up the sensitivities which the majority of people have hardly begun to develop; but before we can build them up we have to get a desire for them. So it involves a lot of work, and much of my professional job is training people so that they become sensitive in a way that they have never been sensitive before—not since they were children.

Let me give a sort of practical example from a field other than making new materials. Let us assume that we are trying to make some very sensible change in a large and complex business organization which is world wide. People can learn by going to American business schools where they are taught all manner of ways of plotting that which is already dead. So often we see situations where these wonderful trend plots have been made but then we find ourselves saying “fancy—it didn’t happen like that”. We are plotting the wrong thing, believing it all to be a casual equation, believing everything to be pushed from behind, and taking that as a matter of faith. I am not suggesting that there is not something valid in this belief, but it is only valid in a limited way. Looking at our organization as an organism moving into a future that is full of all sorts of uncertainties, the more sensible approach seems to be to try to get in touch with the future, which is as yet unborn, but which is as it were beckoning man forth.

Now, how is this done in very large and complex projects? The kind of thing I do in such situations is this. Let us assume that I am working with someone who is fairly senior in a firm or organization and is trying to get a lead on how to get a change in the direction of the company; sensible change so that all will be well financially and in terms of human relations. The first thing I will say is “This is your problem—not mine!”, but suggest that he finds perhaps twelve men in the company who have a lot of commitment to their work and are in positions where they have a chance of feeling what is happening in the organization. Assume it is like the human body—particularly that of a child which is growing in size and stature, and let us put someone in say the kidneys, somebody in the heart, somebody in the head, etc. You (or the manager) decides where you have to put them, but remember one has to get a spread of the whole. Now decide who the people are going to be—picked incidently in terms of very simple things like how conscientious you judge them to be; how many years of service they have had in their field; how alert they are etc. But then make another assumption—that they don’t know where the organism of which they are a part is going because the complexities of the situation defeat them. Now your job is to use them as instruments to transduce

the *media* signals that pass through them all the time, every day. You are going to be the registering instrument. They will pass through them if you set it up properly; it comes in via the twelve strings and you do the integrating.

Now if you say “How do I set up a confrontation between yourself and one of the other twelve to obtain the necessary information?”, the sort of answer that tends to come out is that it will have to be done with the minimum of words. You have got, in some way, to indicate to that person—impossible though it may seem—“this is the job I am looking at in this organization of which you are also a senior participant. I have been landed with it but it might just as well have been you; but it is I who have the problem. Somehow or other I have to get the answers.” That person has really to feel for you in that problem—deeply to wish that he could do something to help. But don’t expect him to talk very much. Most of the communication will in fact be telepathic and he won’t know what he has done. But you will know, because you are the one who is there to pick up the signals. Now that does actually work and it will work in many situations.

This is a peculiar way of working, but it is how I get some people to work, and I have the nerve to get people to work like that because I have a sort of philosophical system—right or wrong—on which it is based. It is the business of knowing that if you take another stride you will not step off the edge of the world—to know that you can be supported, even in areas where it seems there is nothing. Because a lot of my work has been connected with these non-existent realms, I have a familiarity with them—it gives me a confidence and allows me to teach in a certain way and to give people confidence. But they are only apparently non-existent realms; they do not exist in matter but they exist as a cry—as a call, a desire or a deep need. If you say a need in what it is very hard to know because I don’t know with any certainty. A lot of people have got at me about this word “need”. They can only see the term “need” applied to a human being, but I would disagree with this and say it is very easy to conceive of need in the organism as a whole. In fact I can recognize a need in many different circumstances—for example it can be registering in every human being everywhere in the world

because of the chords that I spoke about earlier that keep me and everyone in touch. If they really are there then any need anywhere in the total organism will be registering, although it may not be noticed by every human being. Perhaps that is one of the great things about our humanness.

q. What about the term *meaning* in your triad? Is the *meaning* a sort of “click”?

E.M. Yes, but reciprocity is probably a better word, because you have a sort of dynamic situation. When there is a real fit—a dynamic fit—then you have *meaning*. In science there is the “Eureka” kind of experience but another *meaning* point is just being in love and knowing that you are in love, either with a person or with an activity.

q. As you must know philosophers get very hot under the collar when you talk about meaning and the meaning of meaning. One can say narrowly that propositions have meaning or one can have a wider sense in which one can say that some event or experience which is significant to a person has meaning. But it is “significant” either in relation to his thinking or has point in relation to his purposes. I notice you quoted Wittgenstein in one of your papers as having said: “Don’t look for the meaning; look for the use.” This is a difficult notion to handle but could imply that if you can show what can be done with something, then it has meaning.

E.M. Yes I know. It is both difficult and simple, strangely enough! It is perhaps more difficult for philosophers than other people! I believe that when I talk about *meaning*—just as when I talk about *media*—we are talking about something that is fundamental. It is vast. *Media streams* are vast when you think in terms of the space and time they are covering. So when we talk about *meaning* in the way that I have used the term—something of the same kind is applying. What I am really saying is that there is a condition—and here we come dangerously close to the Biblical doctrine of the Fall—when man can know meaning all the time. In the unfallen condition I would expect that man would know *meaning* at every moment in his life.

I have found that when the human instrument has been tuned to seek *meaning* and to value *meaning* sufficiently highly, that which has *meaning* can be produced most of the time.

q. Does that imply that at every point in his life he is doing something that makes sense?

E.M. Yes. It makes tremendous sense to him. He feels great satisfaction in doing it. You mentioned earlier meaning as purpose being fulfilled—yes he is doing it with a feeling that his whole body/mind/spirit system is involved. I say to people “Let’s have a look at what you think has really made meaning in your life so far—anything; don’t be embarrassed about it—if it’s something to do with a sunset or falling in love or whatever, let’s look at that to begin with. Let’s have some real experience of your own to work on and see that if there is something so very good you can have more of that.” Then it would be something that really does make sense. I talk about “*the waveband of meaning*”; if we stay on that waveband then it means that from moment to moment to moment we have what we can call a vocational sense.

q. Yes, but for the majority of us most of the time life is not like that; one wonders what on earth one is doing!

E.M. In my terms that is because one has not yet learned to handle the 3M equation.

q. Then you say the point is to get people over the failure to do so?

E.M. Exactly. Let us look at Transcendental Meditation, as it might help to throw more light on this. This is a dangerous one for me to go into as I have not actually experienced it, but as I understand it the object is to tune oneself with the help of certain mantras; it makes people feel better and has some kind of measurable benefits. I think that TM’s great virtue is that it is doing something to human consciousness on a grand scale. It is getting people used to the idea that there is a balanced and enjoyable state in which they can be and can stay in. Now if we were to go back some twenty years such a proposition would be almost inconceivable to the vast majority of western minds—a piece of religious nonsense. But now the idea is growing that this state of mind in which people can feel at one with the world, feel balanced with reduced tension and strain, is available to almost anyone. Such ideas are not being spread by an obviously religious system. But I think a lot of people are let down by TM and some other forms of meditation because I have often heard it said “Yes, we feel good, but we are not doing anything.”

q. This is the criticism of TM that I have heard. There was an attack on it in the *Cambridge Review* last January along these lines; that it makes you feel good but if you want to do something really worthwhile you have got to be prepared not to feel good all the time—you need inner tension. This critic thought that it would affect many people by making them withdraw into complacency and settle too firmly in an equilibrium, whereas they ought to be prepared to suffer and struggle in order really to do something.

E.M. Yes, I see TM as a parable of what might or could be. I think the TM state is a state that does not have very much meaning (in my terms). It is not the state in which *meaning* is found. It is just a token of what this state should be, but I can use TM as an analogy because I am saying, and I really mean this, that if I can tune a person or tune myself to the waveband of meaning then this *meaning/matter/media* equation is being respected. It is putting people into a state where they can perform. I've not been fortunate enough (or unfortunate enough) to be in a position where people wanted to pay me just to make people feel good. I am concerned with something that parallels TM but is of much more practical value. But I would like to deal with something you raised just then in connection with this. The 3M equation which I believe is a very basic one, does not just require people to go around producing new materials, products and complex systems, or to people being creative in producing music and works of art (another field in which I have used this philosophy). Remember it is the equation for appropriate form and hence it is the same equation which successfully regulates ordinary human intercourse in discussion, in bringing up a family, in making a cake or whatever. It doesn't necessarily require people to be turned into Michelangelos or Leonardos or people of this kind. It is—and this may be a rash thing to say, but I have some proof—the equation that determines whether you have or continue to have broken relationships between husband and wife and families, and so on, or whether you don't. And it is still the same equation which finally determines whether a society which is torn apart can put itself together and be a happy and viable one. We are on to something that is concerned with the basic relationships in the universe as I see it. Of course I might be wrong, but as I see it, these are the

fundamental relationships between any person and any other person, any person and any other part of himself, between any part of that person and any part of the cosmos. That's where we are at! But having devoted a lot of my life to understanding and applying this equation (and I have also suffered a bit in the process) I don't mean that I understand it so deeply that I can successfully use this equation in every circumstance, but I can help other people to apply it successfully in their own specialist fields, very frequently.

If only we could get the kind of weight of effort that is going into things like TM being pushed behind this work and if it was really being taken seriously in a number of places where you have a lot of fine brains working with it, then I believe that in terms of pay off for the world it would be one of the most important areas that people could be working in at this present time. We have not got that support yet: I know we shall get it.

q. When I first read about your work I was reminded of the work of Mary Parker Follett. Have you ever come across her books?

E.M. Yes indeed, she influenced me strongly at the beginning of my career.

q. She had a rather Hegelian background of philosophy, i.e. a view of things as organic wholes all related to one another. But it made her think in terms of multiple inter-relations; whole making and so forth, an approach she also sees coming out of her background of interest in industry. In her books *Creative Experience* and *The New State* there are descriptions of how she was consulted in labour disputes in Boston. Obviously she had a way of getting people thinking and working together. My hitch with her work, though, is that she gets so seized with the notion of how interesting it is for people really to get working together, that she almost loses sight of the fact that industry is supposed to be producing an end product. She is perhaps so interested in the interrelationships of the people doing the job that the actual job itself suffers some neglect. That I would imagine is not true of your work.

E.M. No. When I read her stuff (about fifteen years ago I suppose) I remember her notion of the "law of the situation" and I took that as a sort of metaphysical notion in her thinking. The "law of the situation" can exist in its own right, it is not something

you can just come to—it is something that is there to come to. In her writings there was the idea that sooner or later you come to something which was not a simple compromise but was true reconciliation and took into account the dynamics of the situation including the good or harm that you will put into it. Now I suppose that at that stage I began to think that if you can come to this optimal condition, then in a sense it already exists. It is not something that you form out of your own or group cleverness. I suppose this was a large moulding factor in my thinking that took me towards the idea of *media holes* and *media streams*. It was all very useful; she was the only management writer that I have ever been able to read! Most of them are nowhere near enough to the deep basic things and at least Miss Follett was trying to be so, although as you say she quite often went off into reveries. It is as well to remember that my work is essentially concerned with tuning the human instrument to produce work of real worth. The main problem is that most of us are out of tune most of the time. For example let us look at the case of a physicist or a chemist who is struggling to extend the theory or application of his discipline. Often such a person has years of frustration and disillusionment.

I do not mean that I am personally so clever that I do not have these kind of problems, but my belief system, based on the 3M equation and the work that I have done with it, points out that that kind of difficulty, that pain, frustration and abortive work, is in fact almost meaningless. It should not be there. It is only there because the human instrument is out of tune. Now if one can so tune the human instrument that one is in optimal condition when work is started, then success and break-throughs come much more easily. The difference between the Michelangelos and the Leonardos of this world and most folks is very largely that such men have been able to tune the human instrument before they have started a piece of work.

In the film “2001—a Space Odyssey” there was a computer that was suspect and was therefore put on trial. It (Hal) said “No, this instrument couldn’t possibly make a mistake as it has been perfected.” Of course no one believed him. But I believe that the human

brain and the total human system is a system that has been pre-adapted to give a really perfect performance in terms of its creative work, whatever that happens to be, but somehow or other we have let that preadaption be messed up a bit.

q. Perhaps it can be repaired?

E.M. Or retuned!

q. But would you say that there are problems such as inflation that are pretty well beyond any ideal solution?

E.M. I prefer to talk about a self-defeating system rather than impossible problems. You can have a system which is totally self-defeating (human beings produce them very often). No matter whom you put into that system to help manage it and make improvements they will always be defeated by it because of the way it has been set up, and they will also feel very guilty about it, leading to huge conflicts, crack-ups or nervous breakdowns, and blame themselves. Let us look at this type of system since it is so important. You have a situation where all the *matter stops* that use up existing freedoms, have already been put in, and it becomes just like a game being played that is automatic within those stops. All of the rules have been arranged, and people have agreed to comply with the rules and no one, whether he was a genius or not, can do anything positive about it, except perhaps blow the whole system sky high! I think we have something of this nature with the Arabs suddenly deciding to charge rather a lot for their oil and telling us that they are going to charge more. Very soon we may see that the whole monetary system that we have got, with all the rules and regulations we have worked with for so long, becomes virtually invalid. Perhaps we have got to the point where there is no way out if you change only a few of the *matter stops*. If the price and availability of oil becomes beyond our control and we still require a large number of the population to drive high powered cars, then in terms of making an equation work, we quickly get to the point where we have to say, "no, it's not on".

The sooner that we can realize that *meaning* has disappeared from any total system, the quicker effort and intelligence can be then directed towards transforming and creating a system that does work.

Note: Matchett's writings include:

Creative Action: The Making of Meaning in a Complex World (Turnstone Press, 1975).

The Journeys of Nothing in the Land of Everything (Turnstone Press, 1975).

"Fundamental design method: a means of controlled thinking and personal growth," *Systematics* 2, No. 1 (June 1973).

"Introduction to the discipline of fundamental design method," *Systematics* 2, No. 3 (December 1973).

"From fundamental design method to logossynthesis," *Systematics* 2, No. 2 (September 1973).

Tim Tiley adds this comment:

Having had the opportunity to observe the growth of these ideas into the embryo of a national movement which has been named "Creative Action", I would like to look at some of the deeper implications of Matchett's pioneering work. "Creative Action" is only in its very early phase of development, but already it has caught the interest of a wide spectrum of thinking people from all walks of life. This is hardly surprising because at a time when people everywhere are searching for new hope and new directions, they find here a philosophy which links their deepest strivings with the practical problems of improving and extending the world-around.

While it has been the need of the times in which we live that has produced the philosophy and practical approach of "Creative Action" much of the ground work was already begun in "Matchett Training", several years ago. Then Ted Matchett's teaching was confined to only a few industrial companies. Now, with a much bigger team, plans are well advanced to take these ideas into society as a whole. Back of it all has been the vision of what the human instrument, tuned to its full capacity, could do for our civilization and world. In other words it has been a call for new men and women able to meet all the demands that this technological age requires. It poses nothing that is not as old as time, yet the distinctive freshness and confidence with which "Creative Action" seeks to tackle complex problems is very welcome at this difficult time. Here is a way of life that can be spelt out in terms that the ordinary man of our day can understand, and participate in immediately.

Of course the interview was slanted towards the theory *behind*

Creative Action. The discussion is at a level on which the man in the street will not choose to conduct his own talk. But Matchett and his team have discovered a way of putting these ideas into a much simpler language that everybody can relate to and understand. In his more general “vocabulary” we find he lays stress on the seeking of:

Proper use of all resources
 Inter-relation of all beings and things
 More meaning in all work and leisure
 The release of the real person
 True visions of the future.

A bridge is built for the purpose of taking sensible initiatives in the world around us; a bridge that connects the everyday affairs of business and commerce, the deeply personal and also what is sometimes given the separate label of “spiritual”. For Matchett and “Creative Action” there are no unnecessary distinctions between different levels of human experience. Man is simply invited to use all that he has, all that he is and all the good that he can contact—and put the whole lot of this to practical use, to reconstruct and extend his world in a way that makes a lot of sense.

If we look at the spiritual or indeed philosophical scene there is such a division of approach that the normal person is confused and disappointed. A great deal of modern theology and philosophy has all the intellectual integrity required in its own field, but ends up way above the clouds in a world of theory which is usually unrelated to life as most people understand it. Furthermore these intellectual exercises possess usually no kind of application to, and understanding of, the industrial and technological scientific society in which we live. Very few thinkers in our day have been able to build the bridge between science and religion or science and philosophy. Matchett is one of the thinkers who has dared to make the attempt. The gap has to be closed or spanned if the majority of people today are to find hope and an answer to our problems. Thus I continue to suggest to people in my own circle that “Creative Action” is equipped and ready to bring about the needed synthesis between science and what we may call the spiritual or basic approach to life. It is not tied to any one religion, creed, denomination or

spiritual or meditational exercise. Furthermore it meets the needs and questions of those who either have not found any of these approaches, or found ways of linking them intimately with all the practical affairs of life.

“Creative Action” starts the atheist, agnostic and the believer off on a course which requires only a practical living application of principles which all would agree the world urgently needs. In other words it begins wherever people are, and launches them on a creative programme of action which if truly followed would bring sectorial, industrial, national and international unity, peace and good-will.

The making of “matter” plus “media” into a meaningful synthesis in every moment and in every task is, according to Matchett’s philosophy, simply the normal functioning of a healthy organism, working at its optimal state. Using different words, the great religions of the world have preached much the same message. But all too often this message has become a dogma rather than the immediate requirement to be a co-creator of a world that is built up from moment-to-moment with intelligence, painstaking effort and love.

TOM TILEY

A philosopher's approach to traditional culture

BARRY HALLEN

1. INTRODUCTION TO APPLIED PHILOSOPHY

Linguistic analysis is proving to be a valuable propaedeutic, but it is just that, a propaedeutic. It is time philosophers once again played a role in the search for truths about the world. Against this the linguistic philosopher would argue that the discovery of empirical truth is now the task of the scientist. The philosopher can do his bit to rid our language of misleading terms of reference and to tell us, on the basis of our particular language, the dominant concepts in terms of which we describe our experience. But it is for the scientist to determine how much empirical evidence there is to substantiate a claim to know that something is the case about the "world".

However it is now recognized that science itself is not completely objective when it comes to the falsification of established theories and the proposing and testing of new hypotheses. The scientific establishment operates on the basis of paradigms that channel the scientist's vision so that certain theoretical perspectives on the world, e.g. materialism, are given a status privileged in excess of the criterion of mere truth or falsity.¹

One thing the philosopher might therefore do is to broaden the scientist's horizon of theoretical alternatives by bringing his attention to bear upon hypotheses or theories that are not in vogue. Where is the philosopher to come by these "other" theories? This question has been answered before in *T. to T.*,² specifically with reference to reinteresting the scientist in the models and claims of

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the great mystics. It was then described as “applied philosophy”. The point of this paper is to suggest that another potentially rich source for theoretical alternatives in which the philosopher should interest himself is so-called “traditional” culture.³

In the course of their development the English-speaking peoples have developed a language based upon conceptual abstractions that reflect those features of the world that strike them as of special distinction. It is therefore not really fair when the linguistic philosopher claims not to be involved in empirical questions of what may or may not be true of the world. A conceptual system, or language, does reflect a view of reality. Anthropology and comparative linguistics have helped to show us how wide a variety of conceptual systems, of perspectives on what is, there are in the world today. And each of these has been developed by a society of human beings seeking to cope with problems that are in significant measure common to us all.

How can the applied philosopher, then, avoid taking an interest in the theoretical alternatives developed by cultures other than his own, particularly when they may be of value in solving the problems of his own society and in rendering his own experience more coherent and intelligible?

2. THE PHILOSOPHER AND THE ANTHROPOLOGIST

The first objection to the philosopher’s playing this sort of role would no doubt be, why not leave it to the anthropologist? He has undergone the specialized training, he undertakes the fieldwork from which our information about such cultures is derived, and he is best qualified to perform the critical analyses that go beyond the data and attempt to understand foreign cultures in terms of their real significance. How can the philosopher possibly compete?

It need not be a competition. The philosopher’s contributions would be supplementary more than anything else, but invaluable ones because of his own special interests and training.

There are certain problems or areas of human endeavor which are generally regarded as the philosopher’s own preserve. Problems

such as: the difference (if any) between mind and body; the question of what man can know; the question of the good and of what sort of life-style will lead to the greatest happiness; freedom of the will. It should be the philosopher's concern to enquire whether other cultures address themselves to these problems and, if so, to introduce their points-of-view, including their not even being considered problems, and why.

In such comparisons he must take care not to distort the traditional view by unfairly reducing it to a theoretical alternative already developed by, for example, Western philosophy. This sort of ethnocentrism must be avoided on both a professional and cultural level. The traditional and the non-traditional must be granted, *de jure*, equal and reciprocal elucidatory value as theoretical alternatives.

A second justification for the philosopher's direct participation in what has heretofore been the anthropologist's business is that the relationship the latter establishes between himself and his informants is not generally the best for eliciting their points-of-view on general theoretical questions.

It used to be the case that what is now called traditional was "primitive" and therefore incapable of even entertaining a theoretical question, much less of producing a coherent system of beliefs. Such an attitude is no longer professionally defensible, but it is part of the human condition that one tends to favor the familiar. Anthropologists who no doubt believe they are being completely objective in their analyses and evaluations of other cultures still tend to rate them lower simply because they do not understand them as well as their own.⁴

One also still hears the argument that it is dangerous to broadcast new information or theoretical alternatives in a traditional community because the people may end up confusing these with their original beliefs, hence becoming something different from what they were. Perhaps this has happened, but here too one has the feeling there are elements of that same condescension, of the superior-inferior mentality. For the implication seems to be that the traditional person is so unclear about what he does believe, or so malleable or uncommitted, that he can become "confused" and

embrace a different point-of-view as easily as the proverbial duck takes to water.

There is another complaint of anthropologists that would seem to militate against the traditional person serving as an objective, theoretical spokesman for his culture. This is that he is too close to his own culture, too intimately involved with it and too ignorant of others, to be capable of the distance and objectivity required to participate meaningfully in an enquiry into the "real" significance of his society's beliefs. Consequently anthropologists tend to treat their sources of information purely as sources of oral traditions, as a variety of human recording machine. It is for the foreign anthropologist, on the basis of his own private, insightful cogitations, to go beyond what people say of themselves, and to understand things in terms of their true significance. Consequently the impression one gets is that the traffic on the street linking the anthropologist to his informants is one way—he receives information but, above and beyond this, he contributes the theoretical models that structure it.

3. INFORMANTS VS. COLLEAGUES

This prevailing idea of the relationship that exists between the anthropologist and his informants may be disputed on several fronts. First, because it is not always true. Anthropologists tend to over-emphasize their own originality and underestimate the *theoretical* contributions of their informants. This has been documented in some detail by Professor Ioan Lewis,⁵ who goes on to say:

I am not of course claiming that these indigenous analyses of the operation and significance of such major cultural phenomena as witchcraft beliefs necessarily coincide exactly with the objective picture which the anthropologist can elicit from a meticulous investigation of actual case histories. But I do hold that, at the very least, they constitute a kind of meta-theory which provides us with many of our essential clues and are consequently the original, if self-effacing, source of much that passes for advanced anthropological theory.⁶

The point of Lewis' argument is that traditional man is not so wrapped up in himself, is not so blind to the very human needs the beliefs of his society may serve, as not to be able to speak of them

in objective terms. This, it is suggested here, would justify a move in the direction of regarding the elder or wise man as a *colleague*⁷ more than as an informant—as someone whose theoretical opinions (as well as factual information) are of value and to be actively solicited. It is this kind of enquiry, in particular, that would be the philosopher's concern.

Certainly the elder, herbalist or person of comparative stature who who is the repository of oral traditions is not treated by other members of his community as *simply* a mouthpiece of oral literature. His role is much more complex and difficult—mediating disputes, giving advice and explanations that, though they may ultimately derive from oral tradition, also provide the vital service of linking often obscure passages in that tradition to the immediate situations of concern and significance in which communal members find themselves in everyday life. Interwoven with this are his own personal powers of empathy and understanding.

Usually the person who becomes known for his ability in this area would have to demonstrate his prowess in all of these regards. For this reason he is someone who is sufficiently sensitive, knowledgeable and worldly-wise to merit consideration by the researcher as a colleague rather than merely as an informant.

The colleague relationship would be based upon a number of different points of emphasis: (1) that these people can, in a real sense, be treated as competent and objective authorities on a variety of topics of general theoretical interest from the standpoint of their own culture; (2) that, in such a relationship, the researcher will not play as passive and information-gathering a role as anthropologists sometimes recommend. Because he regards his sources as colleagues he will give out information as well as receive it, inviting general discussions as well as soliciting information, even to the point of deliberately, asking leading questions; (3) that he can do this because he regards them as capable of distinguishing the theoretical from the factual, the traditional from the non-traditional, and their own supplementary rationalizations from what generally is or is not held to be the case.

If the philosopher can find anthropologists who are willing to work from this point-of-view, perhaps the anthropologist could

undertake the fieldwork and then arrangements made so that the philosopher would have access to the data. If not, it may be necessary for the philosopher to undertake fieldwork on his own (or along with the anthropologist). This might be preferable in any case because the sort of first-order experience he would have in doing fieldwork will give him a better understanding of the anthropologist's task and of the difficulties and hazards of inter-cultural communication.

4. EXAMPLES

a. Introduction As an experiment along these lines I, as one trained in philosophy, have been doing fieldwork among the Yoruba people in the Ekiti region of the Western State, Nigeria.⁸ The people I am treating as colleagues are a dozen men between the ages of fifty and sixty-five who are regarded by the community as some of its more accomplished *babalawo*'s. This Yoruba word may be translated literally as "father of secrets", and is used locally to refer to anyone who is a qualified herbalist or diviner. Each of these is a highly specialized profession, and there is neither time nor space to describe them in any detail here. But if there is anyone in the Yoruba community who occupies a position of knowledgeable distinction, who spends his time counselling other members of the community as to what will make them happy and successful, and as to why things that go beyond ordinary common-sense happen, it is these men.

Initially the most enjoyable part of the experience was the satisfaction of laying aside dry philosophical texts and the university itself and going out quite literally into the marketplace. This is something we are told philosophers used to do before they became encapsulated by our academic institutions. And on the basis of my own experiences I believe it would do us all (and perhaps even society) some good if we became less intellectually removed from the common man and considerate once more of the very real problems attendant upon being a person in that marketplace.

I recall the first evening I spent in the village, and quote from a letter to Dorothy Emmet.

Third day Scenario (casting back a bit). Called on by about 50 people today. At one point there were 14 assorted men, women and children in my 8 x 10 room (which has two chairs). I get up to greet each person as they knock or poke their head in and mutter (in Yoruba of course). They manage to tell me (and I understand) that they have come to greet me. We then stand around in a (crowded) state of awkward, reciprocal noncommunication. The duration of such visits is approximately 10 minutes and proceeds in a fairly predictable fashion. I make the point of reserving the chairs for the eldest. Their meeting takes place after exchange of greeting and explanation of purpose of visit (greeting). We then, between lengthy (and, from all behavioural evidence, significant) stares at walls and out of windows, proceed in random and totally meaningless fashion to make an exchange—my five Yoruba words for their totally different five English words. These sometimes expressed in booming *basso profundo*'s with dramatic physical gestures, e.g. the man who bellows "work" and makes a fierce, cutting sweep with his machet inches above the surface of my concrete floor and then settles back, contentedly, as if wisdom has been expressed/exchanged (and perhaps it has).

Single-word communications are not the most promising basis for understanding. I soon found that because the Yoruba conceptual scheme was so different from my own I first had to become generally familiar with it (in the course of learning the language) in order to be able to appreciate a Yoruba point-of-view on any theoretical topic. Fortunately I had a Yoruba research assistant who was of inestimable help during this difficult transition period.⁹

I should now like to make some tentative suggestions as to how certain Yoruba beliefs might prove of philosophical value, particularly from the standpoint of an "applied philosophy". Interest will centre on a cluster of beliefs concerning the individual's destiny. My most general and perhaps controversial thesis will be that they provide strong evidence that the Yoruba reject the radical dichotomy the Westerner makes between the rational and emotional parts of the personality and that this, in a fundamental way, affects the structure of their beliefs and conceptual system generally.

b. Destiny The Westerner tends to think that the time and place of an individual's birth are things of which he has no foreknowledge

and over which he has no control. He suddenly finds himself “thrown” into the world¹⁰ and from that moment must learn to cope with an infinite number of possible choices. This is emphasized in existentialist philosophy, where man is finally faced with that final, unavoidable possibility that implies the negation of everything he has struggled to achieve—his death.

The meaninglessness and terrible isolation of the existentialist philosophy of life is in complete contrast to that of the Yoruba. They believe that each person (*eniyan*) undergoes an indefinite series of reincarnations. Perhaps the most important difference between the Yoruba and Eastern religions with reference to this belief in reincarnation is that the individual is free to choose what his next life will be.

The individual spirit (*emi*) continues to live after death, when it is bereft of its earthly body (*ara*) and destiny (*ori*). Prior to its next incarnation *emi* appears before the supreme deity (named *Olorun*) to select the new destiny it will live out in its next incarnation. Its choice is then confirmed by *Olorun* (who himself makes no effort to influence the individual’s decision), making that destiny fixed and unalterable.

The *ori* chosen by the individual encompasses every event of significance that will take place during his lifetime, including time and manner of both birth and death. Furthermore reincarnation is lineal in nature—an individual may change sexes in different lifetimes but he will always be reborn into the same family. The Yoruba believe they have means for determining a short time after birth just which ancestor it is that has been reborn.

Though an individual must know what his *ori* is if he chooses it before coming to the world, the traumas of birth and infancy gradually obscure the memory until the person can no longer remember what he is predestined to become. I should now like to pay particular attention to this relationship between the embodied individual and this destiny (*ori*) he can no longer recall.

Though the *emi* is the conscious, deciding self, what it decides is determined by the *ori*, a part of the self that is not part of self-consciousness. Because the *ori* is not the conscious person, it must be described as somehow external to or other than the self, and as

unknown. Although fundamentally linked to *emi* and the most significant influence on its life, *emi* cannot know it. Nevertheless in stress situations the individual will appeal to his *ori* for help. On other occasions he will do it honour for the good fortune he has enjoyed. At such time he will address it almost as if it were a second self, cognizant of what he is doing even if he cannot be so of it.

Professor Robin Horton in his article, "Destiny and the unconscious in West Africa",¹¹ points to certain parallels between this concept of an individual destiny and the Freudian notion of an unconscious. In particular that an individual's destiny is an important unconscious personality determinant, that it is the ultimate source of an individual's frustrations and unhappiness, and that it sometimes assumes the moral burdens for a person's actions.

All of this is true, but an unfortunate consequence of Horton's fascinating comparison is that it tends to give the impression that the Yoruba too think of an individual as having a rational and an irrational or emotional component.¹² And this, I think, would be a mistake, a case of transplanting a Western personality dichotomy into a culture that does not entertain it.

For though the *ori* resembles the unconscious in that it is not part of self-consciousness and is an enormously important determinant of what a person will become, equally importantly (to the Yoruba, at least) there are ways in which the two do not resemble one another. The *ori* is not in any sense identified as *the* source of an individual's passions, emotions or desires. In fact, in certain circumstances an individual (*emi*) is spoken of as not having fulfilled his destiny precisely *because* he did not work hard enough at it. The *ori* is described as the prescient pathfinder that guides the individual through life, more knowledgeable of and cleverer at dealing with the attendant perils than he is, and therefore constantly helping him overcome the obstacles he encounters. So much so that when in peril one of the most powerful intervening forces to which the individual will appeal is his *ori*.

It might be suggested that these "differences" I have indicated could also be reduced to metaphorical parallels of further characteristics of the Freudian unconscious. But carrying the comparison to

this extreme would introduce more distortion than anything else, because, as I have said, the Yoruba do not make the parallel dichotomy between the emotional and the rational. The *ori* is more accurately regarded as a kind of guardian spirit, almost a second complete personality, with both *reasons* and desires of its own.

c. Conceptual system Another much more general characteristic of traditional conceptual and belief systems may also be explained by the absence of this dichotomy between the rational and the emotional. Anthropologists have repeatedly remarked upon the fact that the traditional person appears to hold beliefs that are inconsistent.

For example, again with reference to the *ori*, a Yoruba will say that once a destiny is “fixed” by Olorun it cannot be changed. It must take place. Nevertheless on other occasions the same person will say that it is possible to “miss” the destiny one has been apportioned, in the sense of becoming confused and lost during one’s lifetime and doing things for which one is not at all suited. Or an external force can interfere with one’s destiny. Neither of these is entirely consistent with the belief that once a destiny is fixed, it is unalterable and must take place. Or with the fact that people will flatter and praise their destiny in hopes of improving it. Or with the aforementioned possibility that a person might be blamed for not making the most of the destiny allotted to him.

It used to be the case that the Western anthropologist would say such inconsistencies were one of the more obvious signs of the rudimentary intelligence of “primitive” man. What there was that could be termed his mind was cluttered with a ragged, unsystematic assortment of beliefs—hence the inconsistencies.

Happily anthropologists today have educated themselves to the point where this position is no longer tenable. Nevertheless the apparent inconsistencies among traditional beliefs still appear and still require explanation. One explanation of this feature of the traditional belief system is a moderated version of the old position. It is said that analytic thinking cannot develop in societies whose members must devote all or most of their energies to the necessities of daily life.

Because many traditional societies have not been able to afford the leisured luxury of a class of professional thinkers or philosophers, this argument goes, their conceptual and belief systems have not been as rigorously systematized as those of some other societies.¹³

Proposing or accepting this as an explanation is disturbing because again it involves an element of the superior-inferior culture dispute by implying in a very direct way that African systems of beliefs are not as sophisticated as their Western counterparts. Perhaps Africans who are unhappy with having to make this admission feel they have no other choice because consistency is consistency—in any system of beliefs.

Granted that consistency is consistency, other considerations may cause it to be expressed and maintained in a different manner than we find it in the typical Western paradigm, the so-called hypothetico-deductive system. In simple terms this is a system in which, given certain basic premisses or axioms, theories can then be derived from them and submitted to testing. The system would be found inconsistent if it were possible to deduce contradictory theories (p and not- p) from the same set of basic assumptions.

Before pursuing this further let us first consider another contemporary response to the inconsistency claim. This is that the hypothetico-deductive model does apply because with more careful examination one will discover that there is a hierarchical structure to the traditional belief system as well, even though it may not be as clearly articulated as in its Western counterparts. This is the line followed by Professor Horton in his article, "The Kalabari World View: an Outline and Interpretation."¹⁴

This again may be doing the traditional belief system a disservice by too summarily reducing it to a Western paradigm. In my own fieldwork I have found the *babalawo*'s very much aware of what inconsistency is and capable of giving numerous other possible conflicts derived from their belief system—if it is used in a manner different from that for which it appears to be designed.

The so-called inconsistencies attributed to the traditional belief system only become a problem if it is assumed to be modelled after the Western paradigm, and to operate in the same manner. The

alternate suggested here is that it not be viewed as of a deductive character, concepts and beliefs descending in rigorous manner from the general to the particular. Rather the various beliefs that may be called upon when an explanation or prediction is required should be compared to the various moveable partitions that are ranged along the wings of a stage and may be swung into position depending upon the demands of the next scene. Each partition corresponds to a certain belief. There are other belief panels in the wings that would be inconsistent with it if they were brought into play *simultaneously*. But this does not happen (except in very exceptional circumstances) because when a certain kind of problem occupies stage centre the same partition is always moved out to serve as its explanatory background.

Some may say, is this consistency then? It is, but of a different order because a single belief system may contain inconsistent beliefs—but only in a latent rather than manifest manner because there is a kind of communal consensus as to when a specific one will apply.

Then surely the *system* is inconsistent? Only in the more narrow, scientific sense. What the traditional system does is to maintain a kind of *situational consistency* that functions in addition to the beliefs themselves. Because traditional culture does not make a radical dichotomy between the rational and the emotional, because it recognizes that human desires are not always consistent, these systems take into account the possibility that people's emotional needs in different kinds of situations involving the same referent may require radically different forms of behaviour. Hence, for example, in certain situations it may be appropriate for the Yoruba to feel that his destiny is fixed and assured. While in others, particularly when fortune seems to become misfortune, he may need to feel that something can be done about his relationship to that destiny.

5. CONCLUSION

If the applied philosopher's role is to suggest new theoretical perspectives that could lead to fundamental reorientations in the ways

we think of our experience, or at least to better understanding of the way we think of our experience, or at least to better understanding of the way other points-of-view approach that experience, the above is at least a step in that direction. There are, in addition, other roles philosophers may play with relation to traditional culture that fall more in line with what it is thought they should be doing at the present time.

Besides taking a look at the beliefs themselves a philosopher should also take an interest in how people reason to—or on the basis of—their beliefs, and also how they explain their beliefs. Of course he must allow for the possibility that people may sometimes be unable to provide justification for a belief, in the sense of providing premisses or at least good reasons for a certain conclusion. In that case he can still direct his attention to how people *explain* the things they believe, e.g. “If you want to understand x , consider the case of y ”.

The philosopher today spends a good deal of his time examining the various kinds of understanding or knowledge other disciplines claim to have. The philosopher of science, for example, concerns himself with the methods by means of which scientists claim to make the world intelligible, that is, with scientific method. What then is to prevent the philosopher from treating traditional culture itself as something analogous to a discipline and analysing its techniques for understanding and explanation—for making the world intelligible? Robin Horton is one interesting example of an anthropologist who is doing this sort of thing.¹⁵ The philosopher will also benefit in several other ways from the first-order experience of doing his own fieldwork, for instance it will give him a better understanding of the problems faced by the social scientist and the methods by means of which he attempts to cope with them.

To do all of this the philosopher will have to spend considerable time educating himself regarding the methods of anthropological data collection, selection and analysis. He must not allow himself to become a naive and vulgar parody of the anthropologist. It seems very easy indeed to stick a microphone under an informant's nose and say, “What do you think of x ?” It is possible to put words in peoples' mouths or to push them into advocating things they may

not even agree with. It is possible to concentrate on the eccentric, who gives unusual rather than general opinions, and then treats them as if they were general. The respect the philosopher has for the culture he is dealing with, the sampling of people he talks with, the care he takes in phrasing his remarks, the time he spends in collating the individual discussions to identify general trains of thought, the sensitivity he shows to other, non-verbal aspects of the culture, a sense of collaboration rather than competition with his anthropological colleagues, and most of all a cognizance of his own fallibility—all of these are important if he is at last to create a significant relationship between himself and traditional culture.

Notes and references

1. Kuhn, Thomas, *The Structure of Scientific Revolutions* (Chicago, 1962).
2. *Theoria to Theory* 6, No. 1 (January 1972), "The case for way-out research". 8, No. 4 (October 1974), "Editorial".
3. "Traditional" is the word now generally used by anthropologists and others to describe small-scale societies that do lack, or at least until recently have lacked, written literature and advanced technology.
4. For contemporary examples of this see *Gada: Three Approaches to the Study of African Society*, A. Legesse, especially "An essay in protest Anthropology," pp. 272–291. (Free Press, 1973).
5. Lewis, Ioan, *The Anthropologist's Muse*, Inaugural Lecture, 1972, London School of Economics and Political Science.
6. *Ibid.*, p. 20.
7. I am indebted to Dorothy Emmet for this suggestion.
8. I should like to express my thanks to the Central Research Committee, University of Lagos for help in funding the project. An account of the Yoruba (still introductory) may be found in Bascom, William R., *The Yoruba of Southwestern Nigeria* (Holt, Rinehart and Winston, 1969).
9. For his help with untold hours of interviews and translations I am extremely grateful to Mr. Femi Osatuyi,
10. Heidegger's expression—"Geworfenheit"—in *Sein und Zeit*.
11. *Africa* Vol. 31, No. 2 (1961). Horton does not specifically refer to the Yoruba *ori* in the article. He is of course himself a philosopher as well as an anthropologist.
12. I do not know whether Horton himself would make this claim.
13. See for instance John Beattie, *Other Cultures*, p. 70 (London, 1964).
14. *Africa* 32, No. 3, 197–220.
15. See especially his two part article, "African traditional thought and western science," *Africa* 37, (1967), where he contrasts traditional explanatory models with those of science.

The morality of scientists: the DNA case

LAURENCE KING

When *The Double Helix* came out eight years ago, it was enormously successful and it is easy to see why. Written by a Nobel prize winning scientist about an important discovery in which he had taken part, it was bound to be of some considerable interest. Furthermore, it portrayed an extremely competitive, all too human body of scientists racing to discover the secret of heredity, the climax of the race having all the tension of a thriller. And such was its charm and apparent candour that it would never occur to uninformed readers to doubt its accuracy; how could they anyway, when all they knew about scientists and the discovery of DNA was gathered from the book? Anne Sayre's new book *Rosalind Franklin and D.N.A.* (W. W. Norton and Co. New York) was written with the intention of correcting this. Though she wrote it out of friendship for Rosalind Franklin, it is dispassionate and well argued. It goes over the events which led to the discovery of DNA and from the discussion emerge some important issues in the ethics of scientific practice and there the book touches on something that will affect the future of scientific progress. In particular Anne Sayre shows that Rosalind Franklin has been robbed of the credit for her work on DNA. What is also pointed out is how Watson misrepresents Rosalind Franklin in *The Double Helix*. The book is well written and impressive; the points I make are largely derived from it.

James Watson came to England late in 1951 to work at the Cavendish Laboratory in Cambridge on the protein myoglobin. But he was a geneticist and a very ambitious one at that; suspecting with some others, including Francis Crick, that the key to heredity

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lay in DNA he was anxious to get in on the discovery of its structure. It is not surprising therefore that he should find his way to Rosalind Franklin and Maurice Wilkins who were working on DNA at King's College, London. This is what he says about the two of them:

Almost from the moments he arrived in Maurice's Lab. they began to upset each other. Maurice, a beginner in X-ray diffraction work, wanted some professional help and hoped that Rosy, a trained crystallographer could speed up his research. Rosy however did not see the situation this way. She claimed that she had been given DNA for her own problem and would not think of herself as Maurice's assistant. . . clearly Rosy had to go or be put in her place. The former was obviously preferable because, given her belligerent moods, it would be difficult for Maurice to maintain a dominant position . . . Unfortunately Maurice could not see any decent way to give Rosy the boot . . . The thought could not be avoided that the best home for a feminist was in another person's lab. (pp. 16–20).

We have been informed that Rosalind came to work at King's as Wilkins' subordinate, for Watson says it was Wilkins' laboratory and that he was in a position to sack her. It is also suggested that she went there as a professional crystallographer solely to speed up Wilkins' research. Their respective positions have been made clear and Rosy's character immediately emerges. She is a subordinate who refuses to see herself as such; he refers to her as belligerent, and as a feminist. Thus, in a very short time we see Rosalind as the aggressive, uppish, even hysterical bluestocking of popular mythology. But the picture is false, facts contradict it. The laboratory was not Wilkins', nor was he in a position to sack her. They were both under Professor Randall, and both of them supervising groups doing quite independent research on DNA. So Rosalind was in fact justified in her refusal to see herself as Wilkins' assistant. Nor was she particularly a feminist, she was a scientist and demanded to be treated as such. Watson's picture of her falls to pieces.

It is true that Rosalind could not get on with Wilkins, the hostility being caused by their opposite and incompatible temperaments. Nor was this helped by women not being admitted to the Common Room in King's College, so the difficulties in the laboratory could not be sorted out in a relaxed social atmosphere. Such segregation is, of course, absurd; the combination room is the ideal place for

shoptalk, and presumably scientists can benefit from the advice and criticism of colleagues of either sex. Evidently the situation arose because some men find it difficult to accept women as professional colleagues; it may be that Watson was one of them. At any rate, though he comments on no other scientist's appearance, he talks about Rosalind's at some length. Even if his remarks were just they would be annoying, for is not a scientist's appearance completely irrelevant? Apart from unkind statements about her clothes, which are at odds with the memories of others who knew her, he gives her a pair of glasses, which she never wore, and takes away her lipstick which she in fact used. Further he even says that she would have physically attacked him if Wilkins had not come into the room. Wilkins, hardly Rosalind's warmest admirer, says this is false. Why Watson misreports these things I do not know, but they certainly fit in with his incorrect portrait of her as a hysterical bluestocking.

What is perhaps more surprising is that though Watson attended a lecture Rosalind gave in 1952 in which she announced that DNA was helical with 2, 3 or 4 coaxial strands of phosphate groups on the outside, he repeatedly says that she was antihelical, at one point that her "stubborn mind" was caught in a "self made antihelical trap". Now Watson and Crick did very little experimental work, if any, on DNA. The crucial point is how they got the evidence necessary for their solution. The answer is simple, they used Rosalind's and without her even knowing it. The pattern of Watson's remarks is becoming clear. It was fairly evident from Rosalind's superb X-ray work that DNA was helical. If she was antihelical, then it suggests that she was incompetent to use her experimental results, and this would reduce the apparent guilt of Watson and Crick using it, even if they did not have her knowledge or permission. Moreover, the portrait of her as a stubborn feminist, likely to physically attack people, suggests someone whose reaction to other people's scientific opinions would be more the expression of resentment at being a woman in a man's world than genuinely well thought out comments. Of course, any notion that Rosalind was like that is quite absurd, everyone agrees that she was a first class scientist. Perhaps it is not so surprising that even Crick, Watson's

collaborator, referred to *The Double Helix* as a “contemptible pack of damned nonsense”.³

Why Wilkins showed Watson Rosalind’s research is not entirely clear. No doubt he enjoyed the opportunity for a good grumble about her; perhaps it never occurred to him that Watson and Crick would come out with the solution to the problem of the structure of DNA; and he may have vaguely assumed that even if they did, they would give her sufficient credit for her contribution. At any rate, he later regretted it. “Perhaps I should have asked Rosalind’s permission. Things were difficult. Some people have said I was entirely wrong to do it without her permission.” But Wilkins was not the sole source of this information about Rosalind’s research. A report was being made on the work being done in Professor Randall’s laboratory, and one of the items in it was Rosalind’s account of what she was doing. A copy of the report was sent to Max Perutz at the Cavendish. Perutz says “Crick heard about the existence of the report from Wilkins . . . and either he or Watson asked me if they could see it . . . in 1953 I was inexperienced and casual in administrative matters . . . I saw no reason for withholding it.”⁴ This account differs interestingly from Watson’s who says “As soon as Max saw the sections by Rosy and Maurice, he brought the report in to Francis and me.”⁵ The implication is of course, that if Perutz, a scientist whose integrity no-one has ever doubted, had made a point of going to Watson and Crick’s lab to show the report to them, it must have been all right for them to see it. As Perutz says, he was inexperienced in such matters at that time, for a very few days later, Watson and Crick produced the paper in which they gave the structure of DNA.

On March 17th 1953, Rosalind finished writing a paper in which she described nearly all the features of DNA. She said it was double helix with phosphate groups on the outside, with bases on the inside. What she had not done was work out the exact configuration of the bases. She must have been surprised when on March 18th Wilkins received a paper from Watson and Crick which repeated her theories with the additional feature that they had worked out the exact configuration of the bases. When she was shown it she must have been genuinely impressed, since she repressed her own paper

and wrote another one supporting theirs. They received the Nobel prize for their paper on DNA, she died of cancer that might have been caused by the X-rays she used in her work on DNA. It does not seem just.

No one denies that Watson and Crick's work on the configuration of the bases was very good and as Anne Sayre says

A wholly original paper on the base-pairing scheme might have been written and published wholly by Crick and Watson, and a brilliant and insightful paper it would have been, too, quite enough of both to secure them lasting fame.

A joint paper embodying the whole structure might have been written in which the contributions of Crick and Watson and Rosalind Franklin would have been accurately and wholly defined . . . there was, indeed, glory enough to go round. Neither of these alternatives were adopted. To be honest, the glory was hogged. (p. 193)

Crick and Watson did acknowledge that Rosalind's unpublished work had stimulated them, but providing stimulation for Watson and Crick does not begin to describe her contribution to the discovery of the structure of DNA and such acknowledgement does indeed seem paltry gratitude for the gift of the Nobel prize.

But there is more at stake than the reputations of Franklin, Watson and Crick. Credit for scientific work is given by the priority in publishing the results of research, and with credit go promotion and increases in salary. But much communication goes on before publication. Scientists like talking about their work, and such talk is invaluable. Fresh approaches to apparently insoluble problems may be suggested, ideas may be criticized, but no researcher will dare talk about his work if he suspects that one of his listeners is likely to seize an idea, publish it and so gain the credit for it.

The practice of science must be organized to maximize its progress. There can be colloquia and lectures, where things are said comparatively publicly, but just as important as these are informal conversations over coffee. These can only take place in an atmosphere of trust, and the trust can only exist if the rule of fully acknowledging help and giving credit where it is due is universally obeyed. This situation may be a difficult one to achieve; the DNA case has set an unfortunate precedent. Anne Sayre writes

"A generation of graduate students in science read *The Double Helix* and learnt a lesson: the old morality was dead and they had just been told about

its demise by a respected, highly successful Nobel Laureate, an up-to-date hero who clearly knew more about how science was acceptably “done” than the old fashioned types who prattled about ethics. One of them told me cheerfully that the way to get on was to keep your mouth and desk drawers locked and your eyes and ears open and then “beat the other guy to the gun” . . . another graduate student said it was all down in *The Double Helix*, how to get ahead, and nobody thought the worse of Watson, did they? (p. 195).

Perhaps these young graduates too will write a book abusing the colleagues whose work they borrowed.

Notes and references

1. X-ray crystallography and “X-ray diffraction work” mean the same thing, they are the techniques by which the structure of DNA is examined.
2. It is only fair to Watson to say that, at Klug’s and Crick’s instance, he wrote an epilogue in which he stated that some of his impressions of Rosalind were wrong but the admission is tardy. It does not cancel the effect of what has gone before.
3. In the Notes of *Rosalind Franklin and D.N.A.*, p. 212.
4. *Op. cit.* p. 152.
5. *The Double Helix*, p. 182 (London 1968).

Julian of Norwich as a mystic

KATHARINE M. WILSON

Julian of Norwich is one of the lesser of the mystics. Her *Revelations of Divine Love* would rank as devotional rather than as mysticism of the further sort that is universal and characterizes the greater mystics. But right at the heart of her peculiarly Christian revelation occurs an experience owing nothing to the particular culture in which she was nurtured, but characteristically mystical. There are signs too that she might have revealed more of this had it not been overlaid by loyalty to Catholic dogmas and attitudes.

Where a mystical attitude is cultivated, as Stace describes the experience, "The subject empties himself of all empirical contents and finds that he is left with a pure unity." Among Christian mystics John of the Cross says that to reach the topmost rung of the mystical ladder "old images and forms of knowledge" must be cast away. "The soul must not lean on any knowledge of its own." Imagination can use only what it has already experienced, and is useful to begin with, but impressions of the creator have no form, and in union with God "the soul seems to be God rather than soul." And so with all the great mystics, whatever their faith. Thus in the *Bhagavad-Gita* we are told that "the height of oneness" is "Union with Brahman". The yogi who "will reach that universal source", goes further than "studying the Vedas, performing ritualistic sacrifices, practising austerities and giving alms".

In general Julian's mysticism is not of this sort. It is heavily laden with Christian imagery, or one might say cluttered by the rich imagery of the Church. Also she had prayed with what might be an intense ego-desire, which the mystic tries to detach himself from, and what she prayed for was granted in the same form as that which

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she prayed for. That is to say what was revealed was what she might have expected, and therefore looks as if its impulse and form had been determined by that. This is not what happens in a mystical experience which, even if sought, reveals a new sort of wisdom up till then undreamt of. As John of the Cross says, "Divine things and perfections are not known and understood as they are, when they are being sought after . . . but when they have been found." Her first wish was to have "a bodily sight" of the crucifixion and suffer it with Christ, her second was a "bodily sickness" leading to an actual experience of death without in fact dying. This she desired to have when she was thirty. She qualified these by adding, if it be God's will. But there was more she desired without this qualification. She prayed for "three wounds", those of contrition, compassion for all folk, and "wilful longing to God". Now all this she was granted exactly as desired, on what psychology or in what mysterious way I cannot guess, but none of it could be called mystical since it all came about in imagery habitual to her thought and characteristic of her time, with such things as the bleeding from thorns with drops like pellets, and all as prescribed by her own prayer.

In the midst of this, however, comes something not apparently prepared for, with imagery unconditioned by the habitual thought of the Church, and including a realization not taught her beforehand, and much more mature. The image was that of "a little thing, the quantity of a hazel-nut, lying in the palm of [her] hand." It was so small it looked as if it might "suddenly have fallen to naught for littleness". Her questioning of what it could be was answered in her understanding, that it represented all that is created, and lasts only because God made it, loves and sustains it. We cannot, she continues, be "in ease of heart" as long as we seek this little thing, for "no soul is in rest until it is naughted of all things that are made." That is to say till it is emptied of all consciousness of the created—the mystical requisite. When commenting on the experience she says she considered how we usually pray in all sorts of ways, because we do not understand. But it would be better to cleave to God alone than to use "all the means that the heart may think . . . For . . . in his goodness is the whole; and there faileth

right naught.” “There came to my mind”, she says, that “we pray to God for his holy flesh, and for his precious blood, his holy passion” and so on, in fact for all that she had asked, and all that was being shown in Christian imagery. But she saw that “the goodness of God is ever whole, and more near to us without any comparison.” In other words not differentiated into images. She had discovered the “whole” that transcends all created things, which dwindle to nothing in that realization, and which the *Gita* refers to as “that eternal form . . . which is not manifest to the senses.”

Julian reconciles this revelation with the use of Christian imagery by saying it pleased God “that we seek him and worship him by these means, but understanding and knowing that he is the goodness in them all.” And God is not only in Jesus and his Mother and the rest of it, but “he is in all thing”. “He is the mid-point of all thing.” God says, “I it am that is highest . . . I it am thou lovest,” indeed “I it am that is all”. She comments on this, “Therein is comprehended I cannot tell what; but the joy that I saw in the showing of them passeth all that heart can think, or soul may desire.” Or again she says, “I saw in a point; that is to say, in my understanding; by which sight I saw that he is in all thing.” She says the Lord spoke to her “without voice and without opening of lips”. She was shown by three parts; that is to say, by bodily sight” (that is by eidetic vision or hallucination), “by word formed in my understanding and by ghostly sight”. She continues, “for the ghostly sight, I have said some deal, but I may never full tell it.” In other words she cannot describe it. In another passage she says, “This feeling was so glad and so ghostly that I was all in peace, in ease and in rest, that there was nothing in earth that should have grieved me”, a result of the experience stressed by St. John. Like him too she emphasizes love; “our life is all grounded and rooted in love”, the ground being what remains in the “empty” consciousness where the unity or oneness with God is found. As the *Gita* puts it, those who find God have “the heart so full it hardly holds its love”. We see her one with the mystics at their furthest reach where she says, “Between God and the soul may be right naught.” She explains later that “A high understanding it is inwardly to see, and to know that God . . . dwelleth in our soul. And a higher understanding it is,

and more inwardly, to see and to know that our soul . . . dwelleth in God in substance; of which substance by God we be that we be. ' And I saw no difference between God and our substance, but as it were all God." So she describes precisely the characteristic mystical experience where the soul and God are one.

There are these two languages in Julian's book—that of orthodox Christian devotion and this of a more universal mystical experience. In the former she appears as a simple child obedient to her father confessor. In the latter she writes with a mature understanding of herself and what she experiences. Here is an example relevant for today, when we ask whether the important thing is to know ourselves. She says it is easier for us to know God than to know our own soul. So we must know God first. "But notwithstanding", she adds, "we may never come to the full knowledge of God until we first know our own soul. In this sort of way she talks with the authority of one who has gone far in the mystic search, and starkly. Yet so mindful is she of the Church's teaching, careful not to question it, almost it sometimes seems anxious not to be heretical, that she might perhaps have fallen into a complete and sentimental acceptance but for one thing she cannot stomach—the fact that there are people eternally damned. She tells us that she "often wondered why by the great foresaid wisdom of God, the beginning of sin was not [prevented], for then . . . all should have been well". But she came to see that sin has a value in breaking pride, so that we learn humility. Yet she has been assured by God that "all shall be well". This sentence recurs over and over again and always in this context where she considers the eternally damned. If the damned remain unforgiven all would not be well. "Sin must needs be, but all shall be well", she iterates. But the church taught otherwise, and she professes, "in all thing I believe as Holy Church preacheth and teaches". So back she comes to the dilemma. Sometimes she qualifies her "All shall be well" with "I speak of them that shall be saved"—perhaps after all an ambiguous generalization? Julian was not only under the authority of the priest, but as a woman bound to accept the greater wisdom of man, and without enough devil in her to make sure, as Teresa of Avila did, that she had the last word. Yet her trust in the voice of God held; this experience was

the more deeply based, and it precluded the church's teaching of damnation. Since both were true there must be some explanation. So she deduced, "There is a deed the which the blissful Trinity shall do in the last day, as to my sight: and what the deed shall be, and how it shall be done, it is unknown to all creatures which are beneath Christ." God in his goodness and love wishes us to know it shall be done, but "to hide . . . from us what it shall be, and how it shall be done." And by this means, "all shall be well", as out of her deepest experience she knows it must.

NOTES ON KATHARINE M. WILSON'S PAPER ON JULIAN OF NORWICH AS A MYSTIC I

I have read this several times and although I like many of the positive things in Katharine Wilson's description of Julian's mystical experience, I think that her estimate as a whole is vitiated by the treatment of Julian's Christian imagery as a devotional picture, contributing nothing to mystical experience and in fact preventing it from reaching its full development. The omission in her thought here seems to be the failure to distinguish between images—as for example the "Lamb of God", or Julian's own image of the world as a hazel nut—which enlarge understanding through an imaginative description, and those which represent some real and significant event and strengthen understanding of what lies behind it. The Crucifixion is a terrible historic fact. Christians see it also as an intense concentration of the love of God for the world in a powerful redemptive act, and so, in a historic context, a showing of his nature. If this is so, then to dwell on it, in whatever way is natural to the individual and the period, can be expected to lead deeply into unitive prayer, and it seems clear that this has sometimes happened in Christian experience. (I should myself consider that it happened both for Julian and for Teresa of Avila.) The rejection of such Christian images as belonging only to their milieu and having no real relation to what Ruysbroek calls the "wayless" mystical experience seems to be fallacious. The one can lead straight to the other, and although the link between them is often—perhaps always

—lost to immediate consciousness at some stage, it is not annihilated, and the image is not rejected. The whole experience is a recognizable unity.

AMY CLARKE

NOTES ON KATHARINE M. WILSON'S PAPER ON JULIAN OF NORWICH AS A MYSTIC II

The distinction between the devotional and the mystical is an important and useful one. It is the mystics themselves who implicitly or explicitly emphasize the need to avoid confusion between them. This is as true of St. John of the Cross as of the Tibetan Book of the Dead. Nevertheless they are related since it is the same person who experiences both.

Christian devotion, as I understand it, is the cultivation of those desires, feelings and imaginings which are appropriate to the Christian belief system; the mind is systematically saturated in Christian ideas and images until the whole of living is permeated by them. It is a process of self-indoctrination since in building the personality around a particular set of beliefs any sense of the relativity of those beliefs tends to disappear and it becomes increasingly difficult for the individual to enter sympathetically into the feelings and images appropriate to any other religious belief system. Of course at the heart of Christian belief is the notion of God. It is this idea which like a window opens out beyond all belief. But it is here that the tension between the devotional and the mystical arises. For within the system of belief which forms the basis of devotion curtains of meaning are drawn across this window. Hence we have the paradox that Christianity asserts on the one hand that God is unknowable and on the other apparently knows an astonishingly large number of things about him, what he has done, what he wants, what he disapproves of, and so on.

The mystic, it might be said, is one who draws these curtains of meaning back and who looks or climbs through this window. It is he who directly and intuitively apprehends God, Brahman, the Self, the Void, or whatever, as utterly transcending all conceptual

categories. Since the intuition itself is of that which is beyond all thought it cannot be appropriated within the conceptual systems of any religious tradition. It is universal, whereas religious traditions are always relative and parochial. The mystics of all traditions are united in asserting the utter impossibility of any direct communication of its nature. They can only talk of it indirectly through its impact upon themselves. The mystic has no choice but to filter his illumination through his own beliefs, feelings and imagining and constantly to reiterate that what he is talking about cannot be talked about.

It is thus that an illumination, itself universal, gives birth to traditions of mystical writing which diverge in the quality of their feeling and imagery. Christian devotion is relatively speaking heated up, intense and emotional. Because of the nature of Christian belief it accentuates feelings of sinfulness, guilt, fear and inadequacy on the one hand, and on the other the relief and joy of being accepted, forgiven and loved. The Christian religion, to an extent greater than any of the other major religions, domesticates the universe, in the sense of turning it into a family affair, and builds its metaphysic around the psychological dynamics of family life, with the Father taking care of everything and providing rules for living, with Jesus as companion, guide and leader, and with the community of saints in heaven and of fellow Christians on earth to provide support and solace. In contrast, Buddhist devotion, built around a more impersonal metaphysic and with the practice of meditation at its heart, is much cooler. It is not surprising therefore that the images Christian mystics draw upon in talking of their illumination are often those of ecstatic love, power, fire, darkness, joy and safety, whereas Buddhism generates images of light, emptiness, nothingness, void, stillness and a more detached compassion.

At this point the Christian could well point out that the images I have attributed to the Buddhist tradition can also be found within Christianity, though it would be more difficult to argue for the converse of that. This raises questions that cannot possibly be explored here. In particular it points up the fact, which Katharine Wilson illustrates in a small way in her discussion of Lady Julian, that many Christian mystics have, after their illumination, found

themselves in conflict with Christian belief and found themselves persecuted because of it. This does not seem to have occurred within Buddhism, and it suggests that in some way Christian belief is at odds with the nature of mystical intuition. More generally it raises the question whether devotion is in any sense a necessary precondition of mystical illumination.

It seems to be the case within Christianity especially, but also within certain Buddhist traditions, that those who have developed the belief tradition which is the foundation of devotion have not themselves experienced mystical illumination, or at least were not speaking out of it when they were formulating belief. Moreover devotion is not itself directly intended to lead to such illumination; its goal is rather more to produce the good Christian or the good Buddhist. It appears to be the case that within those traditions which have a most elaborate metaphysic mystical intuition is held to be at the end of a very long process of self discipline and devotional practice. The people who attain it are rare. They tend to be venerated as exceptional, and their inclination to discount the importance of belief or their lack of orthodoxy are rationalized away as being permissible for them but not for the rest of us. In short, those people most identified with the tradition of belief display considerable ambivalence towards mysticism.

In contrast Zen has the barest minimum of belief, and therefore of devotion; some would say it has none. Its practice of meditation is in no sense a form of psychological adaptation to belief but a form of practice intended directly to facilitate mystical awakening. Indeed, it asserts vigorously that devotion, as it has been defined here, is an impediment in the way of such awakening. Not surprisingly it sees such illumination, instead of being at the end of a long period of training as something that can occur now to all people. Mystical intuition becomes somehow more ordinary and human. In my view Zen constitutes a challenge that Christianity has not yet faced. For it suggests that perhaps Christian mystics arrived at their illumination not because of their Christianity but in spite of it.

DEREK WRIGHT

Review

The Ruby Hat: An Essay on Omar by Walter Roberts

Published by The Mitre Press.
Price £1.00. Pp. 52.

Marred by an anonymous blurb which smacks of name-dropping and self-consciousness, this collection of 198 six-line stanzas in an *aa bbb a* rhyme scheme could at a first, casual glance seem irritating and bordering on nonsense of a rather pretentious kind. The title, too, is a worry. This reviewer does not consider that its esoteric meaning is yet clear to him, a fact which is probably due to his lack of a special sort of “in-ness”, his lack of wit; and certainly to his timidity in the face of what seems like clever and somewhat cliquish frivolity, his revulsion from puns, and his professional concern with the words *rubā’ī* and the plural *rubā’iyāt*! As for the sub-title, that is contradicted by the last line of the *Prologue*. The stanzas are hardly if at all “An Essay on Omar”, but “about all problems that occur” to an author who, in the rest of verse quoted here, appears in fact to be producing his answer already to the implied criticisms of this first paragraph of this review:

May we, who often err,
Not be remembered, Sir,
except for moments of integrity,
retrieved from vanity,
blest by urbanity,

a warning and a plea, if ever there were, that charity is best after all.

To read on is to begin to long for the lucidity of Robert Browning, the master of similar disquisitional verse, the ideal monologistic conver-

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sation piece; and the bleak pithiness of 'Omar Khayyam's celebrated snatches—or those which have been attributed to him. For it seems that Mr. Roberts has had too complicated and complicating an education at Cambridge and has been at some time or other in his life accustomed to altogether too clever a company of friends for the directness of Browning and stark simplicity of Omar to be his.

Yet again his reverence for Omar disarms the critic who ventures to say such things. It seems that perhaps to cherish as well as find balm for the wounds the kind of experience hinted at here has inflicted on this poet, he has crept beneath Omar's gown. If this were so, then it must be said that, assuming for a moment that contrary to such facts as can be ascertained Omar was really a Sufi, he might have anticipated the famous lines of his later compatriot, Maulana Jalau'd-Din Rumi (d. 1273), and extruded Walter with the words:

That one came, knocked at the door of a Friend.
 His Friend said, "Who are you worthy fellow?"
 He answered, "I" and the reply came, "Go, now's not the time:
 For such a table as this there's no room for what isn't cooked":
 What but the fire of travelling away and separation can
 Cook what is raw and release it from hypocrisy?
 The poor man went and a whole year was scorched
 In the sparks of travail's burning and distance from the Friend.
 He was cooked all right and then the well roasted returned,
 Again to walk about outside the Friend's house.
 At last he struck the knocker with many a fear and craving for
 courtesy—
 Lest some rude vanity should leap from his mouth.
 His comrade called out, "Who's that at the door?"
 He replied, "At the door it is you too, oh snatcher of hearts".
 The answer came, "Now that you are I, come in me:
 There's no room in this house for two of us".

Well, the controversy may rage about whether or not Omar was a Sufi, but he was Persian enough to know to the utmost the meaning of these words, poorly rendered here from the exquisite original. Why "charity" in relation to *The Ruby Hat* is not difficult is because

it becomes clear that the author also is of the genuine Omaresque-Sufi-Persian cast, not only of mind but more important, of heart. The Mantle may not yet be deservedly his, but he is on the right track. That he moves towards the embracing folds says all: to love where this ruby-hatted farrago has been engendered (out of sparks of the right type of passion) is not hard. It is also a kind of sweet duty.

For me light began to dawn lustrously when I got to the last line of the middle stanza of these three, in spite even of my latent wish that those Yankees did not have to be “damned”:

113. The Russians rush ahead
 In such research, it's said,
 and the damned Yankees build some potent bowls
 to reach out to those souls
 Who telegraph their goals
 by methods glimpsed by Russell and Whitehead.
114. It could be that our scheme
 tends to approach their dream
 and intersect with it in six dimensions
 with just the very scansions
 that fit the heavenly mansions
 and register some form that reigns supreme.
115. The fire of metaphysic
 supplies the needful physic
 to put the broken semblance in repair
 and rapidly declare
 when, how, why, whether, where
 manipulations leap from life's pure basic.

And so we see that, while he provides a wonderfully salutary exercise in charity, Mr. Roberts also gives the non-sceptic's answer to that utterly sceptical non-believer he has taken as the peg on which to hang his own particular hymn for our times. Persian-like he is very paradoxical, but really very un-Omar-like, very much more

optimistic than he seems to want to reveal. There is nothing like this under the blood-streaming hat—these verses of Omar's, as translated by John Heath-Stubbs and this reviewer:

He began my creation with constraint,
By giving life he added only confusion;
We depart reluctantly still not knowing
The aim of birth, existence, departure.

Heaven's wheel gained nothing from my coming,
Nor did my going augment its dignity;
Nor did my ears hear from anyone
Why I had to come and why I went.

Cambridge may make men too clever sometimes; it does not seem to allay doubts about the purposes of existence with the alloy of religious faith that may have been the "physic" of Oxford. But Omar would have been more at home in Cambridge, where it is the solutions that are sought, not assuagement of doubts.

He would almost undoubtedly have been happier there than he was in Nishapur after it had been ravaged by Saljuq tribal horsemen and when it was riven by the worst sort of scholastic bickering, its better minds stifled by the mealy-mouthed lisp and sanctimonious pieties of the most wretched hypocrites who cringed to the Khans from whom they enjoyed protection. Yet I am at a loss to understand how the anniversary of a death we now know occurred in 1131 could have been in, say 1974, the eight hundred and fiftieth; it must be supposed that the earlier accepted date of 1122 was the basis for an anniversary celebrated in 1972. But let us take the Ruby Hat line:

Omar, it's hardly time
to celebrate in rhyme
eight centuries (we'll give or take a half) . . .

and be thankful, after all, for minds which persist in reaching back to the Nishapuri mathematician, for verses that hang upon his name,

and for the recollection of that Hat whose now, alas, curtailed tassels used to be to remind the wearer he must be ready to shed his blood. It is strange that in an age which has produced Mr. Roberts' doom-aware comments, a Pope should have sanctioned the removal of those awesome tassels.

PETER AVERY

Comment

Where is the fringe in scientific publishing?

I thought that David Davies' remarks at the very end of the discussion in *Theoria to Theory* 9 (3) were very wise. Books are probably the best way to publish paranormal work, in the present circumstances. Incidentally, are not the investigators in this field not being a little greedy, in wanting the scientific journals to open their pages to them? After all, they are able to get gigantic publicity in newspapers and the B.B.C./I.T.V. Geller-and-all-that have an access to front pages of newspapers which is denied to scientists reporting discoveries about crystals, atomic structures, botanical specimens etc. Ted Bastin says "People were just not prepared to look at facts . . ."—exactly what a newspaper Editor says when he kills a story from "orthodox" science.

ALAN COTTRELL

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1975, Vol. 9, p. 293

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Comment

Homes for old people

In October 1971 *Theoria to Theory* reported a conversation on old age between Peter Avery, David Clark and Oliver Hodgson. When I came upon this two years later I found it very relevant to my own experience, partly because I was myself on the threshold of old age but also because I was investigating the “Homes” which our society considers appropriate for the aged. The main outcome of the conversation was the recognition that old age is “not just a hangover from what you have done before”, but a new stage bringing new possibilities for the interior life. If this is true—as I believe it to be—then it is little short of tragedy that a prevalent type of old people’s Home by its very nature forbids this kind of new life or will strangle it at birth. I think the three participants in the discussion were partly aware of this incongruity so perhaps I may be allowed to draw attention to it.

I use the expression “interior life” to encompass what one finds when at last there is time and urgency to turn inwards, but Peter Avery, pinpointing its highest activity, refers to “mystical awareness” which “traditionally the aged are supposed to be better at than the young”. It is, he says, an “excellence” which the aged are able to develop further in contrast to the things in which they can no longer make progress. In a footnote to the discussion Julia de Beausobre adds this from her own experience: “By the time we have become noticeably less alert the bulk of our understanding increases and deepens remarkably as if a different part of the brain—a fresh or well rested part—were taking over from an outworn part . . . The shift in predominance from alertness to overall understanding in depth creeps in unnoticed if our mental energy does not begin to

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flag before the body is sufficiently outworn to begin tangibly to expire." Ageing people should prepare for this shift, she says, and the community should see that they have physical aids and ordinary necessities. It would not then cost much for the aged to live a new life of "leisure in solitude" and what this might be she describes movingly. I know Julia de Beausobre to be exceptional but a friend of 84 to whom I sent the whole note wrote: "I had already become aware of another dimension towards which one must be directed and in which one must eventually live." She has sufficient leisure in solitude, in her own home, but is also in constant touch with her outside world and needs her friends. For most people these last conditions are also important.

But my friends and acquaintances in "residential Homes" are denied everything. If you are so completely looked after that you do not even see your doctor without the matron being there, if your appointed place at the dining-room table and your appointed comfortable chair in the lounge force you into the exclusive company of other old people, but strangers, if there is nowhere to be alone except a stark clinical bedroom (which might have to be shared at night), then your flicker of inner light is smothered or goes out in a gust of bitterness. Caring, based on wrong assumptions also affects people in some "supported accommodation" (bungalows or flats connected with a warden). A composed Quaker woman who had recently been through great grief said: "We don't want tender loving care. What we want is *respect*." To illustrate her point she imitated a well meaning helper who had asked "Did you enjoy your supper dear?"

However the policy makers explain themselves, their assumptions expressed in practice are that old people are a category, that their lives are to all intents and purposes over, that to have life behind you is sad and the decline into decay makes it sadder. It follows therefore that the old need your loving care even if you do not love them. And everyone's fear of his or her own old age seems to make people both anxious to help the old and reluctant to come close enough to find out their real needs.

But nothing is static and there are factors which could make for change. The dread we have of being "put into a Home" is seen to

have substance when perceptive visitors find their friends part of a silent circle of defeated old people. In the conversation which prompted this comment Oliver Hodgson said: “you should have three generations growing up together”—which does not mean that the youngest remain children. In Bournemouth the Free Church Council run a block of flats for people aged 18 to over 80 and find that they were right to do so. Some local authorities enable old people to stay in their own homes by a vigorous policy of domiciliary help; others at least intersperse supported accommodation among family houses. I do not feel it is right to blame families for not keeping grandparents under the family roof, for the aged usually prefer independence, but a happy arrangement is the adoption of an old man or woman by a neighbour or by a family. Until we get very old and frail we have a special bond with the young.

Religion and old age are rightly associated because most old people are secretly if not overtly religious. Although both are de-rated at present tomorrow may be a new day, for what sort of old people shall we have when a generation which has experimented with transcendental meditation, with drugs and communes and festivals, with soup running and public fasting, arrives at that last stage of life? We can only guess, but by comparison it might be enviable.

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Comment

The irreversibility of time

With due respect to Jacques Monod, I submit that the irreversibility of time is not a “completely new” or “very modern” idea. At least in so far as it is implied by the irreversibility of action, it has been known to every great dramatist since the ancient Greeks; arguably, great drama cannot be written without belief in it. Agathon (5th cent. B.C.): “One power has Fate to God himself denied, To make undone the thing that has been done” (translated by J.A.K. Thomson). Shakespeare, *Othello*: “Not poppy nor mandragora Nor all the drowsy syrups of the world Shall ever medicine thee to that sweet sleep Which thou owed’st yesterday.” (Compare Salisbury in *Richard II* on the theme of “O call back yesterday, bid time return”, implying of course its impossibility.) Milton, *Paradise Lost* IX, 926: “But past who can recall, or done undo? Not God Omnipotent, nor Fate.” Milton knows of course that by using the word Omnipotent he is making it a paradox.

It may be that what is dramatically and morally important is that it is action, the actions of a living being subject to death, that carry a one-way directional arrow, rather than time itself. It seems worth discussing whether these two irreversibilities can be separated.

CLARE CAMPBELL
Lucy Cavendish College
Cambridge

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Sentences

1. JUSTICE

Justitia est constans et perpetua voluntas ius suum cuique tribuens.
Justinian, Institutes I. i.

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Justice is truth in action.
Disraeli, Speech in the House of Commons, February 11th, 1851.

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Judges ought to be more learned than witty, more reverend than plausible, and more advised than confident. Above all things, integrity is their portion and proper virtue. Cursed (saith the law) is he that removeth the landmark. The mislayer of a mere-stone is to blame. But it is the unjust judge that is the capital remover of landmarks, when he defineth amiss of lands and property. One foul sentence doth more hurt than many foul examples. For these do but corrupt the stream, the other corrupteth the fountain . . . Judges must beware of harsh constructions and strained inferences; for there is no worse torture than the torture of laws. Specially in case of laws penal, they ought to have care that that which was meant for terror be not turned into rigour . . . In causes of life and death, judges ought (as far as the law permitteth) in justice to remember mercy; and to cast a severe eye upon the example, but a merciful eye upon the person . . .

The place of justice is an hallowed place.

Francis Bacon: *On Judicature*

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I am not afraid of being accused of sloppiness of thought when I say that the guiding principle of a judge in deciding cases is to do justice; that is justice according to law, but still justice. I have not found any satisfactory definition of justice, but whatever it is, it is the quality of what is just. And what is just in any particular case is what appears to be just to the just man, in the same way as what is reasonable is what appears to be reasonable to the reasonable man. A judge in applying the law as in duty bound may feel sometimes that he is doing what is unjust; when that happens it indicates a defect in the law. Perhaps it does not happen often; it certainly ought not to happen often. Mostly, but not always, a distinction can be found. There are cases in which the word "just" seems an inappropriate epithet to apply to the decision even if it is correct, as, for instance, in respect of the effect of a taxing statute, or a point in local government law, where the problem is technical and depends on the precise meaning of obscure and formal language and the question is rather of state or public policy. But in the range of what is specifically called the Common Law, that is, of individualistic justice, the primary object is to apply the rules which most nearly approximate to justice. The Reports carefully studied shows how the judges, according to their powers and their capacity, have sought to do so.

Lord Wright: *Legal Essays and Addresses*, pp. 382/3
Cambridge University Press 1939 (quoted by permission)

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Friendship and justice seem to be concerned with the same objects and exhibited between the same persons. For in every community there is thought to be some form of justice, and friendship too; at least men address as friends their fellow-voyagers and fellow-soldiers, and so too those associated with them in any other kind of community. And the extent of their association is the extent to which justice exists between them.

Aristotle: *Nicomachean Ethics* VIII. 9.

2. PIETY

A pious man's acts cannot be understood apart from the man himself and the circumstances in which they are performed. Piety is not mechanical obedience to a code. Piety is to be described rather than explained; it is not so much defined as recognized in a pious man's expressions of love for things and people. . . .

Everything we know about the pious man shows us that we must not be obsessed with visible or invisible things lest we cease to pay proper attention to people. People are the highest kind of created life we know, and through them we are led to a deeper knowledge of ourselves and of God who commands us to love one another. Love of one another, of course, entails the performance of the gospel deeds of mercy, which are different for every generation. In our generation in this country the common poverty is spiritual rather than material; that is to say, the bulk of people are poor in ideas, interests, and in spiritual means of using the freedom that the present type of society offers them. There is no need to stress the difficulty of this kind of ministration. At the same time we are faced with finding the right way to help the millions of people in other parts of the world who are destitute, homeless, and oppressed, knowing that all we can do is to take what political action we can and subscribe towards the alleviation of this widespread poverty. This knowledge weighs heavily upon us and it should not be banished from the mind, but the devout know the danger of neglecting immediate and difficult obligations through too much concern with violence, injustice, and starvation in far-away places. The New Testament always shows our Lord giving close attention to those who are in his company. In looking at this attention people learn what it means to be with him and to be with one another. In his life "with" means far more than being physically near. It means the closeness of a unity which love makes by serving others and accepting the service of others. . . .

Perhaps what we do for others is done largely in their absence, for in their absence we make and maintain the interior dispositions which determine how we act in those common situations for which there can be no particular preparation. In the absence of others

the Christian makes two kinds of reflection. First, the general reflection on what it is to be man according to the gospel, and secondly, on those people for whom he has an immediate concern. The Gospels underline the value of each person as a unique being made in the image of God, and therefore each person is to be revered no matter how degraded he may be. This reverence for humanity guides every pious man's concern for his neighbour, just as it informs the priest's pastoral and evangelistic ministrations.

Inevitably general reflection about people leads to the second type of reflection—the particular thought given to those with whom one has immediate contact. Reverence for them is to be preserved by its relevant expression in the rush and bustle of everyday living. Negatively, this reverence is first to avoid the temptation to dominate another even for his own good, and secondly the refusal to foist a role on him by suggesting what his feelings, ambitions, or amusements should be. At the same time the devout must be alert lest they allow anyone to dominate them or be found even temporarily accepting a false role. Positively, reverence for others is expressed by doing all one can to provide the kind of conditions which seem to give them the best chance of being truly themselves. In Christian terms this means doing nothing that makes it difficult for others to pray (among other things, to avoid talking too much, to allow people enough solitude, and yet to be aware when they need company). Pious people, of course, do not narrow prayer down to a series of acts performed at intervals, but rather consider it a state of mind and soul which is formed by and forms direct acts of public and private prayer. Christians know how easy it is to break up this inner state of devoutness; a hasty outburst, a word, a look, the slamming of a door, the over-hearty greeting, the animated discussion of trivialities—such things can test a man's inner poise at times too severely for his endurance. Usually on big occasions most of us behave tolerably well, but on little occasions piety is tested by the people one meets and works with day by day. This is so because the bulk of people, while truthful and honest in their dealings over material things, have little regard for the hidden struggles of those who want to think, speak, do, and be the truth. Intercession for the sanctity of others is best expressed in overt

acts that are judged to promote it in given situations. Ascetic discipline is most truly to be found in the constant attempt to avoid disturbing and distracting our neighbours, and particularly our nearest neighbours, by the disorderliness of our behaviour and our dullness in perceiving the succession of their moods. †

CHARLES BROWNE

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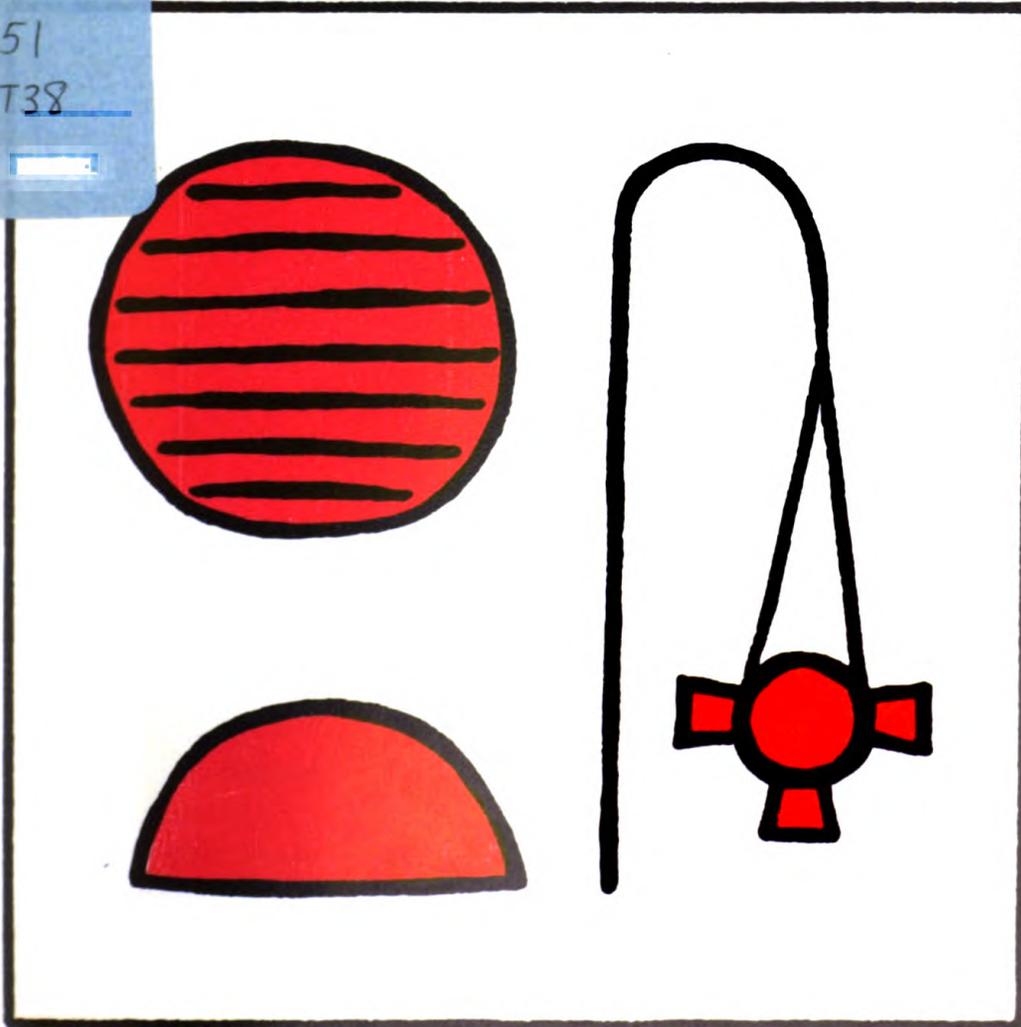
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An International Journal of Science, Philosophy and
Contemplative Religion

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THEORIA to theory

An International Journal of Science, Philosophy and Contemplative Religion

Editors

DOROTHY EMMET, *Fellow Emeritus of Lucy Cavendish College, Cambridge, England and sometime Professor of Philosophy, the University of Manchester*

ANTHONY APPIAH, *University of Ghana, Africa*

LAURENCE KING, *Jesus College, Cambridge, England*

Explorations in the sciences and technology that affect our understanding of religious and philosophical questions—these are the basis of this quarterly journal. *Theoria to Theory* holds that traditional religion has been primarily, and at best, concerned with mystical and contemplative experience; therefore it is important to a widened science in providing a source of insight. *Theoria* was the old Greek name for this insight; *Theory* here stands for an enlarged and revised scientific understanding. The journal represents an effort to connect the two terms with each other.

The journal was started in 1966, when this approach was outside current theoretical philosophical and religious fashion, but times have changed, and the interests of *Theoria to Theory* have become those of an influential avant-garde. However, implementing this approach is not so easy. Real understanding proceeds at its own rate, and demands precisely the "waiting on God" that contemplatives should but do not always manage. Any other approach leads, on the one hand, to occultism, and, on the other, away from the spirit of adventure within science.

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FEBRUARY 1976 issue

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Editorial

In this issue we publish a discussion with Richard Adams on his latest novel *Shardik* and a short article on *Watership Down*. In both these novels Richard Adams has invented worlds for the action to take place in; and this form is currently very popular, as evidenced by the success of these novels and also that of Tolkien's works, of *Jonathan Livingston Seagull* and of the increasing amount of Science Fiction that is being written. This development cannot just be seen as due to an interest of readers in the fantastic, but rather in terms of the freedom it gives writers to create a setting which enables them to charge the events in their novels with contextual significance. Thus, Tolkien is able to draw on our nostalgia for an idyllic rural past in his creation of the Shire in *Lord of the Rings*; he can affirm the heroic nature of the action in his novel by continual comparison with an acknowledged golden age, but if these techniques had been used in a realistic novel we would merely question the idyllic nature of the rural setting or indeed the notion of the golden age. Further, he can create enormous tension by making the survival of all uncorrupt societies depend upon Frodo's being able to throw a ring down a volcano, whereas a realistic novel in which such a simple action had such enormous consequences would strike us as the most absurd type of thriller. More importantly, Tolkien makes the sequence convincing (if he does) by imbuing the ring with enormous mystic significance; it is the spiritual power that sustains evil. Thus Frodo's destroying it has the force of a religious, almost ritualistic, act.

Similarly there are continual suggestions in the novels of deeper spiritual battles that parallel the real ones. The nature of these levels is never gone into, and because there is no reason why it all should relate to what the reader has experienced directly, it is

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unlikely that he will question the matter; he just slips luxuriously into a world where simple things have unfathomable meaning. Similar statements could be made about *Jonathan Livingston Seagull* (which after all has sold an enormous number of copies). In this a seagull reaches a Buddhistic heaven by discovering new techniques in flying. Paradoxically unreal worlds are invented to suspend our disbelief, and the pity of it is that in this way a genuine interest in religion is often channelled off into self-indulgent fantasy.

So we were particularly interested in Richard Adams' novels when they came out, for instead of using the freedom gained by invented worlds to evoke sentiments by playing upon our ill-thought-out feelings, he uses it to make us take a fresh look at this one. It is universally agreed that *Watership Down* is one of the best children's stories to have come out in some years; at the same time, it is a political and religious allegory, and indeed on this depends some of its success as a children's story. The convincing way Adams describes the rabbits is not due to some mysterious indescribable quality in the writing, but rather in the understandable nature of the problems the rabbits face; and the difficulties of the rabbits in building up a viable warren is comprehensible only in terms of the various types of human society that may exist. In *Shardik* Adams is attempting something more serious in that he tackles religion more directly. It is about the reappearance of a cult figure, a bear, and the development of the religion because of its presence. We feel that our discussion is of interest because it reveals the levels of thought behind the book, and also because in it Adams tells us the sources of his ideas, and about the prologue and epilogue which he originally wrote.

* * * * *

Euell Gibbons, the author, among other books, of *Stalking the Wild Asparagus* (McKay, New York, 1962) and *Stalking the Good Life* (1966), who was one of our earliest contributors and supporters in the U.S.A., died on 19th December, very suddenly in the middle of making a joke. We published his article "Survival à la Carte" in *Theoria to Theory*, Vol. 3, No. 1. In his memory we are now pub-

lishing another more edifying, though less fact-filled article “Bread or Stones”.

The description of extreme hunger in famine conditions is, we believe, genuine; the edifying ending, we equally know, is not. There is, for instance, another version of the story in which the boy, trying to steal food, broke the lock of the door of the cellar, only to find that it was full of nothing but pinto beans. Euell also told us that, in actual fact, his father finally rescued his family by coming back from the city to fetch them in his car; and the moral of the tale was not that if you only know how you can save your life in a famine by gathering and cooking wild food plants, but that, in a dust bowl, whatever else you have to let go, you must hold on to your means of transport, so that if everything fails you can get back into the town out of the famine area.

So the story is fiction, and was earlier refused as such. But we now feel that Euell should be allowed, from the grave, to preach at least one sermon. And quite undoubtedly, if he had to preach a sermon, this is the sermon which Euell would want to preach.

* * * * *

Another of our contributors has also died, the great theoretical physicist Werner Heisenberg, who was one of the founders of quantum mechanics. Ted Bastin of our editorial group had a discussion with him in *Theoria to Theory*, Vol. 8, No.1 on his philosophy of science and of religion. Perhaps the most novel part of that discussion was where he explained his use of the term “complementarity”. People sometimes use “complementarity” to suggest that you can say contradictory things so long as you do not say them at the same time. Heisenberg gives it another use, to stand for the right to use intuitive concepts such as “life” and “stability” in combination with mathematically defined concepts in advancing a science such as biology. Here is the relevant passage:

I cannot avoid introducing my word *complementarity* again. Let's think of the nice case of the relation of physics and chemistry and thermodynamics. We can say that all chemistry can be understood by means of quantum theory, but if we only speak about quantum mechanics, then in this type of physics we

have no such concept as temperature, for instance, or entropy. Instead we have concepts of wave function and so on. But then we learn through the statistical use of quantum theory that we can somehow attach such concepts as temperature or entropy to the mechanical scheme of quantum mechanics: the two things fit together and so we can build up a theory which contains both concepts—thermodynamics and quantum theory. But one point which Bohr always emphasized was this. If we did not know beforehand that such a term as temperature or entropy was useful, that they have a connection with our immediate experience, then from the mathematical scheme of quantum theory we would never have come to the idea that it was useful to us. So the point is that it may be that for instance such concepts as life or stability of organisms, and so on, can be combined with quantum theory in such a way that they fit together. That is that we can build up a unified science in which also biology belongs: not only physics and chemistry. One may claim that in science everything is given in the quantum mechanical equations, but the whole point is that before we can use these equations we must have understood in what way we can combine our immediate experience, hence also such concepts as life and stability of organism, with this mathematical scheme. I am convinced that we shall be approaching a satisfactory solution when we understand that concepts like life are complementary to the concepts of atomic structure. “Complementary” in the sense that we may be able to define the word “life” in relation to the quantum mechanical system, but certainly not in the sense that we could say that if a thing has one sort of wave-function we have a living body, whereas if it has a different kind of wave-function then it’s a dead body. The connection would certainly not be trivial in that way. You see we can’t really define the wave-function for temperature, though we can define a statistical matrix in which we know that the concept of temperature is implicit. The case with concepts like *life* is similar, though the connection is more remote. The point is that we can actually form concepts which we take from ordinary life which in a very refined way—a very subtle way—fit together with the quantum mechanical concepts without getting into conflict. Thus in biology and in medicine everybody works with concepts which were formed long before quantum theory. I mean, if the physician says that now the organism will heal, he will certainly not give a quantum mechanical description saying why or how the body is responding or how it will heal the damage, so he starts from a description which of course empirically is definitely correct; but nobody knows as yet how it goes together with quantum theory. The point is that the biologist or the physician attach without hesitation old concepts like healing, life, and so on, to the new concepts of physics and chemistry.

He then went on to say that such “complementary” concepts might eventually be brought together in a new mathematical formalism.

* * * * *

Our reviewer of *The Ruby Hat*, in our last issue, wishes to state that, in case his review gave the impression that he was impugning the author’s good faith, he had absolutely no intention of doing so.

£50 Competition

What the Archbishops should have said

We regret to say that our “external examiners”, Lord Ashby and David Lane M.P., decided that none of the entries merited the award. We ourselves used as our test of each entry “Would we be prepared to publish it?” and had to conclude, no. Most entries were in the style of sermons, not letters. Perhaps the thought of delivering something from the pulpit made people unable to resist this. One would-be entrant said that she had torn up many sheets of paper, and ended with increased respect for the Archbishops, when she realized what a difficult *genre* a moral message is.

New competition

Our anonymous donor is willing to offer the £50 prize again for a new competition with the same judges, this time on

HOW (IF AT ALL) SHOULD RELIGION BE TAUGHT IN A SOCIETY WHERE THERE ARE PEOPLE OF MANY FAITHS?

Entries of not more than 2000 words should be sent to the Editors at 20 Millington Road, Cambridge, by May 31st. We are sorry that not much time was given on the last occasion: the journal with the notice came out later than was expected.

Errata

We apologize sincerely for having given Cedric Evans' name as “Colin” in *Theoria to Theory*, Vol. 9, No. 3, p. 189. Also in the same number, at the foot of p.154 it is said that in the case of the paranormal “Objectivity is certainly a complicated natter” (for “matter”). We hope that this was not a Freudian slip.

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Discussion

Shardik

ZETTE BARRON, DOROTHY EMMET and LAURENCE KING
talk to RICHARD ADAMS, author of *Watership Down* and *Shardik*.

THE STORY

It would be helpful to those who have not read “Shardik” to know the story. It is about the development of a religion based on a cult figure, Shardik, a bear. Initially the worship of Shardik takes place on two islands, Quiso and Ortelga, on the edge of a large Empire centred on the city Bekla. The story begins with Kelderek, the hero, going on a hunting expedition in which he meets an enormous bear who had come badly singed out of a forest fire. This he thinks is Shardik. With considerable difficulty he makes his way to the sacred island, Quiso, where the high priestess (the Tuginda) lives. The Tuginda, Kelderek and various priestesses follow Shardik on the jungle side of Ortelga, healing it and calming it with mysterious singing. The presence of Shardik is used for a rebellion by one of the barons against the chief baron Bel-ka-trazet. The rebellion succeeds and grows into an invasion of the Beklan Empire.

The young Baron who incited the movement dies and Kelderek, the only person who can in any way control Shardik, becomes the king of Bekla and high priest of Shardik, who is locked in a cage. Economically the state survives on the growing trade in slaves which Kelderek cultivates. Through the machinations of a former Beklan leader, Elleroth, the bear escapes and walks over the plains of Bekla followed by Kelderek alone. Finally they come to the Streels of Urtah; this is an enormous crevice down which the local inhabitants throw criminals. Shardik falls down the crevice, lives,

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and wanders on mortally injured. Kelderek by this time is half starved, half insane; having lost sight of Shardik he drifts into the enemy army of Elleroth, who allows him to live but sends him into Zeray, a neighbouring bleak and almost uninhabitable region. Here he meets the Tuginda and another priestess, Melathys. They hear that Shardik is in the district, Kelderek goes out to look for him and is captured by a slave trader, Genshed, who is savagely maltreating a band of children taken as slaves. Shardik bumps into the band of slaves, kills and is killed by Genshed. The manner of the death of Shardik suggests to Kelderek and Melathys the answer to the question why Shardik had returned. The original cult is replaced by another in which people care for the children. The novel ends with the arrival of Siristou, an envoy from a neighbouring country, who is impressed in rather a patronizing way with the humanity of this "primitive" cult.

.

Dorothy Emmet. In your last book, *Shardik*, we have a conception of a society whose cult is based on the belief in the "Power of God" incarnated in a bear, who has appeared before and whose return has been prophesied. The cult is a mystery kept alive by priestesses, who have developed powers of healing and of music. Then the hunter, Kelderek, meets the great bear, and the people in this society believe the prophecies of Shardik's return are being fulfilled. Something deep within them is being stirred, but they don't understand what it means, and they are pretty well bound to get wrong where Shardik's return (if he has returned) is going to lead them to.

Richard Adams. I am not sure which end to pick this up; the idea of a prophecy coming true in a different sense from what was expected is an old one. It is Christlike, I suppose; his coming had been prophesied, but when he came the manner of his coming was so unexpected that he was not accepted. The difference is that they were all in no doubt that this was Shardik; what they disagreed on violently was what he had come for.

Lawrence King. Rather like the Jews expecting Jesus to be a second and better Judas Maccabeus.

Zette Barron. The confusion was not helped by the fact it was not at all clear who was the person to interpret.

R.A. Yes, the original prophecy, the Tuginda says, was that a God would reveal the truth of Shardik through “two chosen vessels, a man and a woman: and that he would break those vessels and reshape them to the purpose”; the Tuginda thought it was she who was to be shattered, and she was not.

D.E. The final truth only emerges at the end when Kelderek and Melathys, the two chosen people, look back at what happened and see Shardik’s coming was connected with the suppression of slave trade in children and the forming of almost a cult of children, a society where the orphan children were cared for.

R.A. Yes, I felt that if Shardik and Kelderek were going to take on evil it had to be as nasty as it could possibly be, as it is, say, in *King Lear*.

D.E. Hence Genshed, the slave trader.

R.A. Some of the reviewers have even accused me of having a sadistic imagination. I suggest that when you read accounts of cruelty in books it is apparent to any honest reader whether the author is sadistically motivated or not—for instance the *Story of O*† which I think is absolutely horrible; it is quite obvious when you read *Oliver Twist* that Dickens is not sadistic.

D.E. But one gets the feeling that Genshed is unredeemable, that he positively likes evil . . .

R.A. Yes, I made it very clear that when Genshed no longer had any economic motive at all for looking after the children this merely was the effect of liberating him to ever deeper levels of evil.

D.E. One of his pleasures was corrupting others.

R.A. Yes, certainly.

D.E. Did this come within your experience during the war?

R.A. I think it did in a minor way. I’ve never actually seen anyone setting out to corrupt someone as Genshed sets out to

† A pornographic classic dealing with sado-masochism. Ed.

corrupt Shouter, but one gets the general idea from one's experience. It would be distasteful to go over all of them, but I will tell you one story. In 1945 in India I was on a train which stopped at a small town. I was getting out when suddenly a small boy pushed his way through the crowd and thrust up his arms to my face. He had no hands. His wrists were two stumps. I backed away with a feeling of nausea and got hold of our Indian liaison officer. I said "There's a lad out there with no hands. He is much too young to have been in an industrial accident. How do these things happen?" and he said "When you have been living here longer you will realize what sort of a country it is. There are men who get hold of destitute children and mutilate them to excite pity. There is probably a man in the town living off 10 or 20 of these children."

The point I was trying to make in that introductory passage to the book is that there is nothing Genshed did that has not been paralleled in my lifetime; these things are still with us.

L.K. To return to the book. It is of course Kelderek who, as King of Bekla and high priest of Shardik, allows and perhaps encourages the slave trading. I was wondering whether you saw Shardik as expiating through his fall down the Streels of Urtah, the crimes that had been committed in his name.

R.A. The Streels was a place of punishment. The Tuginda explained to Kelderek while they are walking through Trans-Vrako that only the most wicked people entered the Streels. The people who lived there had this age old job. If some stranger turned up they did not kill him. They waited to see what he would do. If he entered the Streels it then became their duty to kill him and then throw his body into the ravine. Kelderek says, "But Shardik has committed no sin", and she replies "No, *Shardik* has committed no sin". The implication is quite clear.

L.K. That though Shardik is innocent of the slave trade, he is taking on himself the guilt incurred by Kelderek on account of the slave trade.

R.A. He certainly does not do it consciously. There is no suggestion in the book that Shardik is anything but a bear. I have always believed that there are many different levels on which truth exists. Kelderek's analogy is as good as any. Suppose you play

music to a couple of horses. They presumably hear but they do not make anything of it; they cannot see the point of it. Humans may weep. Similarly one person comes along and sees an obscure Galilean peasant being put to death for insurrection and another chap comes along and sees God almighty. My idea was that the reader can take it or leave it. A 10-year-old will read "Shardik" and be excited by the story, and someone else can go through to a deeper level. What happens in the Streels of Urtah is that Shardik did take on himself the guilt incurred by Kelderek in his name. On the other hand, all that really happened is that a bear went into a ravine. I did not intend that Shardik should be taken as a transcendental creature. It is what Jung calls projection.

Z.B. But the projection of Shardik, surely, is the fact that the bear is being used as a tool by everybody. Or even as an excuse for exploitation. Not only the characters in the book, but also the reader himself uses the bear, each to his own interpretation. The bear itself is not of great importance (I have even tried telling the story omitting the physical reality of the bear completely). It is when his existence is manipulated by the different people that he has any validity.

L.K. Shortly after the bear falls down the Streels, Kelderek looks down into their depths. Did you intend this allegorically as well?

R.A. Yes. I'll tell you where I got the idea from. You know the old ballad of Thomas the Rhymer. He went into Fairyland, the Queen of Fairyland took him away and the ballad ends, "Till seven long years were gone and past True Thomas on Earth was never seen". There is a story based on this by Naomi Mitcheson, and in it she imagines True Thomas living in Fairyland. One day he is in the wood and a wind blows the trees apart; he says, "I looked up between the trees and there was no sky, there was nothing beyond the tree at all. I realised then that this Fairyland was nowhere, it was nothing." The implication was that his life is meaningless. He said then, "I thought it was time to come back." I thought that this was rather a powerful concept.

Z.B. I thought of the Streels as synonymous with Baptism.

D.E. Wasn't it the fact that Elleroth believed that Kelderek

had actually followed Shardik into the Streels of Urtah that made him spare Kelderek's life? After all, Elleroth might be expected to kill Kelderek for his part in the takeover of the old Beklan Empire and also for encouraging the slave trade. Elleroth is a sceptic who hates the bear cult, but he is no cynic and he is determined to fight that slave trade.

R.A. Elleroth had a strong reason for believing in the Streels because the founder of Sarkid, Elleroth's ancestor, the Lord Deparion, as an unborn child had entered the Streels. He was the son of a girl who had gone into the Streels when she was pregnant. Elleroth says, "I no longer feel any enmity for the poor bear who came alive from the Streels like the Lord Deparion's own mother." So it would not really have been possible to kill him in the circumstances.

D.E. What he did was ostracize Kelderek further by making him walk through the ranks of his army who stared on in disgust.

R.A. It may interest you to hear the origins of this scene. In May 1945 we were the first division into Copenhagen, and our first job was to disband the Germans and to send them packing. We simply told them to start marching and to go on marching till they got to the Danish-German border at Kiel when they were disarmed, given a tin of bully beef and told to make the best of their way home. As the German regiments marched along the roads of Denmark the Danes simply stood and watched them, shut off their car engines, the children stopped playing in the streets, shopkeepers stopped crying their wares, everyone just stood and looked at them as they went by. I have never seen anything so effective. After about twenty miles of it these blokes were begging to be allowed to fall out.

D.E. After the parallel scene to that, Kelderek wanders into Trans-Vrako, which is a land of thieves, murderers and outcasts; everyone in it seems a little mad. By that time he is stripped of everything.

R.A. The Tuginda describes it as the thieves' kitchen of the world. If there is a prototype for Shardik it is The Ancient Mariner. A man considered by his comrades propitious and lucky commits a dreadful crime for which he atones through suffering,

a complete separation from everybody and everything and then at the end he is redeemed, but is a changed man.

D.E. But the Ancient Mariner is not quite redeemed. He goes on wandering pretty much like a lost soul.

R.A. He says

“At an uncertain hour
That agony returns;
And till my ghastly tale is told
This heart within me burns.

I pass, like night, from land to land;
I have strange power of speech;
That moment that his face I see,
I know the man that must hear me;
To him my tale I teach.”

He has a function, a means of relieving his agony. Kelderek at the end also has a job in life—the children.

L.K. The importance of children to the book is stressed right the way through. Initially Kelderek is a hunter, considered simple because he prefers playing with children to drinking with the men; then when he and Shardik move with the enemy to Bekla he forgets his affection for children and allows two of them to be hanged every day to blackmail the Beklans into giving up the citadel and then of course the slave trade.

Z.B. But by the end he has come full circle. Through his battering of experiences he has been broken down and built up again. He has learnt not to take the state of children for granted and so knows why he has been chosen.

R.A. Yes, he had the jewel in his pocket all along. Kelderek says that when there is not an unhappy child in the world the future would be secure. I believe this. I ought to explain that *Shardik* contained a prologue and epilogue set in the present day, the intention of which was to tie the whole thing into modern life much more closely. But for some reason or other my publishers didn't want it.

D.E. Was this related to the theme of the children?

R.A. Yes. In the prologue an American anthropologist had gone to Zeray, now a remote but fairly practicable part of the world, and he was investigating the curiously human cult of the children, the religion of the country with its very strange misty origins. He was wondering how this still fairly backward country came to have this extraordinarily enlightened cult. There was no such thing as an orphan, he was at once the responsibility of the state. The American anthropologist took with him his British god daughter and she fell in love with the native guide-boy who was himself an orphan, or one of the children of the Bear as they were called, whose name was Radu. He told the English girl the legend of Shardik which no European had yet heard. As the story is unfolded many things that the anthropologist had been puzzled about fall into place. He had arrived at the time of the annual festival where he sees all the children making little bears and floating them down on rafts. He had never seen anything like it before and thought it must be an Attis and Osiris type of thing.

Z.B. This mirrors the funeral of Shardik at the end.

R.A. Yes. When the girl gets back to England she persuades her father to take into their family a school friend of her's whose life had fallen apart when her parents separated. This was supposed to tie the whole thing up, but as I said, my publishers wouldn't have it.

L.K. What I felt rather sad about was the process of the rehabilitation and moral straightening of the children was not gone into in any detail. Five years are skipped and there it all is—done. If anything is sentimental about the story it is perhaps that.

R.A. Well I thought I had avoided sentimentality by not showing Shouter, who had been Genshed's helper, becoming a sort of blue-eyed boy. He was in charge of the children, just doing an honest day's work. My experience of trying to reclaim people is that you get them some of the way but you don't usually get them all the way. I felt that Shouter could at least become a respectable citizen, but more than that you were not entitled to go; and there wasn't a real baddy who survived other than Shouter.

L.K. But presumably the slave children were not much better.

R.A. It is made very clear that life in Zeray under Kelderek's

rule is not a bed of roses. He says to Sisistrou, "It's a hard life, but at least they feel that somebody cares about them. They are not just human waste."

D.E. One gets the impression you intended that Kelderek should learn through suffering; but what does he actually learn that he would not have done otherwise?

R.A. Most of us haven't much sympathy with suffering until we have experienced it.

L.K. I think it is Ged-la-Dan, one of Kelderek's Generals while he is king of Bekla who makes a remark to the effect that children always try to ignore what is awkward and not immediately in front of them. Kelderek too is rather like this. When the children are being hanged to blackmail the Beklans into giving up Bekla he avoided being in the right place to see it happening; he tried to ignore the real cruelty of the slave trade. It is perhaps surprising that you chose a hero for your book who is so lacking in moral stature.

Z.B. Hence the importance of the suffering.

R.A. Certainly without the experience that Kelderek had at the hands of Genshed he would not have been able to feel that Shardik had died for the children. The children's lives were saved by Shardik albeit inadvertently in spite of the hindrances of those who called themselves the followers of Shardik. This forced Kelderek to reconsider his whole idea of what Shardik had come to do, for if Kelderek had not shared the experience of the children, if he had still been king of Bekla, it wouldn't have had that effect upon him.

D.E. One rather striking feature of the book is that wherever Shardik is, there is danger. Some priestesses of Shardik are even killed and we wondered whether you were implying that Christianity has got too soft.

Z.B. People don't want religion when things go well. It is as if the "well" of things reflects their own strength in themselves. But when things go wrong and inner confidence is weakened, they want to turn to a belief for moral courage and guidance. Twentieth-century Christianity got softened by twentieth-century mod-cons and security, and so people have got out of the habit of religion.

R.A. People sentimentalize Christianity and sometimes get very annoyed with you if you point this out.

D.E. A lot of people are quite shocked that Shardik, “the Power of God”, should go killing people. But he was very selective about whom he killed.

R.A. But this does happen—there were those Amalakites in the Bible. I tell you how I explain it and C. S. Lewis explains it. In one of the Narnia stories it’s said, isn’t it very bad luck on all the chaps who happened to be on the wrong side? And the Lion replies “Child, no one is ever told any story except his own”. It makes sense in terms of some other story. I certainly think it all makes sense somewhere.

Z.B. Or should make sense and doesn’t. It is slightly rude to say God is unjust, but he certainly is and why shouldn’t he be? God was made by man.

R.A. People always talk about what God thinks. In point of fact nobody knows; we don’t know, we only know what men have attributed to him. The Lord says, “not one sparrow falls to the ground without your Father”

L.K. To return to the point about danger: do you see spiritual development as intimately bound up with danger? Zetta has said that a lot of people do not require Christianity, their lives are quite manageable without it, and so there is no need for a religious impetus. In the original life on Quiso it is possible that the presence of danger partly in the form of a bear called for the development of various parapsychic skills, such as the ability to resist sharp objects; they were also able to walk on fire.

R.A. They had this curious mind-reading too.

Z.B. They could black out people’s thoughts.

R.A. This came from a M. R. James ghost story where a man is trying to approach the grave where the ghosts live, and the ghosts blot out his mind and he goes in another direction. The story is called *The Wailing Well*’.

D.E. How directly do you see the connection between developing those skills and their keeping the cult alive so that it could be ready for what might come to them?

R.A. In a primitive society of course skills are rare things.

D.E. And so tend to be holy things.

L.K. But what about the relation between them and religion? Do you see them as important only to religions you would regard as primitive.

R.A. I think these phenomena have always been part of the religious furniture, you might say, and a religion that is purely rational I would have very little faith in. A mother could never bring up a small baby just by reason.

L.K. But surely it is rational to give a place to non-rational faculties.

D.E. At any rate there has to be a conception of sources of understanding which, for example, these priestesses were trying to keep alive.

R.A. I think the effect of apparent miracles, or, if not miracles, an ability to defy the natural law, to transcend it, had a great deal more meaning for an illiterate society than for our own. To the great majority of the world's population the ability to walk on fire or plunge a knife into your arm without hurting yourself (incidentally, this I have seen) has a great deal to do with religion. It proves that under certain disciplines and certain degrees of emotion it is possible to transcend the natural law.

D.E. I think what we should want to say is that we don't know what the extent of the mind or spirit may be, and we wouldn't want to cut off and say "natural law ends here." Can I remind you of how you said that at one level the bear was a bear, and at another, "the Power of God"? But surely you aren't saying this is just a primitive story? It is also a contemporary story? I thought, too, that what begins as a slightly patronizing account, given by the envoy Sisistrou who turns up at the end—"a very interesting cult which nevertheless has humanitarian effects" . . . showed you were ironical about the religion being taken as "primitive".

R.A. You felt a bit irritated! You wanted to say, "I know more about this than you do." You didn't like him patronizing your friend Kelderek. You see you are meant to.

D.E. And in the end he begins to see the point and he wants to join in. Also the beloved old Baron who turns up again at the

end. One has great respect for the integrity of that old boy, bastard as he was. He was a sceptic but he wanted to bring trade and made that ferry, and tried to see how they could live in a viable order.

R.A. You are certainly meant to think this.

D.E. Shardik had come back, and a new beginning had been made. One of your themes is that of a "Second Coming," and it happening in a bear made me think of Yeats' poem *The Second Coming*, where this was to be anything but a blessing. "And what rough beast, its hour come round at last, Slouches towards Bethlehem to be born?" . . .

R.A. This was a vision of a horror that was going to pull us back; it is a sort of reversal of the notion of the Second Coming as you have it in Shardik. One thing I would like to talk about which we haven't touched on yet is the imagery in "Shardik." I've been increasingly impressed by the use of reiterative imagery in Shakespeare's plays—an instance is the word "thick" in *Macbeth* which comes to have a very sinister edge to it, or "weeds" in *Hamlet*. There are something like sixteen images in "Shardik"; the basic image is of course fire, and then water.

L.K. Images are generally seen to carry the thought behind a work, so . . .

R.A. Yes, the water is used as a symbol of the metaphysical. If you look into the water you see two things; you see your own world reflected from the surface, but also you see glimpses of life within the water obscured because of the reflections.

L.K. You describe it in rather those terms when Shardik comes into the fire and looks into the river Telthearna before plunging in to escape the flames.

R.A. Also the further away Kelderek is from the Telthearna the further he is from the truth; and this extends to the little interactive images like the song that Kelderek teaches the children to sing "Catch, catch a fish." This is intended to give the book an inner organic life so that it can carry meaning without comment on the part of the author.

L.K. Can we follow an image through the book, fire for instance?

R.A. At the beginning of the book Shardik appears from an

uncontrolled fire whose origin is unknown, a primeval anarchii fire probably started by lightning or a fragment of crystal focusing the sun. It is uncontrollable and destructive. Then there is a fiery beacon which guides Kelderek and Bel-ka-trazet to Quiso, when Kelderek goes there for the first time. This fire dies away, and its remains become the hot ashes over which the priestesses can walk with impunity. When Kelderek is furthest from the truth, as King of Bekla, fire appears as an instrument of torture when Elleroth takes the live coal in his hand—then when he throws this coal at the straw, and the resulting fire enables Shardik to escape, it becomes the medium by which Shardik is released.

Z.B. Then there is the burning of the raft in the funeral of Shardik.

R.A. And at the very end Sisistrou, when he is staying at Kelderek's house, looks out over the dismal waste of Trans-Vrako, a miserable horrible land, and then he looks back into the room. A servant girl, once a priestess, comes in and lights the lamp. Melathys comes in, cooks the meat and then asks Sisistrou, "Shall I make up the fire". He says "No thanks, that is a beautiful fire". The fire has become a controlled thing performing the functions of cooking, heating and lighting, the first great artifact of men. The uncontrollable fire has now become a blessing.

L.K. And so the fire is a sort of religious passion.

R.A. Yes, and this change is what ought to happen to a religious faith. It starts with terror and awe, but then becomes a rule by which we can all live.

D.E. In this story children are called, "the flames of God."

R.A. Genshed's slave gang are the furnace in which the "flames of God" temper the hero. There is a poem by the Jesuit Martyr Robert Southwell, who was hung, drawn and quartered at Tyburn; it is about a burning babe. "As I in hoary winter's night stood shivering in the snow", . . . The poet sees the burning babe and the babe says, "Will nobody come and help me? I am burning." The poet tries to get to the babe to help him, and the babe says he is the fire and he is the fuel of the fire, and it is actually, the babe says, his consumption in the fire that provides the heat and light by which men live. The baby is being destroyed by the fire and the reason he is crying is that nobody comes and warms himself at the fire.

D.E. Similarly the bear comes originally out of the fire thoroughly scorched.

R.A. Well this is a Jungian idea, that of the putrefaction, the new life growing out of excretion and horrible muck.

L.K. . Rather like the great Egyptian symbol of the scarab which rolls its dung, with its eggs inside, ahead of it.

R.A. I think so. This is why it was important that Shardik should be discovered as a kind of putrifying dying figure.

L.K. Also whenever he performs a particularly significant act he has just been badly injured, for instance when he kills Genshed or the Beklan General.

R.A. The injuries are things that would make a bear savage.

L.K. You were saying truth existed on different levels. What is the other level of that truth?

R.A. This is a new idea to me and you are the first person who has raised it. It hadn't occurred to me that Shardik performs significant actions when he is injured but I see that it is so. There is just one other image I would like to touch on. At the beginning of the book you get the idea of carrying an insupportable burden. When Kelderek at last gets to the Tuginda and is invited to tell the story of how he saw the great bear, he feels like a man who is able to lay down a burden that he has carried for miles. Half way through the book this image changes to a burden which is a child. When the Ortelgan army starts invading Bekla an old woman comes hobbling to Kelderek carrying a dead child and lays it down in front of him. Then Radu carried the little girl Shara all the way across Trans-Vrako. The old woman recurs in visions and dreams and at the very end when Sisistrou is looking out, into the gathering darkness, he sees an old woman who is carrying a child who waves to him. The terrible image of the dying child who is a burden has become a blessing. Sisistrou doesn't know about this; it is the reader who is the only person who recognizes it for what it is.

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From another point of view

AMY K. CLARKE

“The world can never be definitely united with you, Lord, save by a sort of reversal, a turning about, an *excentration*.”

Teilhard de Chardin.

It is a great mental gain to be able to consider, even tentatively, that religious language can be something more than a projection—that it may be making use of our human images and experiences to express, only though inadequately, a living reality. The result is a relaxation of the fear and tension from which many people of great sincerity and intelligence suffer in their attitude to religion. They fear intellectual dishonesty, if they continue to accept traditional language, and they live in a state of tension between the attraction and beauty of religious thought and the suspicion that it is no more real than a mirage. The admission, even the hope, of a more positive view, brings a loosening and yielding of this compacted situation. To create this relaxed and open atmosphere, in which dogma is seen less as structure than as vision, is indeed an urgent task of religious thought. Yet it may be that to say this is not to say enough. A small but genuine rift is made in scepticism when the possibility is admitted that our descriptions of God, although cast in human terms, may bear some real relation to what He is; to this extent we shall allow Him the priority. Yet perhaps we must go further than this. It may be that our own human conceptions, which we use in our religious language, have themselves a derived and subordinate character. To recur to the simplest and

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readiest example—when we speak of Fatherhood in God, we are not merely framing our own conception of an ideal fatherhood and then using this to express our consciousness of God. The Divine Fatherhood is prior to the human and shapes its character: it is from our dim and at first unconscious awareness of this Fatherhood that our human ideal is derived. This ultimate priority was expressed by Karl Barth in some famous passages. “It must not be said that the name Father for God is a transference to God of a human, creaturely relationship . . . He is the eternal Father. He is that in Himself . . . the incomparable prototype of all human, creaturely fatherhood.† In emphasizing this Dr. Barth seemed at times to fall into the opposite error, of ascribing too little reality to creaturely characteristics and relationships, as if their derived character made them figurative only. This was indeed a *reductio ad absurdum*. If our creaturely experience derives its forms from the supremely rich reality of the Divine Nature, the very fact of this derivation makes it more, not less, real, establishing it deeply—in its own place and at its own level—in substantial life and truth. But it was Karl Barth’s function in his first writings to be the prophet for our time of the Divine supereminence: it was perhaps inevitable, for the full impact of his message, that he should, at this stage, undervalue the natural order.

Yet if his thought needed strong qualification in one direction, it needed extension in another. If this fundamental priority is to claim genuine metaphysical status, it cannot be limited to directly theological descriptions. It must have reference also to those conceptions—as, for example, of justice or wisdom—which we class as abstract and think of as generalisations, derived from centuries of experience. It may be that these also have an ontological priority, not as existing in their own right in a kind of bodiless world—the most searching thought has always, in the long run, rejected such universals—but as being primarily apprehensions drawn from the Divine Nature, and not less real for not being, like our directly theological descriptions, personally conceived. To say this is not to isolate or deify our general ideas but to give them a more deeply rooted and primary character than their visible illustrations.

A commentator on a passage in Wittgenstein's *Tractatus* wrote that, "it was difficult to see why a described fact should not be regarded as itself a description of the proposition that would normally be said to describe it, rather than the other way round."‡ The mind can find here, perhaps, some legitimate foothold for its far adventure. It is possible to think that our concepts are not solely derived from assembled facts and thus wholly empirical declarations, based on evidence and capable of change. Some of them at any rate—and perhaps all—may represent our apprehension of realities which we do not fully understand, yet to which our experience at the whole creaturely level corresponds. The distinction between kinds of concept will then be less important. There will be no essential difference between such a concept as that of Fatherhood, to which there is an unquestionable correspondence in experience, and the concept, for instance of justice, to which the corresponding facts on our side, so to speak, of the border, are more open to question; or even the concept of Eternity to which at our level, except for the fact of the existing idea, there is no correspondence at all.

The thought is not easy to hold, yet it may be most important to hold it. It is not simply a question of turning our experience inside out and looking at it all from the other side, regarding its primary character as being in some way non-material and only to be grasped by the intellect. We should still then be in the world, only with a different idea of its structure, and the concept would have no more to tell us than what we already know. It can at best have only an immediate and descriptive value unless it expresses, in however inadequate way, a reality prior to every kind of experience. But if it does this our conceptual thinking has a legitimate and impressive status, as the pivotal link between the two kinds of our knowledge—the clear, measurable, and definable on the one hand, and the dim, obscure and infinite on the other: and it gives the second the primacy which its nature demands.

To think like this is to alter drastically the order of our thinking. The order to which we are now accustomed places human experience always first, then its expression in language, and lastly the transference of this language to our notion of God. The other

order begins with God; it places second the image—often darkened—of His character in human nature and experience; and it brackets, as it were, our religious language with both. It belongs to both: for it bears the mark of both image and original, and in this lies its special importance. Not only in religious language but in the whole articulation of experience our words have a deeper origin than the things they describe. There is not a complete “isomorphism,” or equality of form, between language and the world.

Paul Tillich suggested (perhaps not quite rightly) that orthodox Christian thinking has always regarded our knowledge of God as wholly analogical. Whether or not he was right, in an immediate and practical sense the analogical view is just. We apply our experience of our own nature and of the world in our thinking about the nature of God, and no other course is open to us. Yet perhaps in doing this we are spelling backwards what we first knew forwards, and it is our thinking about ourselves and the world which is really analogical, taking its character and form from the knowledge of God which as His creation we necessarily have. We may have lost our awareness of it through our long defections from his purposes, but this cannot change its priority. It is not that we arrive at our apprehensions of God through our experience of the world, but rather that we apprehend the world through our deep, permanent, ineluctable knowledge of God. This carries us further than the earlier conjecture, that the Spirit of God indwelling us is our ground of valid thinking; for there we seemed to be thinking of God as, in the first place, external to ourselves, however deeply, we were later, by His indwelling Spirit, united. It may indeed be true to say that again and again in history, “God has visited His people,” but it is vital not to forget the second half of the sentence. It is “His people” whom He has visited: we are not only indwelt by God, but rooted into Him. In our experience He is always the predecessor, and out of Him we could have no experience at all. It is necessary to use these spatial images of indwelling, of rootedness, and we should not think of them simply as material images inadequately expressing what is spiritual. They are images, certainly, but they derive from a reality which transcends and unites what we think of as the material and spiritual worlds, and abolishes the sharp distinction which we make between them.

“Who knows if earth
Be but the shadow of Heaven, and things therein
Each to the other like, more than on earth is thought?”

The angelic conjecture may express a truth. But this symbolic and analogical character of our experience of the world does not make the experience illusory; rather it provides it with a ground of authenticity through an essential union with God. We recover our confidence in the two kinds of images which we use to express our thought about Him—the images drawn from our natural environment, and those derived from our experience of human personality.

It has been much urged lately that we are to beware of spatial imagery, and especially of the “up above” as derived from an obsolete and unscientific cosmology. Such imagery has evident limitations, and we have not had to wait for the twentieth century for spiritual thinkers to realise this. The fourteenth-century mystic who wrote *The Cloud of Unknowing* is as severe on the local interpretation of “up” as is the author of *Honest to God*. § “For if it so be that they either read, or hear read or spoken, how that men should *lift up their hearts unto God*, at once they stare in the stars as if they would be above the moon, and hearken if they shall hear any angel sing out of heaven . . . These men will make a God as they like, and clothe him full richly in clothes, and set him on a throne . . . But I say that the work of our spirit shall be directed neither upwards nor downwards.”|| In this assault on those who “misunderstand this word *up*” he has some cogent remarks on wrong views of Christ’s Ascension.¶ He is no less hard on the excesses and falsification which result from too literal a thinking of God as “in.” But though these expressions can be misused, it is impossible to do without them and needless to try. God environs us completely; He is both above and beneath us. His being penetrates every part of our existence; He is therefore wholly within. This omnipresence is not spatial and we do not really think of it as such. “Non est in *mundo* sicut in loco”†† could be truly said: but He is none the less “in.” It would seem that in our apprehension of God we have a rudimentary knowledge of a kind of Presence which is not identical with localization. But we have no other

terms than those of locality in which to speak of Divine Presence, and to avoid them is to diminish our grasp of the truth which they express.

There are some further considerations which, although very simple, are not without force. Although our ancestors' cosmology of a central earth with a firmament above it belongs now to the realm of fancy, what we see, looking out from the earth which we inhabit, remains the same. We still walk beneath an over-arching sky and look up into what appears as an infinite depth of beauty. Our visual impressions are still of height and purity above us, and these sensations cannot fail to influence our spiritual imagery. We shall be the less afraid of the free and natural play of imagination, the more we can bring ourselves to remember constantly our own limitations. We have not a complete understanding of the real nature of the space-and-time world of which we are conscious, or of the ultimate relations between spiritual and material. The divorce which we make between the perceivable universe and the invisible things of the spirit may be too arbitrary. The two may be more closely interwoven and interpenetrable than we can understand. The earth and sky which we see in a spatial relationship may give us some true indications of the spiritual relationship between the life of earth and heaven. Our best criticism, therefore, of our own use of spatial imagery will be that which includes this modest realization—that our understanding of our spatial environment and of the aesthetic perceptions which we have of it, is limited: in all this the human race is still at school. It is not unreasonable that we should find some deeper reference in these apprehensions of the visible world, or should think that they sometimes serve as a kind of awakening, recalling us to our prior knowledge of God, from which they themselves are ultimately derived. The “sense of something far more deeply interfused” of which Wordsworth was aware will then be something more than a poetic illusion, and something wholly different from the kind of pantheism which identifies God and the world. It is a momentary taste and perception of the eternal life which suffuses our environment although not confined to it. These moments of transparency are more truly thought of in terms of presence and disclosure than of a “breaking through” of

God into a world that lacks Him. "Earth's crammed with Heaven" may be more than an epigram. ‡‡ The flashes of insight which gleam here and there in the mass of nineteenth century poetry are not to be undervalued.

But a view of the world which does not take its centre from ourselves leads also to a re-thinking of the other type of image which we use in speaking of God and which we often fear to be childishly anthropomorphic. Here is the real crux of religious belief for many who desire it. They know that to have any warmth and life in relationship with God they must speak to Him and think of Him with the closest personal intimacy; yet their intelligence finds it inconceivable, to the point of absurdity, that the motive force of this vast universe should have anything resembling our personal human nature and should communicate with us in anything like human terms of intercourse. This at least, they feel, must be discarded as knowledge of the universe grows. Yet to reason in this way, from ourselves to Him, is again to assume—as in our criticism of spatial imagery—a complete understanding of the image we discard. Though in theory we might disown the assumption, in fact we proceed as if we possessed, in ourselves, a fixed canon of measurement, and we boldly apply this delicate yardstick of human identity as a means to conclusions about the character of God. Yet it is doubtful whether personal identity is as simple or as detached as it appears. It is admitted that no person lives in isolation and that human relationships are of the highest importance, but they may be even more than that. They may be essential to our personal existence which would have no reality or fruitfulness without them. "The intention of maintaining at any price the individual's structure in nature would mean only petrification, a true death." § § The contrary picture to this is one of a constant response, flexibility and mutual receptiveness. The relationships into which we enter enter in turn into us and are part of the material of what we are: they are not only our life-history but the life-substance of ourselves. We should not only have led different lives but have been different people without them, and the growth and value of our individual life depends on the character of these relationships. The richest personality is that which has absorbed

and integrated the greatest variety of fruitful associations, and the richest society is that in which the greatest number of such persons live together, renewing and developing each other by the sharing of their gifts. The result of such interplay, for both individual and society, is the strengthening and not enfeeblement of personality.

The bases of our personal life are to be found, not in independence and isolation, but in the to-and-fro of a limitless surrender and fulfilment. Here too, if we are living out in human terms our root-knowledge of God and our fundamental union with Him, this vital element of our life can tell us something of His. We should not fear to think of God as Personal, for in so doing we are not conceiving Him as a separate and isolated individual, immensely magnified in all His capacities, but as one who lives in relationship, and in whom the combination of the most powerful identity with the most tender and complete communion, which is the mark in ourselves of a rich personal life, exists at its fullest. Our capacity for relationship, on which, in its mutuality of giving and receiving, our personal existence wholly depends, is a likeness, within widely variable limits, of what is unlimited in God. His life is not less but more fundamentally personal than ours. In us, interpenetration is limited: our knowledge of each other has areas of darkness and blindness, and none of us, perhaps, is wholly free from the encroaching possessiveness which is the enemy of intercourse. But if we could image an interpretation which was entirely luminous, and free from any desire to infringe one another's liberty, we should have some understanding of the limitless scope of eternal life in relationship.

There is light here particularly for Christian thinking, in which the concept of personal existence plays so great a part. The Christian doctrine of the Trinity is not in its origin an intellectual structure. It is the pre-eminent instance of the way in which dogma has found its formulation, as the result of an intensely scrupulous and long-sustained effort to be faithful to Christian experience. Compelled to "entrust the deep things of the spirit to the perils of human expression," the theologian is content if he can say what does not falsify. Yet in proportion as our view of human person-

ality becomes less rigidly individualistic it is easier to conceive the coinherence of the Persons in an essential unity. The relationship which throws most light for us on the Trinity in Unity of God is that of intimate friendship—between dear friends, between husband and wife, between parent and child. It can exist in all these relationships though it is not inherent in them, and its foundation is congeniality. Where this exists at its deepest, in a unity of thought, feeling and aim, we see, perhaps, the nearest approach in human life to a unity of being in which the especial character of each person is not lost, but heightened: for it is essential to the truth and fruitfulness of a friendship that there should be no encroachment by either on the inner freedom of the other. Where such encroachment takes place and equality is disturbed, the friendship ceases to be real. As we reflect on this union of entire sympathy and entire equality which is the perfection of friendship, the conception of three Persons in one unity becomes less alien to our minds. We are given some insight into the Divine relationship, in which the Persons are wholly themselves, yet the unity is undivided.

We need not fear to think of God as personal, provided that we are at pains to guard the quality of our thought, and to regard persons less as isolated units, each “in the sea of life enisled”, than as energies co-operating in a dynamic interdependence. To think in this way detaches us from too anthropomorphic a view of personal life and inclines us to see our human expression of it, not only as part of a greater whole, but as drawing its character of loving reciprocity from the foundations of the universe. The nature of God, like our own and beyond our own, is personal: the most important of our own relationships, whether we are aware of it or not, is our relationship with Him, and we can think of it in the same terms of mutual indwelling which we apply to ourselves. Yet it would seem, at first sight, that there must be a fundamental difference between our relationship with God and with each other, since in the former, although there can be mutuality of union, there can be no such give-and-take as between ourselves. All the giving is on God’s side, all the taking—with the enrichment, growth, and development that this implies—on ours. But although

this is true it is not the whole truth. The fundamental of every enduring relationship is in mutual joy, and the enhancement of delight is always possible. The joy of God in the response of His creation is not an addition, or change in what He is, but it is an enhancement of His glory. Such an enhancement of a heavenly joy—a joy in itself wholly stable and permanent—is suggested in the last cantos of Dante's *Paradiso*. The joy of the souls in Heaven is not increased, for that would now be impossible, but enhanced by what gives them delight, so that they shine with a deeper radiance.

Even within our present experience we can observe how in the deepest and closest relationship the conditions of growth and development are replaced by those of stability and fulfilment. There is the state of maturity in relationships not less than in individuals, though in both a full and complete maturity is rare. Most rare of all is that maturity of relationship between the soul and God which is the height of sanctity, yet it has the same marks where it is found. The period of growth has passed into that of union, in which each soul gives back to God the especial perfection of which it is capable. Our relation with God, when it reaches its highest form, need not be thought of as essentially unlike our relations with each other: like them it is a relation, not only of union, but of mutual joy and gift.

But a resolute "excentration" does not only affect the way in which we think about God; it reorganizes the whole of our mental life. We shift our centre from ourselves to the unknown God, not in the first place because of any feeling or experience, but by a strongly willed act of the mind, and the change of position gives our whole range of thought not only a new proportion but a new value. Our moral and aesthetic insights find some base of re-establishment, not as a traditional set of rules imposed by society, but as the expression of human sensitivity to some deep order in the universe which it will be fatal to betray. The mind need no longer move in a narrow cage where choices and judgments of a wholly relative importance are its only legitimate occupation. It is out in the open once more, with no less necessity to make personal choices and decisions, but with an environment of reality in

which to make them. There is a ground here, and perhaps the only ground, for those “criteria of rationality relevant to religion”||| which educationalists rightly desire.

It is some years now since men entered the moon’s orbit, and trod its surface for the first time. That they would do so again was even then not in doubt, and each of these travellers will have returned with a new and enlarged perception. Discentred for a short while from the planet which is his habitation, he will have looked at Earth not, for the time being, as his originating point of experience, but as it exists in relation to the greater world in which it lives and moves. The recollection of these hours may become less vivid, but their result will be a readjustment, slight perhaps but lasting, in his point of view. The parallel is far from exact, yet there is a likeness. When we look back on the world from the position of faith in God, or even with that tentative and wondering look which is often its first beginning, we see ourselves no longer as the point of reference but as living within a greater whole and responsive to the laws of its harmony. We re-adjust to a new dimension, and in doing so find an expansion and liberation which, though varyingly apprehended at different times, is not for that reason less enduring. Here in this new atmosphere of vision and enlargement our intellectual life can recover what it so urgently needs—the quality of hope.

NOTES

† See Karl Barth, *The Humanity of God passim*.

‡ Giancarlo Colombo S. J., the Italian translator of the *Tractatus*; quoted by G. E. M. Anscombe, *An Introduction to Wittgenstein’s Tractatus*, Hutchinson 1959, p. 67.

§ *The Cloud of Unknowing* ed. Dom Justin McCann. Burns, Oates and Washbourne, 5th edition 1947. Chapters 51–62 *passim*.

|| Chapter 57, p. 73 of above.

¶ Chapters 57–60.

†† *Non est in sacramento sicut in loco*. St. Thomas Aquinas.

‡‡ Elizabeth Barrett, *Aurora Leigh*.

“Earth’s crammed with Heaven

And every common bush on fire with God.”

§§ Karl Rahner.

||| “The aims of religious education,” John Wilson, Farmington Research Trust Unit, Oxford. *Times*, November 30, 1968.

On some relationships between embryogenesis and cognition

BRIAN GOODWIN

I am going to suggest that the difficulty we have in understanding how an organism is generated from an egg is the same as that encountered in understanding how a useful representation of the experienced world is generated by a mind. I am not claiming that they are the same problem; only that in each instance there is an essentially similar conceptual step which we must take to resolve the difficulty. This involves getting a firm grip of the nature of a generative process: understanding how a particular dynamic process acting as an organizing germ or centre within a given physical system results in the emergence of a particular shape or structure, with an associated behaviour pattern. Different levels of biological organization, from the molecular to the higher cognitive, are characterized by the operation of different types of elementary processes with characteristic modes of operation and interaction, but my proposition is that they all have similar basic properties. I shall explore this as it applies to development by selecting observations from various organisms and building up a picture of what I intend to look like a context-sensitive process which may be said to test hypotheses and generate useful representations of its world of experience.

THE CONTINUITY OF EMBRYOGENESIS AND BEHAVIOUR

I will start with observations on the continuity of certain aspects of development and behaviour. The cellular slime mould, *Dictyo-*

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stelium discoideum, provides a very simple example of this. The first phase of development of this organism is known as aggregation, wherein a few thousand free-living, vegetatively-reproducing amoebae are called together by a chemical signal, cyclic AMP, which is released periodically from a pacemaker cell. This signal causes the release of the same chemical from neighbouring amoebae so that a wave of signal release and movement towards the source propagates from cell to cell over the population. The velocity of propagation is several microns per second and the period between waves is a few minutes. This activity establishes domains of dominance of pacemaker cells, a lawn of amoebae being thus partitioned into a set of aggregating colonies, each organized from a pacemaker or centre which competes with neighbouring centres for allegiance of uncommitted amoebae.

When the amoebae migrating towards a centre have formed a compact mass of cells, a second phase of development begins during which a few thousand cells, now in intimate physical contact, migrate over the surface of the agar plate in a manner that looks superficially like a crawling creature and is in fact called a slug. The motion of this slug is periodic with about the same frequency as that occurring during aggregation, and one can observe peristaltic waves of contraction travelling antero-posteriorly. (For a description of these processes, see Schaffer (1962); Cohen and Robertson (1971a, 1971b.) The point I wish to extract from this simple observation is that a basic and primitive cellular process, the production and release of a simple metabolite, serves first in conjunction with chemotactic response and pseudopodal activity to generate a spatially organized aggregation field; and later generates motion and, some authors believe, regulation in the slug. Not until the individual amoebae make continuous contact can a proper morphogenetic field be established, with the resultant spatial regulation of the whole slug and appropriate differentiation of cells within it. There is considerable dispute about the details of these processes, but the general picture is clear: the same basic cellular properties are involved first in the generation of a multicellular

individual, a whole, from dispersed units, then the establishment of a morphogenetic field and coordinated movement of the whole, this behaviour finally issuing in a delicately sculptured fruiting body made up essentially of stalk and spore cells.

A behavioural study of hydranth regeneration in the marine hydroid *Tubularia* by time-lapse filming reveals a picture similar to that in *Dictyostelium*, except that now the adult form has well-defined behaviour rather than the static sculpture of the slime mould fruiting body. After cutting of a hydranth, one sees first a migration of cells distally and a tendency for them to condense near the distal extremity. This phase lasts about 5 hours. Then a phase of periodic contractions begins, with contraction waves spreading out irregularly at first from different centres and then assuming a coherent, organized propagation from a single pacemaker with a period of 8-10 minutes. This lasts for some 8 hours, and is followed rather suddenly by a quiescent period of about 5 hours during which there is a slow condensation of cells in the presumptive tentacle region and the beginnings of morphogenesis, but no evidence of periodicities. Another phase of periodic contractions and wave propagation occurs, followed by another quiet period. Exactly how often this pattern recurs is not yet known, but a final phase of faster (4-5 minute periods) periodic contractions has a behavioural climax in the pulsatile emergence of the fully formed hydranth from the perisarc with active tentacle movements following emergence. (The film was made by Jonathan Cooke and G. C. Webster, Developmental Biology Group, University of Sussex.) In this instance one sees in dramatic form the continuity of development and behaviour: what appear to be the same cellular properties of metabolic and electrochemical excitability generate significant form from morphogenetic centres or organizers in the regenerating hydranth and significant behaviour patterns in the adult structure. The manner in which pacemaker centres located in different parts of a hydroid control and coordinate its behaviour has been studied in detail in *Hydra* (Passano and McCullough, 1965) but not in *Tubularia*, so I am here indulging in plausible inference. It is unfortunately impossible to get interpre-

table time-lapse films of *Hydra* during head regeneration because of vigorous contractions of the body which recur every few minutes and mask all morphogenetic movements.

Studies of chick development reveal a very similar picture, but now one begins to get a greater difference of frequency between the earliest observable morphogenetic pacemakers in the very young embryo (periods about 2-3 minutes) and the embryonic neural pacemakers that may be inferred to relate to the organization of behaviour (Cunningham and Rylander, 1961). Intermediate frequencies have been observed by Hamburger and Balaban (1963) in their studies of the hierarchy of pacemakers in the spinal cord and brain stem. Although I have given only the sketchiest description of these phenomenon, I hope the point emerges that it is plausible to see the process of morphogenetic sculpturing and behavioural structuring as manifestations of the spatio-temporal order that arises from periodic wave propagation over an excitable continuum. The distinction between morphogenesis and behaviour at this level of analysis can be attributed primarily to a difference of pacemaker frequency and wave propagation velocity. Embryonic pacemakers with periods of a few minutes and metabolic excitation waves of a few microns per second appear to be associated with the transport of specific metabolic species so that substance gradients, cell movements, and spatially ordered differentiation result; while neural pacemakers with periods of seconds or fractions of a second and wave velocities of cm. or m/sec. are too fast for global cell movement or mass transport and gradient formation so that one gets patterned activities rather than patterned forms. One might put it that the embryo is more a sculpture, the brain more a composer of music, both being very fine artists. This suggests that a necessary condition for the emergence of neural processes came about by the simple expedient of an increase in the rate of elementary embryonic processes, a result of membrane specialization, thus achieving an uncoupling of activity waves from the viscous "drag" of matter which normally results in morphogenesis. A model which elaborates the relationship between "slow" activity waves, gradient formation, and morphogenesis is given in a paper by Goodwin and McLaren (1976).

CONTEXT SENSITIVITY

The embryonic processes underlying the control of cell differentiation and tissue formation cannot be described as stimulus-response mechanisms for the simple reason that there is no invariant relationship between stimulus and response such as characterizes a mechanical system. Very different stimuli can evoke a particular response, such as those inducing the initial head to tail axis of the embryo (Holtfreter and Hamburger, 1955). On the other hand, the same cellular state recurring at different times in development can have very different consequences; i.e., embryonic behaviour is highly context-sensitive. A beautiful example of this, which is also very relevant to the theme of the relationship between embryogenesis and behaviour discussed above, is given by the study of Gustafson and Toneby (1971) on the role of serotonin (5-hydroxy-tryptamine) and acetylcholine in the morphogenesis of the sea urchin. Their general proposition is that variations in the intracellular concentration of these chemicals result in changes in the properties of the cell surface, particularly those relating to pseudopod formation; and that at different times in development, such changes have profoundly different consequences. Serotonin varies in a roughly periodic manner with peaks recurring every 10–20 hours in the early phases of sea urchin development, and major morphogenetic changes occur in association with these variations. As embryogenesis proceeds, successive waves of serotonin accumulation and associated pseudopodal or contractile activity occur in different developmental contexts, resulting first in the release of those cells destined to form the skeleton, then invagination, then gut formation, and finally the formation of nerve-like cells derived from the ciliated band of the sea urchin larva. The same intracellular event recurs in each instance, but the change of context with respect to other aspects of cell state (e.g., degree of adhesion for neighbours, polarity, content of contractile protein) and the developmental condition of the whole embryo result in quite different morphogenetic and behavioural consequences. In general it is clear that any substance synthesized by an embryo cell will have context-sensitive effects: synthesis of

adenyl cyclase and the accumulation of cyclic AMP will result in the activation of a set of enzymes present at that time in the cell; microtubule protein will be assembled in an apolar cell in one way (e.g., radially) and in a polarized cell in another (e.g., longitudinally); and so on. Furthermore, the embryo itself creates those different contexts for the behaviour of its parts. These contexts are usually referred to as fields. We may now ask the question whether these developmental fields can be compared with the fields that shape behaviour and cognition; i.e., those structures which define a context and a meaning for behavioural or perceptual events.

THE SELECTION AND TESTING OF HYPOTHESES BY THE EMBRYO

The embryonic cell is multipotent: it is capable of undergoing a finite number of different sequences of state change (referred to as developmental pathways or trajectories). Because developmental pathways have singular points where they branch or bifurcate, decisions must be taken by cells regarding the correct pathway to follow: towards skin, bone, muscle, endocrine gland, etc. If cells made irreversible decisions at such branch points, it would not be appropriate to say that they adopt hypotheses and test them, for an hypothesis entails a plan of action subject to correction in relation to subsequent events: it is a tentative decision. Developing cells do have this degree of freedom: they can start to differentiate in one direction, and then change direction at a later time if this becomes appropriate. This freedom is a limited one, however, and in general the closer a cell gets to a terminal state of differentiation, the smaller is the range of choice available to it. Let us now look more closely at the way in which developmental hypotheses are set up and tested.

Although I have talked above in terms of cells as if they were the fundamental units of activity in developing organisms, an equally fundamental functional unit is the developmental field. This is a domain of influence characterized by a spatially-ordered

pattern of cell states which has some kind of observable unity in its behaviour. For example, in the case of *Dictyostelium discoideum* development, one could refer to that set of amoebae which aggregate towards a particular pacemaker as a developmental field, since all or most of the cells within their domain of influence will contribute to the fruiting body which eventually emerges from their cooperative interactions. In *Tubularia*, there is a head field consisting of all these cells under the influence of an organiser initiating head formation, which I believe to be the periodic pacemaker active in the proximal tentacle region of the regenerating organism. Cells within such a field receive "instructions" in the form of chemical concentrations, frequencies, adhesive forces, etc., which induce them to change their states in particular ways. However, since it is the cells themselves which by their cooperative interactions form the field in the first place, we see that the whole process is self-generating. The global field serves the function of organising a unitary domain of cooperative activity, cells located in different parts of the field receiving different instructions which induce them to enter particular developmental pathways.

Cells would never have to "change their minds" about developmental pathways if complete field instructions were always present. However, development proceeds rather in the manner of an artist who makes a rough sketch of his subject, then defines things in a little more detail, and proceeds in this manner until he has achieved the final resolution he requires to give his vision sufficient form. In this process, boundaries get altered and what was originally conceived as a person may become a shadow, or vice-versa. Similarly, as development progresses, an initial global field over the whole embryo becomes partitioned into sub-fields corresponding to head, trunk, limbs, etc. Then finer partitions arise within these domains giving, for example, eye-fields, olfactory fields, ear fields, and so on. Cells at the boundaries of these domains will quite often be required to change their developmental pathways because of inevitable inaccuracies in the domains defined by field organizers, and as a result of possible damage to parts of the developing embryo which requires a re-allocation of

cells to deficient fields. It was by means of deliberate interference of this kind that the experimental embryologist first discovered the plasticity and adaptability of embryos, the partial reversibility of the decision-making process.

We can now say that developmental fields induce cells to adopt particular hypotheses about their prospective pathways of differentiation, and to proceed by undergoing changes of state characteristic of that pathway. The cell then "tests" the hypothesis by the process of interaction with its neighbours according to local rules or algorithms. The simplest of these is an averaging process over some variable or set of variables, such as concentrations of substances on cell membranes, any cell tending towards the arithmetic mean of the values of its neighbours. The pathway of differentiation followed by a cell will be judged correct if the interactions result in a reinforcement of that pathway. Otherwise, the cell will either move physically, changing its neighbours until it finds a more satisfactory environment according to the averaging rule; or it may change its pathway; or it may do both.

The field defines the context for the cell's behaviour, for it is only in relation to the spatially ordered set of cellular activities within a field that the behaviour of a particular cell has any meaning. Lens formation is useful only within the context of the eye, for example. Furthermore, we may say that the final differentiated state of a cell is a useful representation of some aspect of the experienced world. A cell in the lens of the eye ultimately loses its identity and differentiates into long, transparent fibres which contribute to the refracting body of the lens. This constitutes a representation of certain refractive and transmitting properties of light which are useful to the organism. The fibres themselves embody the useful representation. Other materials with similar properties such as glass, certain plastics, certain crystals, etc., could be used to get a similar embodiment of these properties of experience defined by the behaviour of light. The developing organism uses the materials which are available to it to generate a useful representation of certain properties of electromagnetic waves.

I have called such useful representations, knowledge, in an

analysis of organisms as cognitive systems (Goodwin, 1976), where I argue that on this basis organisms are knowledge-using systems. The present analysis is concerned with the way in which this knowledge comes into manifestation during embryogenesis, and the parallels between this and what we familiarly recognize as cognitive activity. What I should like to do finally is to consider some of the implications arising from this juxtaposition of embryogenesis and cognition, the proposition that there is a natural homology between these domains.

EMBRYOGENESIS AND LANGUAGE

Let us return to the context-sensitive property of developmental processes which was discussed above. We saw that the consequence of a process such as the synthesis and release of cyclic AMP in a developing slime mould depends upon the state of the cells which respond to this signal. If they are spatially separated, they aggregate; if they are joined by cell-cell contacts, they move or migrate as a single body, the slug; if they have differentiated they form the final fruiting body. As used in the study of language, context sensitivity has the same meaning. Consider, for example, the sentence "I saw the dog running." The context tells us the meaning of "saw", and we do not imagine someone running along sawing through a dog. An interesting feature of the linguistic case is the use of the concept, "meaning." We would not normally say that the meaning of an aggregation signal is the summoning of amoebae to form a slug, although this would be a perfectly consistent way of talking about its significance. It is simply not fashionable to talk in semantic terms in reference to slime mould aggregation, although we use this form all the time when we talk about cognitive processes at the psychological level. Meaning here is signification, and it is the context of a word, the pattern of its interactions with other words in a sentence, which determines this, just as it is the pattern of interactions between cAMP and slime mould cells which determines what activity results, hence its significance.

Now we know that in language it is possible to have grammatically (syntactically) correct sentences which have no meaning

within the domain of experience, such as “The apple ate the boy.” This has no experiential meaning because it does not correspond to a realizable situation in the world as we know it. The same thing can occur in developmental processes. For example, the phenomenon of exogastrulation in the amphibian embryo is perfectly consistent with all the local developmental constraints (syntactical rules) governing gastrulation, such as the movement of the cells at the lip of the blastopore, the polar structure of the bottle cells which initiate gastrulation, tangential contractions of cells in the grey crescent region, *etc.* But exogastrulation is developmentally meaningless: it cannot be fitted into the set of events which constitute normal development. It is a *cul de sac*. This interpretation emphasizes the fact that meaning is relative to a particular domain of what is called normal experience, referring only to possible processes. An additional freedom which language has over developmental processes is that linguistic statements can refer to virtual as well as to actual events, hence to imaginable possibilities. The embryo cannot do this, since it must actually realise any cognitive process it is engaged in, having no symbolic domain of operation divorced from action. All “statements” in developmental language are commands or algorithms. This is precisely the point made by Waddington (1972), who said: “To a biologist, therefore, a language is a set of symbols, organized by some sort of generative grammar, which makes possible the conveyance of (more or less) precise commands for action to produce effects on the surroundings of the emitting and the recipient entities . . .” These commands operate within a system constantly subjected to the necessity to survive, to preserve its order and organization: the evolutionary process requires organisms to be practical, to connect with “reality”.

One fruitful result that could come from the juxtaposition of embryogenesis and language is a clarification of the biological roots of generative processes. In linguistics, the aim of a generative grammar is relatively modest: to devise a set of operations whereby the surface structure of language is correctly generated. In embryogenesis, a generative theory must give some prescription whereby the adult form is generated step by step from the egg.

The meaning of the knowledge contained within the egg becomes manifest gradually throughout development until the final details of its surface structure are fully unfolded and the organism enters into a relationship with its environment. The orderly, rule-obeying embryological process is the analogue of a generative grammar, but in this case the process originates at its root; the germ of the organism, the egg with its store of potential knowledge. What is the germ of a sentence, of an action, of a myth? What is its order of unfolding? Of course language, and symbol systems generally, have particular constraints which determine many aspects of their surface structure, and these differ markedly from those operating in embryos. But the possibility glimpsed here is to see these as examples of cognitive processes generating their own particular morphologies, whether embryological, behavioural, linguistic, mythological, or other. These may all share similar underlying dynamical features, may all be isomorphic with one another at some deep level so that comparative studies among these domains become reciprocally illuminating. For me this makes the phenomenon of mind somewhat easier to approach, though still no easier to grasp.

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Bread or stones

EUELL GIBBONS

Most people in this land of plenty [America] have known hunger only as the discomfort experienced when on a rigid diet to remove some of their excess poundage. Such hunger may be annoying, even trying, but it is never frightening as is hunger when all food is gone, with no visible prospects of more, and one looks starvation in the face. Such hunger has been experienced even in America, as I well know. I was only thirteen years old when, with my mother and my younger brother and sister, I found myself in such a situation. I couldn't imagine then that I would ever look back on that time as one of the most valuable experiences of my life. It could have been otherwise, for these are make-or-break experiences, and for a time my own attitude and, had I known it, my whole future hung in precarious balance. It was largely due to the indomitable faith of my mother that my own brush with starvation proved to be a creative encounter that transformed my life.

The way we came to these straits is an amazing tale of mismanagement and hard luck. When I was twelve years old, my father, a tenant farmer, decided to seek land of his own. An uncle had homesteaded in New Mexico in a place called Hacienda Valley, and had written that government land was still to be had. We packed our meager belongings into an old car and headed westward.

Hacienda Valley! The very name suggested rich bottom lands and fat cattle. How disappointing to find a land of poverty and deserted homesteads. The squatters had given up in the face of a four-year drought, and the wind had blown the dry soil from their

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deserted fields and piled it in drifts along the neglected fences; very few half-starved cattle munched on dried tumbleweed in the fence corners.

It wasn't even a proper valley; it was more of a basin, with a few flowing streams and no outlet to the sea. When more rain fell than the thirsty soil could drink up, it ran into a series of salt lakes in the lowest part of the valley. There was no water in these salt lakes now, nothing but great glistening beds of salt.

We arrived at my uncle's claim only to find that he too was ready to give up. He had planted fields of pinto beans, on pure faith, but the continued drought had kept them from even sprouting, and dust storms had removed most of the top-soil from the bare, plowed field. He sold two bags of pinto beans to my father to serve as seed for the following year, and with the few dollars he received for them, he loaded his family and belongings into a wagon and drove away, seeking a more hospitable land.

The other homesteaders who had not already gone were leaving. Not many were willing to go by horses and wagon as my uncle had done, so our old car became a coveted object, and the bidding for it was spirited, though the bids were all in kind, as these people had little or no cash. We finally traded it for two mares with colts, a milk cow with a calf, twelve hens, a wagon, harness and an assortment of farm tools.

We didn't homestead a claim of our own for my uncle had said we might live on his place, rent free, until he could sell it. With nearly every homestead in the valley being offered for sale at almost any price, there didn't seem the remotest chance that he would be able to dispose it in the foreseeable future. Despite the gloom all around us, my father was optimistic. This didn't mean much, for Dad spent his whole life anticipating the wonderful things that were just about to happen. He assured us that even the worst drought never lasted more than four years, and was sublimely confident that the following year would be a good one.

A company had been formed to exploit the salt beds in the dried lakes, and Dad landed a job digging salt at two dollars a day. The salt works were eight miles away so he stayed at the company camp and only came home week-ends.

The omens were auspicious; we were settled and equipped, with a farm and work animals, and Dad was making enough to support us until we harvested a crop. Then we received the first hint that things might not be going quite as well as they appeared to be. The livestock had been several weeks without salt, so one Saturday evening my father filled his pockets with salt from the dry lakes before starting home. Our cow was salt-hungry and licked up quite a lot of it. The next morning I found her lying in the corral, sick and unable to rise. I stayed with her all through that day and the following night, praying and dosing her with linseed oil and water. She recovered but was thin and bony and her milk had dried up completely.

Shortly after this, ugly rumors began to circulate about the salt company. It seemed they had put this salt on the market without adequately testing its suitability for livestock feeding. Companies selling mixed feed had switched to their product because it was cheaper, but wherever these mixtures had been fed, cattle sickened and died. Now feed suppliers and cattlemen were suing the salt company. Dad came home in the middle of the week and announced that the company had gone into bankruptcy, owing him several weeks back pay. Even his dauntless optimism had received a jolt. The grocer cut off our credit.

We butchered the calf, and while the meat lasted we lived well. Meanwhile, our best mare and her colt escaped from the pasture and joined a herd of wild horses that roamed the brown hills around the valley. This reduced our work animals to one bony old mare and her yearling mule colt. A horse buyer came through looking for bargains from the deserting homesteaders and we were so desperate that Dad accepted his offer for our young mule. Then he left most of the money with us to buy necessities and he walked out of the valley looking for work.

Shortly after Dad left we received word that, contrary to all expectations, my uncle had sold the place and the buyer wanted immediate possession. We were forced to move into another abandoned homesteader's shack several miles away. I found that by turning the collar and hames upside down I could get a set of harness on our old cow. I hitched her to the wagon with the bony

mare and this mismatched team hauled our belongings to the new location. It was on a bleak and barren site and firewood had to be carried from nearly a mile away.

About this time Mother got sick. I now suspect it was a vitamin deficiency, for I am sure she was depriving herself in an effort to keep us children better fed. We had heard nothing from Dad since that day he walked up the road leading out of the valley. September had come and my brother and sister started to school, riding a truck-turned-school-bus that passed a half-mile from our shack, but I stayed home to take care of Mother. Even when our food ran entirely out they had to keep going to school, for this was the only way we could make a daily visit to the post office, and by then we were living on hope that Dad would soon send some money.

Hauling our things was the last effort our old mare made. A few days after we moved I found her lying in the corral unable to get up on her feet. With a great lump in my throat I knocked in her skull with the back side of the axe to get her out of her misery.

There was no pasture or feed for the cow. I discovered that she would eat yucca if I cut off the spiny leaves and chopped the basal parts into small pieces. One morning I found her dead by the feed trough. I spent the morning skinning her, for the green hide was worth a dollar or two at the village store. When I cut open her stomach I found it packed solidly with yucca fiber and I knew the cause of her death.

Ironically, as soon as our last grazing animal was dead, the rains came, and in a few days the previously dusty prairie was covered with tender green grass. The whole arid land awakened and though it was late autumn everything had the appearance of spring.

With no animals left I sold the wagon and harness to another homesteader who wanted to get out of the country. He gave me only five dollars for the lot, but I'm sure that was about all the cash he had. With the money from this sale and the credit the storekeeper allowed for the cow hide we ate a few more days. The carcasses in the corral made an awful stench but as this decaying meat was serving to feed our chickens and dog, I left them unburied. This spoiled meat diet seemed to agree with the

chickens, for by the time we had finished the groceries, the scrawny hens had put on some weight, so we began eating them. With all our animals, tools and even the farm we intended to crop gone, there was no hope of planting anything the next year, so we also began eating the pinto beans we had been saving for seed. Finally we killed and ate the last hen. I still wasn't frightened, for we had plenty of pinto beans and I didn't think we would starve as long as they lasted.

For several days we existed on plain boiled beans and nothing else. Then one morning, after eating a few bites of beans, my stomach rebelled and I spewed them back up. Several times that day I tried to eat a mouthful of beans but my stomach continued to reject them. In another day all the rest of the family were in the same fix. We could no longer eat beans. Now I became really frightened.

We had always been a Bible-reading family and we did not stop the practice even in this extremity. That evening my mother was reading while propped up in her sick bed, "Ask and it will be given you; seek and you will find, knock and it will be opened to you. . . . What man of you, if his son asks him for bread, will give him a stone? Or if he asks for a fish, will give him a serpent? If you then, who are evil, know how to give good gifts to your children, how much more will your Father who is in heaven, give good things to those that ask him?"

Usually I listened to these Bible readings quietly, if not always attentively, but tonight these trite words of bright, but apparently empty, promise angered me and I cried out that it was all a lie. Were we not begging for bread and fishes from dire need only to receive nothing but stones and serpents? I angrily and rudely shouted that there was no Father in that mythical heaven, or else he cared nothing about what happened to us. I refused to pay homage to a God who gave such lying promises and then abandoned us in the predicament we now faced.

My mother listened to my wild outburst with patience, although I know my words caused her more pain than the hunger we were experiencing. She did not protest but heard me out, then she softly questioned me, "Son, are you sure that we know how to ask

for bread and fish? Maybe it is the world that has deceived us and we have come to have more faith in stones and serpents than we have in loaves and fishes. What is God to do with a son who only knows how to ask for stones and serpents?"

These queries left me sobered but unrepentant. Secretly, I determined to move without God, and even in defiance of God if necessary in an attempt to obtain some food for us. Next morning I stuck a hand axe in my belt and told Mother I was going to look for some stove wood. Instead I set off for another abandoned homesteader's shack. I had noticed a dugout or outdoor cellar there with a heavy, padlocked door. I hoped there would be preserved food supplies there, but if not, there would surely be tools or other goods that could be sold for enough cash to buy a few groceries. There must be something valuable in that cellar to warrant the heavy door and stout padlock. I intended to find out. My axe would make short work of even that heavy wooden door.

As I strode determinedly across the now-green prairie our dog followed me, reeking of carrion, the very odor of our recent losses. I thought of my mother's words of the night before and tried to bolster my bitterness, for I was depending on this angry defiance to give me courage to carry through the depredation I had planned. Hadn't we all prayed in every way we knew for food, and hadn't we been given starvation instead? The time for praying had passed, and the time for action, even God-defying action if necessary, had arrived. But a childhood faith as deep as mine had been was not so easily sloughed off, and I found myself praying again as I walked. Yes, I even prayed that God would give me strength to carry through the theft I had planned, and that He would see to it that there was something worth stealing in that locked cellar.

I reached the abandoned shack and saw that it had deteriorated since I was last there. The door hung by a single hinge and the only window had blown out and been broken. The stove pipe and also blown down and lay some distance from the house. But the cellar, with that padlocked door was still intact.

And then - I couldn't do it. I simply could not raise that axe against another man's property. I couldn't steal and pray at the

same time and I was still afraid to stop praying. I didn't feel a bit self-righteous about this, in fact, I cursed myself for a coward and a fool. Surely stealing was more appropriate to my present circumstances than was praying. How silly to be excluded from this chance of acquiring some good for myself and my starving family by a petty moral scruple! Here might be our last chance at survival, and I couldn't bring myself to commit an act that under ordinary circumstances might be wrong, but now, was certainly right.

I walked inside the dusty cabin and sat down on the floor with my back to the wall, and wondered if it was worthwhile to make the effort to walk back home. The dog followed me inside and filled the cabin with the odor of decaying flesh. I didn't want even a dog to see the bitter tears on my cheeks, so I angrily ordered him outside. The very totality of my despair had a calming effect, and my thoughts returned to the God in whom I thought I had lost faith. Could one pray for strength to steal? Maybe this was what Mother had meant the night before when she hinted that I had always asked for stones and serpents. How tragic if I had always prayed for the wrong things! Before I had felt defeated but still defiant, but now all the defiance drained out of me, and I felt a sense of surrender to everything. I broke into sobs and prayed over and over again, "Oh God, teach me how to ask for bread."

A series of sharp barks interrupted my prayer and brought me to my feet. I rushed out and found the dog barking at the end of the fallen stovepipe. I quickly upended the pipe and began taking it apart, joint by joint. From the last piece I pulled, not one, but two, fat cottontails.

As soon as I had those rabbits safely in my hands I knew we would survive. I killed them as mercifully as possible, eviscerated them and fed the offal to the dog. He seemed to appreciate the taste of fresh meat after his long diet of carrion. On the way home I left the trail and cut across an abandoned field. Hope had opened my eyes and I saw that the ground was covered in places by a carpet of purslane, (*Portulaca oleracea*) that had grown since the recent rains. I knew this plant was edible and had tasted it before, but now I kneeled down and ate it by the handfuls until the sharp

edge was taken off my hunger. It was succulent and juicy and not at all bad-tasting, so I filled my hat with purslane to take home. Filled and strengthened I had eyes for other things besides the purslane. I noticed some dark green plants that had a vaguely familiar appearance. I scratched that loose soil from around one of them and under it I found four little potatoes the size of marbles. It was the native wild potato which I much later learned to call *Solanum tuberosum*, and, while it is very common in that area, I had never noticed it before, but had recognized it now by its resemblance to the cultivated potato. In an hour I had filled my pockets with these grape-sized potatoes and while gathering them I found several dozen nodding wild onions which I added to my hoard. That night we had a wonderful rabbit stew and all the wild potatoes and purslane we could eat with plenty of everything left over for breakfast the next morning.

Strengthened by the hot, cooked food I again set out the next morning with the dog. We walked toward the hills at the edge of the valley and kept going until the prairie gave way to a scrubby stand of junipers and pinon trees. Despite the drought the pinons had borne a crop of nuts and I picked enough for my lunch. Then I discovered a great mound of bark, pine cones, old pieces of cactus and other trash which I recognized as the nest of the western pack rat. Carefully I took the nest apart and near its center I discovered a hoard of more than a gallon of carefully stored pinon nuts. My conscience did not prevent me stealing from rats, so I collected these nuts into a bag, for now I had more faith in the bread that God could give and had brought along containers in which to carry it home.

The rains had also awakened another kind of life, and under the junipers I found a great many giant puffballs, a kind of mushroom with snow-white flesh than can be eaten either raw or cooked. That afternoon I found several more pack rat nests and each one added something to my treasure of pinon nuts. Finally we saw a rabbit and the dog chased it into a hollow pinon log from which he was soon extracted and added to the food already collected. Again I returned home laden down with fresh food.

After that I would go out each morning and spend the day

ming the prairies, old fields, hillsides and woods. It often took whole day but by nightfall my knapsack would be filled with the good wholesome food we could eat, and every day our diet was more abundant and more varied. I seemed to be bathed in an aura of light created by my own gratitude that at last I had learned how to ask for bread.

On the third day I found a great field of low-growing prickly pears. This water-conserving plant laughs at droughts and there was a bumper crop of small, yellow fruit. Using a handful of weeds and a whisk broom I brushed the fine hair-like stickers from some of the pears and found they were sugary sweet and perfectly delicious. I had heard that the Mexicans also peeled and cooked the spiny pears as a vegetable so I gathered one bag of fruit and one of the leaves to take home. The peeled leaves proved to be a tasty vegetable and much more substantial than the watery purslane. Two more discoveries helped to insure our meat supply. One day the dog chased a rabbit into a burrow near one of the neglected and fallen-down fences that stretched every way over this deserted land. I broke a piece of barbed wire from the old fence, fed it down the hole, twisted it firmly into the rabbit's fur and pulled him out. This method made a supply of rabbits almost certain. Our now empty chicken coop was converted into a quail pen which was baited with chopped-up pinto beans from the store. The only thing that we could not longer eat. This added quails to our menu several times per week.

With all this fresh food, my mother began to mend and was again able to walk with me as far as the nearest abandoned field to find me dig the little wild potatoes. She had come from a Tennessee mountain family and had a country-woman's eye for the wild plants. It was she who recognized the young Russian lamb-leaves, and the tender lambs-quarters plants growing along the piled fences in the false spring that the rains had so unseasonably brought to this desert land. Both these plants made excellent cooked vegetables. She also discovered ripe buffalo berries on the bushes growing along the dry waterway near our shack. When Mother resumed the cooking our meals again improved. One night we had quails smothered with wild onions, pinon nuts

roasted a golden brown, slabs of puffball browned in the sweet nut oil, lambs-quarter's and peeled prickly pear leaves boiled together and a tasty salad of purslane mixed with a few sprigs of wild mustard we had found. For dessert, we had all the sweet prickly pear fruits and buffalo berries we could eat. After that wonderful dinner we again discussed bread and stones and the biblical passage that had so angered me before. My younger brother patted his full stomach and said, "Euell has not only learned to ask for bread. Now he asks for cake, too, and by golly, he gets it."

After several weeks of this kind of existence the long-awaited letter from Dad finally arrived. It told of his long, discouraging search for work, and we knew that he too had suffered hunger and privation, made more unbearable by his anxiety about the family he had left behind to face such want. We were overjoyed to read that he had finally found a good position where we would soon join him, and we welcomed the money order, bought with his very first pay, that accompanied the letter, but by then we had learned that money was not as all-important as we had once thought it to be. We wrote an answer to Dad's letter that very night, assuring him that we were not only alive and healthy, but doing very well, thank you.

I wish it could be said that ever since that time my life has been lived in the light of that experience, but life's lessons do not come that easily. Again and again, when frustration and anxiety appear, a personal inventory reveals that once again I have been asking for stones and serpents rather than desiring the true bread of life.

One way in which I keep reminding myself that God will not give a stone to those who know how to ask for bread is by continuing to gather and use the many excellent wild foods that grow all over our country. It is nearly forty years since this kind of food saved four of us from starving, but what was once a dire necessity has become a fascinating study and an absorbing hobby. Many of my friends consider my food-gathering pastime amusing, and think of eating food plucked from the wild as no more than a stunt, but to me it is "bread that they know not of" and it feeds my soul as well as my body.

Through this activity my faith was not only once restored, but

has since been vastly extended and I have learned a new approach, a new attitude toward nature, which is God's handiwork. I now dislike the idea that man is engaged in the conquest of nature. When I pluck and eat a sweet wild fruit or drink from a pure mountain spring I never think that I am making nature "stand and pay tribute". To those who love her, and approach her in a spirit of cooperation rather than conquest, Nature does not issue a challenge but extends an invitation and she will feed both the bodies and souls of those who do not pray for the wrong things.

Now, there is seldom a day passes that some delicious wild fruit or wholesome wild vegetable does not grace our table. In our cellar are fragrant jams of wild strawberries, raspberries, May apples and other delectable wild fruits. There are baskets of wild nuts, long strings of dried mushrooms and many kinds of wild vegetables in the freezer, while the spicy juices of wild grapes, elderberries and wild blackberries furnish the beverages to accompany the more solid foods. In such bread and wine I have communion with nature, and I have learned to love God through loving His creation. I wonder what my life would have become had I smashed in that cellar door on that day so long ago, and gained food by vandalism and theft instead of going inside that abandoned shack and praying, "Oh God, teach me how to ask for bread."



Religion in Iceland

Iceland is in the news because of the Cod War. It is a country of great interest with an unusual cultural history. The two following articles deal with religious aspects of this.

I
FREDERICK PARKER-RHODES

It used to be said that religion is a universal characteristic of human communities. Whether this is so, obviously depends on how one defines "religion": widen the concept enough, and the proposition can be made true. But if we use a more natural sense of the word there are, and have been, many cultures in which religious activity is at best restricted to a small, non-conforming minority within the whole.

I wish here to restrict the term "religion" to activities and institutions which involve the observance of ceremonial, of however rudimentary a kind, against a background of some sort of doctrines, which again may range all the way from crude folktales to elaborate moral philosophy; all this being, in principle, believed to facilitate contact between the known faculties of man with some unknown beyond them. Each of these components of "religion" can exist without the others; this is often the result of the disintegration of a former religious system which has been displaced, but they can also arise without any relation to each other, and need not be evidence of an extinct religion. Ceremonial of some kind is perhaps as old as human society itself, and can be observed among us at any public meeting, let alone the more elaborate occasions, unveiling statues, opening parliaments, coronations, and so on. Doctrines including historical, moral, scientific, and other branches of

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traditional knowledge, though in most cultures stemming from a religious base, have time and again freed themselves from such origins, and our own versions of them are rarely thought of in this connection. Even morality is logically independent of any religious theory, and, to take only two examples, has been so formulated in Confucianism in the East and in Stoicism in the West.

Even taking account of such cases, one might still claim that the association of the three elements named, in a single "religious" package, has been at least the inherent predilection of the majority in all cultures. Highfalutin intellectuals may throw it over, but a general loss of interest in religion may still be unknown. In fact, it seems that many examples can be found which show that this can indeed happen; perhaps there are always a few religious people, just as there are a few acrobats or idiots, for mankind is infinitely diverse: but I shall not consider my point refuted by such minorities. Iceland, I suggest, is one example of this.

The first inhabitants of Iceland were Irish ascetics: but they had constituted a population. The country was taken over, from the late 9th century onwards, by Norsemen, who brought with them their ancestral Germanic paganism, with all the lively and elaborate mythology of Odin, Thor, Freya, and the rest. Christianity began to be practised in the 10th century (mainly coming from Norway, though Irish captives may have played a part in it also). In the year 1000, after much debate, the Althing decided to adopt Christianity, though not without a measure of compromise, which true zealots would not have accepted, such as allowing infanticide. Over the next hundred years it became socially approved to be a Christian. But the Church, with two bishops and probably less than a hundred priests (some for a time hereditary), was soon heavily involved in the politics of the time. Many factors point to a low level of concern. While in most European countries Christian names became general, even compulsory, Icelanders continued for the most part to use their traditional name-stock; their social conduct, too, continued to be largely and regrettably uninfluenced by their new official faith. They have always been reluctant to adopt overtly Christian terminology: their ships, now in the news, bear names from the pre-Christian list like "Thor" and "Tyr", and when a new island rises from the

sea it is called not Ascension (as it might be in some countries) but Surtsey, after the fire-god Surtur.

It must be said, on the other side, that the Icelandic Church was not devoid of saintly men and women: but they were few, and it would be strange if there were none in any community, Christian or not. During what were in neighbouring lands the "ages of faith", the Church in Iceland, sometimes oppressive and sometimes impotent, was not a very inspiring institution, and induced little piety in the population at large.

Naturally, then, the Reformation, when it came, aroused eager interest. Unfortunately, by that time, Iceland was subject to the Danish Crown, and the change was imposed by the Danes, so that the prospect of acquiring a new and more popular religion soon succumbed to the actuality of what was felt to be a new colonial imposition. It was some while, owing to this hostility, before the new order was established firmly. Under happier circumstances the Reformed Church might have caught on in Iceland, as it had in Denmark, but in the miseries of colonial Iceland this was not to be.

Since the latter half of the 19th century, when the movement for independence from Denmark began to gain increasing impetus, the significance of the Church in Icelandic life has declined. Nowadays, by all accounts, it is only kept going by a small minority. The same has happened of course in other countries, including Britain; but while the decline of the major branches of the Church has been, here and in many other countries, accompanied by the rise of new sects and in increasing interest in exotic religious systems, Iceland has had too small a population for such interests to have exerted, as yet, a countervailing force to stem the process of secularization.

One naturally asks, if this is indeed so, why it should be. But it might be better to ask first what point we, or anyone, expect to see in religious activity. Perhaps the most obvious factor maintaining religious interest is the visible presence in the community of evidences of the existence of things beyond man's normal consciousness which nevertheless seem to affect us, for good or for ill. If such evidence becomes too infrequent, any living response to them will seem irrelevant if not absurd. This, I suggest, may have

been a constant feature of Icelandic life. Though, for the individual concerned, almost any unusual experience might seem to point to a "beyond", if others are to be convinced and kept aware of the spiritual level of existence there must be activities going on which really bring about some measure of contact for most of the participants (such as congregational worship does in many branches of the Church), or at least there must be a class of persons able to use transpersonal powers for the acknowledged benefit of the community (as monks, or shamans, have often been believed to do).

But such institutions, to be viable, require a certain minimum of members to keep them going; if the total population falls too low, they may fail. Iceland has probably never had as many as a quarter-million of inhabitants, a number which could well have been too small to keep itself informed of spiritual realities. The Lutheran Church does not stress the mystical side of religion, and claims to this kind of contact are more likely to be discountenanced than publicized. This may always have been the prevailing attitude in Iceland. It is noteworthy how small a place is occupied by religious institutions in the Sagas; the clergy are observed as individuals, without special reverence and with no sign of expectation of any superior behaviour on their part. The presupposition of most European literature that the Church is, or ought to be, the centre of life is missing.

Education may be a further factor. For centuries there were virtually no schools in Iceland; the clergy were supposed to serve as schoolmasters, but in fact almost everyone was taught mainly at home, and classical literature, centred on but extending well beyond the Sagas, was their study, apart from strictly vocational matters. Religion was kept separate, and only those who intended to enter the Church went further, in the one small theological college. Since the modern revival, this system has been replaced by State schools for all, but cultural education is still centred very strongly on its exceptionally rich literary base, and the study of the classical texts is still very much alive. Religious studies have virtually disappeared with the growth of science and technology. Thus, starting perhaps from a false assumption that the relevance of religion was "obvious", the subject has very largely been allowed to lapse. Oddly, Icelanders

pay tithes; but they are allowed to allocate them to the support of the university rather than to the Church, and most of this tax now goes in that way.

Finally, one must mention the unusual environment of the country. It is so strangely beautiful, but for this side of the Earth uniquely unproductive; many Icelanders are indeed older than at least some of their contemporaries.

Cultivation is confined to a coastal area of varying width, and three quarters of the island; the higher mountains are covered with snow, but much of the central area is a black and wholly barren desert. I have travelled across this desert in a bus; there are no roads, but also no impassable obstacles, except quicksands in some places. The bumping of such a journey and the monotony of the landscape can cause a kind of hallucination of green fields and trees; this may account for the belief that this desert was the abode of evil spirits, which was strong enough to prevent people from trying to cross it from before 1400 till the 19th century. Such a belief is in itself religious: but if your spirits are confined to a particular territory, and can be avoided by staying at home, you have a fatal attitude to life which does not conduce to a search for contact with the Holy Spirit.

And without such a search, as I have suggested, the mainspring of religious adventure is broken. If those who profess religion, be Christian or any other, can offer nothing substantial in evidence of their beliefs, in the form of spiritual powers of their own, or of some kind of worship which leads the worshippers into a sense of the presence of God, and if no others arise to fill the gap, or if they are severely discouraged, then what is the point, for ordinary people, in going on with it? That which Jesus called the Kingdom of Heaven, the whole world of the Spirit, the "beyond" into contact with which we are invited, in principle, by every living religion, can mean nothing to those who never catch a glimpse of it.

In a larger population, the discrediting of inherited religion need not result in a disenchantment with all forms of spiritual quest, but may lead only to a shift of interest from the known to the unfamiliar. It is hard for most people to isolate themselves entirely from evidence of the supernatural in one form or another, and inevitable interest in it, at least at the intellectual level, should be a per-

petual undercurrent; as long as this is so, the Christian Churches may suffer temporary eclipse in favour of exotic cults and imported philosophies, and will in time learn from these how to repair their damaged traditions. But in a small country such as Iceland this stimulus may simply disappear.

That religion, in any meaningful sense, is not a universal feature of human life appears to follow. And from this in turn it follows that religious experiences cannot be dismissed as an inherited weakness of our constitution. (It might still be, of course, a very widespread form of insanity.) The moral here is that we should not lose touch with its roots in experience, in the false belief that these are as self-evident, as hot water is to the Icelanders.

II

HILDA ELLIS DAVIDSON

Many Icelanders had accepted Christianity before the famous debate of A.D. 1000, which as described in the Icelandic records was remarkable for its good sense and tolerance. This does not seem to have been due to indifference about their faith, but from a realism and width of viewpoint which were among the qualities of the pre-Christian religion. The Lawman who was finally given the responsibility for making the decision for all was not himself a Christian, but his argument was that it was impossible for the Icelanders to live under two systems of law; they must choose one or the other. It is important to realize that there was enormous respect for law in Iceland, and that this was part of the religious system. After meditating for a day and a night (a means of arriving at a decision used in divination) he decided for Christianity. There were obvious political and economic reasons for this; all the important European kingdoms had now become Christian, while England had been converted for 400 years. The Icelanders had had long contacts with Christians in the British Isles, and many of the early settlers had been Christians, including that remarkable woman Aud the "deep-

minded", who was admired and idealized by later generations, although the Christian Church had never been established there. Missionaries had been sent out to Iceland by Olaf Tryggvason of Norway, and by A.D. 1000 a number of the leading families had decided for the new faith. The decision of the Lawman, which the Assembly had agreed to accept, was that the old laws permitting exposure of children and eating of horseflesh, this last an essential part of the religious feasts, should be retained for a time, but there was to be no more public worship of the old gods. Those who wished to continue the old practices might do so in private. We must of course be wary of taking the 13th-century accounts of the conversion uncritically, and I recommend a recent book by Dag Strömbäck, *The Conversion of Iceland* (Viking Society, 1975) as an excellent critical study of the reasons why the Icelanders accepted Christianity, and the nature of the change which took place. One enormously important result of the setting up of the Christian Church was that literacy came to Iceland; the enthusiasm with which Latin learning was accepted there, and the number of Icelandic translations of religious and secular literature which were produced in a short space of time, suggests another strong argument for Christianity: it brought the new learning with it. In the Cathedral School at Hólar in the 13th century, girls as well as boys could learn Latin grammar and read the classics as well as legends of the saints.

Nevertheless the religion which Christianity replaced was neither incoherent nor lacking in dignity. We have sufficient evidence from both archaeology and early literature, since some of the poetry recorded in the monasteries comes from the pre-Christian period and deals with mythological subjects, to be sure of this. Admittedly the northern religion had not been worked up into an elaborate system by priests attached to temples, but its imagery and symbolism is impressive, and show a deep sense of the numinous. Men saw the world of the gods as something governed by fate, and they supported the gods and felt themselves protected by them in the constant struggle against the threatening powers of chaos and destruction. When Iceland was settled, the land was divided out in a way which formed an integral part of religious practice. They used

divination to choose their land, and chose many holy places to replace those left in the old country, in particular the burial places of their kings and ancestors from which they were now separated. There are accounts of earth brought from holy places in Norway, and of appeals to the gods to guide them to the right part of Iceland in which to set up sanctuaries. The site of the Althing, the place where the Icelandic Assembly was held every summer, is as impressive in its way as the Parthenon, although the atmosphere is not created by buildings—and as far as we know, there were never any large-scale erections there—but by the nature of the place itself. They took the trouble to divert the course of a river to provide a suitable site for their meeting; part of the law was solemnly recited by the Lawman to the Assembly every year, and sacrifices were made to the gods. Holyfell in the west of Iceland, described in *Eyrbyggja Saga*, is one of the most unforgettable holy places I have ever visited, although it is no more than a small outcrop of rock resembling a long barrow in shape; it is superbly set in a natural theatre of unbelievable grandeur, and stands out as a landmark over a vast area. The awe and sanctity with which these two sites alone were invested has left clear traces in the literature. The close link between the religion of Iceland and the earth and water and volcanic fires of the land can be perceived from their *Landnámabók* (the book recording the settlement) and from their poetry.

Undoubtedly the Icelanders continue to look back to their heathen past, partly because it was their period of greatness, their Golden Age, and partly because the pagan religion was a strong inspiration behind much poetry and symbolic art. There has even recently been a pathetic attempt to set up the old faith once more by a small group calling themselves the *Ásatrúarmenn* (believers in the Aesir), and this was officially recognized as a religious sect in 1973 and can now conduct marriage and burial services. There is something rather comical and cranky about their doings, and the Icelanders as a whole are somewhat ashamed of them. The first attempt to hold a midsummer feast was ruined by torrential rain, and beset by difficulties: the sacrificial lamb could not be slaughtered but had to be bought from the nearest co-operative store, while it is illegal also to brew strong ale; and a crowd of hippies who

turned up got hold of the bottles intended for the feast and drank most of them overnight.

Such a move was no doubt partly inspired by the general dullness of the Church in Iceland. There are certain historical reasons for this. The period of the Reformation was truly appalling for the country. Not only did the Danish Calvinistic Church attempt to stamp out most of the native culture, such as songs, dances and folktales, but it was also associated with such crippling economic measures that the island was almost depopulated.

This dark period, when harvests were bad over many years, food short, and fuel almost non-existent, has left an indelible mark on the Icelandic memory. Deprived of their old culture, they turned to superstitious tales about wizards. Some of these have just been published by the Folklore Society (Jacqueline Simpson, *Legends of Icelandic Magicians*, Mistletoe Books, 1976) with a preface by an Icelander, B. S. Benedikz, which gives a vivid account of the condition of Iceland in the 17th century, and helps to explain the present condition of the Protestant Church.

The question of shamanistic practices in the old Icelandic religion is a complex one. Much of the Germanic and Scandinavian pre-Christian religion was based on a strong awareness of the strength of fate and luck, and there were many forms of divination. This included an emphasis on inspiration in an ecstatic state, and had much in common with shamanistic practices as found among the Lapps and the Siberian peoples, although obviously there was a very different social structure in Iceland from that among hunting peoples in northern and central Asia. The importance of this strand in the pre-Christian religion of north-western Europe is being increasingly recognized by scholars, although little has been done in England on this subject. Belief in spirits and widespread interest in theosophy have continued in Iceland up to modern times, although the Church in recent years has attempted to discourage this. The Icelanders accept that certain people have the power to "dream true" and to foresee the future; when the recent volcanic eruption in the Westman Islands took place, a number of people claimed to have been warned of it beforehand in dreams and the Icelandic newspapers were full of letters on the subject.

The central lava desert of Iceland, utterly sterile, grim and menacing, is indeed depressing, but Iceland is a country of very great beauty and variety, and the strange landscape has a powerful numinous effect. The fierce extremes of weather, the clarity of the atmosphere and sense of enormous distances, the great mountains and glaciers, powerful rivers and frequent volcanic eruptions, as well as the solitude in which the Icelanders outside Reykjavik and Akureyri live, make one very conscious of the mighty forces of nature and the comparative insignificance of man. At the same time there is something immensely stimulating in the successful overcoming of difficulties in making a good living in Iceland as a farmer or fisherman. The farmer on a remote sheep farm extending up into the mountains where I stayed was a dedicated man, with a calm, remote look like that of a fulfilled ascetic. The old days of crowded farmhouses are over, and this small family lived alone, relying on machines and electric power and helped by relatives and friends who came out on occasions like hay-making and rounding-up of sheep. The Icelanders obviously lose much by having no longer any ritual and ceremony in which all join together and some, like the new pagans, feel this need. It may be that just as in the first period the religion was closely linked to the land itself, so now the land replaces the Church as a means of reaching out beyond the practical needs of everyday. Modern Icelandic poetry and painting, which is produced by all classes and not just by a small intellectual or artistic group, suggests this is so, as it takes most of its inspiration from the Icelandic landscape. The fact that this is something not precisely formulated does not mean that it is not a spiritual source of power.

Three lapine communities

A study of Richard Adams' "Watership Down"†

WALTER FITCH

Imaginative books about animals tell us about ourselves. Kipling's "Jungle Books" provide the ideology of the Wolf Cub Movement, and Uncle Remus, Beatrix Potter, and numerous fairy stories contribute to the thought of all of us: it is therefore not impertinent to use a great story such as "Watership Down" to illustrate our own situation. It is a quality of works of imagination that they stimulate the reader to further insights, latent in the work, but not necessarily consciously present to the mind of the author. Three communities in "Watership Down", Sandleford, Cowslip's Warren, and Efrafa, illustrate different aspects of modern human society.

I. SANDLEFORD WARREN

The book opens at a warren threatened by outside forces, and Captain Holly, after his escape from the catastrophe tells how Threarah, the leader of that community, had explained to him very convincingly the impossibility of evacuating the whole warren. His mistake was, to oppose the departure of those who wished to go, led by Hazel; and this, we gather, he only did because Bigwig, who had just resigned from their council, the Owsla, had joined them. He admits to Holly that Prophets are sometimes right: how was he to know in this case?

† Published by Rex Collings, 1972, and in Puffin Books, 1973.

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Fiver, a psychic rabbit, trusts his hunches: but there is plain evidence, as the story goes on, that he has plenty of common sense behind his visionary powers; it is he who questions the supernatural character of the railway train that rescued Holly and his party from the patrol at Efrafa, and it was he who found an excuse to go outside and stand sentry, when Hazel had forgotten to place one. A better leader than Threarah, if he could not know every one of his followers individually, might have been able to recognize a true prophet when he saw one. The final word comes in the Epilogue, when a descendent of Fiver senses a horseman from a long way off: "It's only to be expected with Fiver's blood". "Fiver's Blood. Well, as long as we've got some of that I dare say we'll be all right." The succession of Prophets must not fail.

Threarah had shewn himself determined, and indeed ruthless, when the warren was attacked by myxomatosis, "the White Blindness". But in old age his control had weakened, and his subordinates have become petty tyrants. In Arnold Toynbee's phrase, the Creative Minority had become the Privileged Minority. So those who believe the Prophet are forced to become the Remnant who escape.

II. EFRAFA

Here the type of polity is only too familiar—the Police State. But it should not escape us that Efrafa has taken shape as a means of meeting a terrible danger: General Woundwort saw that the warren must remain hidden, if it were not to be infected with the "White Blindness." So the entrances to the burrows must be concealed, they must feed by turns and hide their excrement. In this he succeeded: but power corrupted him: greater numbers meant more power, so he conscripted any rabbits who entered the area: yet he could not allow the warren to be enlarged, lest it should be discovered by humans. Hence the overcrowding. And we get the impression that, if Woundwort had not found his Waterloo at Watership Down, there would have been an explosion at Efrafa before long.

If we flatter ourselves that we have no Efracas in Great Britain, let us remember that mental and moral pressure can be no less tyrannical than physical pressure, whether it is the public school spirit or working class solidarity, when they crush the individual.

III. COWSLIP'S WARREN

Between Sandleford and Efracfa comes Cowslip's Warren, where the rabbits are preserved, partially fed, protected from predators, and systematically snared, by the farmer who owns the land. The rabbits tacitly ignore this perpetual threat: they feign deafness, or change the subject, whenever any of the Sandleford party ask any questions relating to it; and when Captain Holly and his two other survivors appear, they murder the wounded Pimpernel. The situation can be alluded to obliquely: one of Cowslip's fellows said, "Rabbits need dignity" (not tricks), "and above all the will to accept their fate." There would have been a place for this kind of resignation at Sandleford, for those who could not leave, if all who could do so had migrated. But here the situation need not have been regarded as desperate. Bigwig knew about snares, from his instruction in the Sandleford Owsla, though he had never seen one: and the others contrived to release him. Presumably in Cowslip's Warren the straits in which they were placed had only dawned upon them gradually; by the time they were all aware of it, they had become too debilitated to make any plans to vacate the warren.

We have communities which feel secure in their known ways: they don't want to know about problems which are in fact there, because this would be disturbing. We can find them in Universities, in the Services, in Religious Orders—indeed the whole of Great Britain is something of a Cowslip's Warren.

The art of story-telling, traditional to all rabbits has fallen into disuse in Cowslip's Warren. The chief subject with the rabbits from Sandleford is the adventures of El-Shrairah, the Hero-Godling, a Lapine Ulysses, to whom at the end of the book some of Hazel's adventures are being attributed. In Efracfa and in Cowslip's

Warren, poetry is recited: Fiver in the latter and Bigwig in the former are at once attracted and repelled by this. In Cowslip's Warren the mothers sing lullabies to the kittens, and there is some kind of Art, associated apparently with a religious cult of El-Ajrairah. Broadly, the emergence of this somewhat sentimental poetry in Efrafa and Cowslip's Warren suggests that it arises when natural impulses are frustrated.

IV. WATERSHIP DOWN

By the end of the book, Hazel is in a position to work out his ideals, as far as circumstances allow. The system is less military than Sandleford, let alone Efrafa: but the concealment of the entrances to the burrows has been borrowed from Efrafa, and the large central space, where all or nearly all the population of the warren can assemble, from Cowslip's Warren. There may have been other borrowings. Before the book closes, they have combined with Efrafa to found a new colony: but if this has become necessary so soon, we wonder what Hazel's successors will do: the process cannot go on indefinitely. Hazel dies in a good old age, and those who follow him will have their own challenges to meet, and may need to be steely as well as compassionate. Their problems won't just be solved by sweetness and light.

Comment

An Alternative to "Homes for the Aged"

Theoria to Theory has an interest in the distinctive contributions old people can make to our society. In the last number (Vol. 9, No. 4) Kathleen Gibberd wrote about how homes for old people are often run on the assumption that all that is needed is "loving care", in an environment where they are set apart with other old people. They can also lack the privacy in which they can maintain what Julia de Beausobre (*T. to T.*, Vol. 5, No. 4) called "leisure in solitude", not the same as loneliness, but a state of independent inner resource. Most people would agree that old people are more likely to maintain this, and indeed in general be happier, in their own homes. But nowadays few of them have a niche in a household of people of mixed ages, and some live entirely alone, when "leisure in solitude" can well become loneliness; there may also be times when they desperately need physical help.

We heard of a scheme in North Norfolk, initiated by a country doctor, where a local association has been formed to help the problems of old people living in their own homes. It covers ten villages, of which Blakeney is the centre, and when two of us from the editorial group were in the neighbourhood we went to find out more about it.

The ten villages have a population of 3,000 of whom 600 are over 65; of those over 70, 140 are living alone. Twenty-three of these had no friend or relative they could turn to if they were in difficulties. Also the age distribution of the district is changing. It is one of those splendid pieces of country and coast where elderly people come to retire, while young people move away to work elsewhere.

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Villages can be close communities, but in a scattered rural community people can also be more isolated than in towns, where, particularly in working class areas, neighbours may know what is happening to you, as there are likely to be what Jane Jacobs in *The Life and Death of Great American Cities* calls “eyes on the street”, and these may see that a person has not been going out.

So the local doctor has initiated an association called the Glaven District Caring Committee. He sees this as an extension of his care for elderly patients; not a work of charity so much as a professional service based on a recognized social need. There are indeed social services for social needs, but these are already stretched and they can only cover part of what is required. Old people can get very cold; they can be in bed with a minor illness, which can turn to worse without someone to come in and get them a hot water bottle and a hot drink, clean up, do some shopping; others may be even more ill and still be on their own. They will be lucky if they can get a home help from the local authority for a few hours once a week, and the District Nurse may only be able to call once a day. So a retired nurse is training volunteers in home nursing, who can co-operate with Health Visitors, and go into homes under the supervision of the District Nurse.

Some of the people living alone have had an alarm system fitted up for emergencies, with the kind of contraptions normally used in burglar alarms. There are volunteer drivers to take those who can get out on shopping expeditions. There is also a rota of volunteer drivers to take members to a lunch club, staffed by other volunteers. Such a club, meeting twice a week, provides a social occasion as well as a hot meal at a very reasonable price. (This service has to be geared in with that provided by the Meals on Wheels—the benefit of the latter is of course mainly felt by those who have to stay at home, and in any case Meals on Wheels can only be taken to a very limited number). Some of those given invitations to join the lunch club are people who have become shut up in themselves, perhaps depressive, and who need to be encouraged to take the plunge of coming out and meeting others.

All this obviously calls for good, though not necessarily very taxing, organization. Rotas must be made and a flow of volunteers

maintained. Apart from the lunch club, many of these activities are of course an extension of the kind of help which numbers of people in villages all over the country are already giving to their neighbours. What this association shows is how informal help can be strengthened so that it can be available for those who need it most and who might otherwise be left out, and how (particularly in the home nursing) it can be made more effective by being based on a recognized professional service. Like all volunteer help which goes beyond a few people, it obviously needs (and in this case gets) leadership to arouse and sustain effort. It needs some finance—and someone in the middle of the web who is available to receive and send telephone messages (in this case the doctor's staff). Given this kind of initiative, what is being done by the Glaven District Caring Committee could indeed be adapted elsewhere.

Naturally enough, any description of what this Committee is trying to do will focus on describing the needs of old people. But implicit in the philosophy behind the venture is an assertion of their value as part of the local community. They will not only want to be at the receiving end. As Kathleen Gibberd said in her comment on Old People's Homes in *T. to T.* Vol. 9, No. 4, they do not just want "loving care", but *respect*. And respect is more likely to be given and received where those concerned are not giving up responsibility for the management of their own lives—this in fact may be a reason for their living in their own homes. There may indeed be times when they are dependent on other people to help them. But they will generally also have times when they are able and wanting themselves to do something worthwhile for the local community.

When does old age come? Not necessarily at any statutory pensionable or retirement date, and it may both come more slowly and be a more rewarding time when people can feel that they themselves can still be of use and do interesting things, and not just fall back on hobbies and the telly. We would welcome accounts of associations of old people who are finding constructive things that they can do.

In the end, perhaps, we may all have to come to see that there

are times when there is a sense that one "stands and waits" and eventually may be sure that one can "hold out." There can be alertness in making the difference between the bitterness of loneliness and the "pleasant solitude" which has the resources of an inner life. But there can be circumstances in which it seems almost impossible for these resources to be maintained. The doctor who has headed the Glenview District Care Committee quotes Lord Moran's *Anatomy of Courage*, where the author says that a person has only so much courage and cracks if he cannot refurbish it. The encouragement and friendship given by an association like this may not only provide for physical needs but also help to refurbish courage.

Comment

“Tuning the Human Instrument”

I would like to comment on the three streams of Ted Matchett’s 3M equation; the three kinds of reality which enter into our own experience and make it what it is. These three streams combine in the living moment and we have to wake ourselves up if we are to become strongly aware of them. Normally we are outside our own experiences; the world changes and we become aware of the change not as a living process, but only after the fact. To appreciate Matchett’s teachings we must reverse things and get inside the living moment as it occurs.

Meaning in this context is the world of all or nothing, as in a game of chance where the stakes are high. By bringing in the idea of risk and uncertainty one can get the sense of this third factor—*meaning*—in the triad. Ted uses the expression “*total meaning*” to emphasize this point. There are meaningful things and meaningful actions but we must ask “what is behind all that?”. It is a relationship that engages something of you, that asks something of you and that gives something in return! You never know your partner in this relationship—at least not fully—but in accepting its challenge much *meaning* may emerge. It is mysterious but it is not arbitrary. We have to accept that there are certain laws connected with this.

In the *matter stream* we can take it all the way: the universe exists, the earth, clay, a table exist; but also our habits, thoughts emotions, images and dreams exist. All of these are *matter* in Matchett’s scheme of things—all are material. This *matter stream* has a kind of infinity of extent but also an infinity of smallness and of complexity with which the person is connected intimately.

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Scientific information is only a very small part of the *matter stream*, because the real world is much too complicated to be pinned down by a few ideas. It is as if—and this is how it is often pictured—a few elementary structures are set up and then sent into collision with each other, and there are varieties of combinations that can occur. Such complexity and uncertainty cannot be got at by a few simple concepts. What is needed is that a person can learn to resonate with the real complexity and uncertainty of this world, instead of projecting onto it what he thinks it ought to be like, or what scientific popular books have taught us about it; it is, as it were, like going down to the stable to count the teeth of the horse. Each of us has to learn to do this in our own way. We can accept that scientific and qualitative information, models, concepts and theories can and should be included, but only as fragments of the total *matter stream*. The full stream with which we can learn to connect contains a richness of content far greater than we at first suppose. One has to learn to swim within its true substance and its vast depths. My own academic subject was the History of Science and I became quite overwhelmed to see how people assumed scientific theories to be totally different from what they actually were in the experience and life of the scientific community.

Anything that is real—a material, a business situation, etc.—has an almost unlimited depth in the direction of complexity and also of uncertainty. To sense these depths and their true content the human instrument has to be properly tuned. Normally we have too many attitudes about what this material world should contain, which are just things we have accepted on trust—the idea that there are fixed laws of the universe and that kind of thing, fixed ideas about space and time. Matchett asks not that we create alternate theories but that we do not go on projecting theories and thereby obscure the real world, with which we can learn to communicate and have a real rapport.

I heard Ted talk about the *media streams* for a long time but still failed to see why he chose the term *media*. Now the name does seem appropriate, not because it is something to do with communication but because it is communication's own essence. Perhaps it

would be a help to talk of what happens in telepathy. People seek such contacts of minds and do all sorts of experiments and thinking about it, but most of this does not get anywhere near a real contact in which there is no distance between them. All this nonsense about radiations from the human brain and that sort of thing leads us to the erroneous belief that we are still dealing with things in space and time that are subject to cause and effect. The truth is much simpler, namely the reality of the *media realm* in which there is none of this causal relationship—this separation of bodies. The *media realm* is the world of clairvoyance and of synchronicity. To understand *media realm* is to know why things like the “I Ching” work so successfully. It is a realm not subject to limitation and fragmentation; a realm in which two minds do not come into contact but share in one pattern, and this is the communication. We can recognize that it is happening in simultaneous discoveries in different parts of the world, time and time again, also in changes in the *gestalt* of attitudes of whole masses of people to educational and political fashions and preferences.

Media is thus a world of patterns, but patterns which none of us actually see. They are not blue-prints up in the sky. It is so hard to talk about them—attempts to do so have all gone wrong in the past. With Plato, for example, querying whether the ideal world did or did not exist. It was all a mental concept and as such was largely a waste of time. The attempt has been made repeatedly to turn *media* into *matter*, and living contact with *media* has been lost at each new attempt.

The patterning of *media* is a patterning which is connected intimately with the creative process. We must not think of a *media pattern* as being like a knitting pattern but as one that is not conditioned. It is certainly not a mould into which matter is poured, but something that has within itself another kind of depth and uniqueness, as with the pattern of our own inner nature which makes each of us so different from one another. *Media* is a pattern in depth which can only be experienced through the depths of our own being.

The way many people talk about problems reveals their lack of awareness of *media*. It is often as though they lived in a totally

matter world. Contrast this with “going all the way”, in which, as we have said, we come into contact with Ted’s term *meaning*. Now, one finds people in contact with far greater depths and extensiveness of patterning of *media*, and also of the corresponding *matter* streams. Because they are prepared to go “all the way” and because they are striving to be open, so much more is sensed and known and therefore possible.

Connections with the *media* realm can be deepened through special kinds of tuning, since these have to do with the real connections between people and beings: which are not through physical contacts and private mental gymnastics but through a sharing at quite a different level. Yet it is important that an act is made on our part to make what is potential real.

This act involves a kind of risk—should one choose to go “all the way?” Every person has to find his or her kind of risk in any kind of creative work or life pursuit. The risk and the degree of contact with *media* and *matter* cannot be directed from outside concerning what it shall be; one has to measure internally what one is risking and the *meaning* that will emerge.

What we are risking is this trusting-in-the-unknown, and it is true to say that through what Ted is teaching and doing many people can be introduced to this trusting-in-the-unknown. This makes a person’s life so different. Notice that I explain Ted’s teaching in this way because I do not want to say trust in anything—simply trust in the unknown. I have seen many people get a fixed idea about what the unknown is and then all progress comes to a halt. The unknown is the unknown, but not necessarily the unknowable, if we can learn to suspend our beliefs and our images.

The risky method is to roll up one’s sleeves and get into the work without knowing how—discovering that one’s body somehow knows what is required. This trusting-in-the-unknown is hardly ever developed nowadays through modern education. Generally, people are educated not to act at all, not to experience anything, certainly not the *meaning* that comes through responding to the unknown rather than shying away from it. To introduce people to this trusting-in-the-unknown in any way whatever is a marvel. It opens the gates to the real creative process. Suddenly, when the change-

around is made, there, in the unknown, are the ingredients: one does not need to go outside any more because you then have all you can ever have—which is access to all creation in one's own moment.

I know sometimes that Ted suggests that this is easy. It *is* easy but it is also hard, because of the extent of the change of attitude and habit that it entails. It is hard because of this realm of *meaning* which requires one to make the commitment, and thus to have to deal with one's uncertainties, anxieties, fears and self-image. That is the hardest part, and a person has to find the way that best suits himself and his own situation that helps him resolve the question of what he is prepared to pay. If he is prepared to pay all that he has, then it is easy to make *meaning* plus *matter meaningful*. But it is easy in an unexpected way. Then he discerns that it is more important to create problems than it is to solve them—the solutions come without effort on his part, as immediate insights of *meaning*. By daring to create problems a person opens up a situation, including himself and his own sensitivities. It is only when there is an opening that there can be a response. The opening makes the living contact with *media* and *matter*. If the opening is genuine for only one moment then some truly important *meaning* may emerge.

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Comment

The morality of scientists: the DNA case

Since the concern is with justice and the morality of scientists, I think it is a pity that Laurence King did not apparently consult the Fav Guller account of the DNA case provided by Robert Olby in *The Path to the Double Helix* (MacMillan, 1974). I agree there are very important issues both of justice and ethics in this matter, but I do not think partial accounts from one side or another help. The story is much more complex than Laurence King suggests. I am by no means convinced that the DNA case set a precedent which has subsequently been followed or that the morality of future scientists can be the subject of generalizations on the basis of the DNA case. There seem to me to be two necessities:

a) The fullest possible study of the DNA story, and this would have to include a comparison of Olby's work with that of Anne Sayre. I am assuming both have drawn on the notes by Klug (*Nature*, 1968) and the Ms. in his possession.

b) To tackle the much larger question of the ethics of scientific behaviour. The norm of "communism" by which he meant the obligation to share and acknowledge was advanced by Merton, changed to "communality" and taken further by Barber (1962), and by N. W. Storer in his *Social System of Science*. My impression is that the Mertonian norms were assumed to exist. More recent work has tried to examine how scientists actually behave and what values they subscribe to. What cannot be ignored in any enquiry into the value system of science is the relationship between science and the society in which it is practised; for example, does a highly competitive society encourage a highly competitive science?

C. E. Bohr was amazed in 1939 at the competitiveness of American

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science at the time of the disclosure of the Frisch/Meitnes break through. And again how has the growth of science and the development of its system of rewards influenced its values? The matter is not simple.

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Sentences

In the discussion on *Shardik*, Richard Adams speaks of fire and of reflections in water as metaphysical symbols. We are therefore giving as Sentences *The Burning Babe*, by Robert Southwell, which illustrates the former, and to which he referred, and part of *Shadows in the Water*, by Thomas Traherne, which illustrates the latter.

The Burning Babe

*As I in hoary winter's night stood shivering in the snow,
Surprised I was with sudden heat which made my heart to glow;
And lifting up a fearful eye to view what fire was near,
A pretty Babe all burning bright did in the air appear;
Who scorched with excessive heat, such floods of tears did shed,
As though his floods should quench his flames which with his tears
were fed.*

*'Alas!' quoth he, 'but newly born in fiery heats I fry,
Yet none approach to warm their hearts or feel my fire but I.
My faultless breast the furnace is, the fuel wounding thorns;
Love is the fire, and sighs the smoke, the ashes shame and scorns;
The fuel justice layeth on, and mercy blows the coals;
The metal in this furnace wrought are men's defiled souls:
For which, as now on fire I am to work them to their good,
So will I melt into a bath to wash them in my blood.'
With this he vanished out of sight and swiftly shrunk away,
And straight I called unto mind that it was Christmas day.*

Robert Southwell (1561- 1595)

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Shadows in the Water

*Thus did I by the water's brink
 Another world beneath me think;
 And while the lofty spacious skies
 Reverséd there abused mine eyes,
 I fancied other feet
 Came mine to touch and meet;
 As by some puddle I did play
 Another world within it lay.*

*Beneath the water people drowned;
 Yet with another heaven crowned,
 In spacious regions seemed to go,
 Freely moving to and fro.
 In bright and open space
 I saw their very face;
 Eyes, hands, and feet they had like mine;
 Another sun did with them shine.*

*I called them oft, but called in vain;
 No speeches we could entertain;
 Yet did I there expect to find
 Some other world, to please my mind.
 I plainly saw by these
 A new Antipodes,
 Whom, though they were so plainly seen,
 A film kept off that stood between*

*Oh ye that stand upon the brink,
 Whom I so near me, through the chink,
 With wonder see, what faces there,
 Whose feet, whose bodies, do ye wear?
 I my companions see
 In you, another me.
 They seeméd others, but are we;
 Our second selves those shadows be.*

*Of all the playmates which I knew
That here I do the image view
In other selves, what can it mean?
But that below the purling stream
Some unknown Joys there be
Laid up in store for me;
To which I shall when that thin skin
Is broken, be admitted in.*

Thomas Traherne (1637-1674)

Notes on contributors

RICHARD ADAMS, author of *Watership Down* and *Shardik* read History at Oxford, served in the army during the War and then became a civil servant in the Department of the Environment. He has now retired from the Civil Service in order to give all his time to writing.

ZETTE BARRON, having been brought up with a Gurdjieff background, did a diploma in sculpture at Hammersmith and then became an architectural model-maker. Now in her mid-thirties, she is married with three young children and lives in Leamington.

AMY K. CLARKE graduated from Newnham College, Cambridge in Classics. She was Senior Classics mistress at Cheltenham Ladies' College, and is now retired. She has recently published an edition of a mediaeval commentary on Claudian, and is author of *The Universal Character of Christianity* (Faber, 1950), *A History of Cheltenham Ladies' College*, and various volumes of poetry between 1922 and 1962.

WALTER FITCH is a member of the Society of St. John the Evangelist, Cowley. He has lived in India, where he taught at St. Stephen's College, Delhi, and then worked in poor districts in Delhi and Bombay.

EUELL GIBBONS was born in Texas and lived in a number of states of the U.S.A. in a number of off-beat ways. Latterly he

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became a writer and broadcaster, mainly on the gathering of wild food plants. His best known book is *Stalking the Wild Asparagus* (David McKay Co. New York, 1962). He died just before Christmas.

BRIAN GOODWIN was born in Canada, studied Biology at McGill University, Montreal, and Mathematics at Oxford, and did a Ph.D. in Developmental Biology in Edinburgh. He is now Reader in Developmental Biology in the University of Sussex, and has a book *Analytic Physiology of Cells and Developing Organisms* coming out in the spring.

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Cover Design

Fire: the first of a set of the four elements from 3500 B.C. Egyptian hieroglyphs designed and researched by Zetta Barron and David Elworthy. The three characters in this design represent a placenta, half sun and brazier.

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RESEARCH DESIGNS IN GENERAL SEMANTICS

Proceedings of the First Conference of Research Designs in General Semantics, held at Pennsylvania State University

Edited by **KENNETH G. JOHNSON**, *Department of Journalism, University of Wisconsin*

At present, the study of semantics is such a novel area of study, that very little is known about it. The conference was designed to incorporate "research" aspects of this science in all their forms. As the conference progressed, it became evident that the "cross-pollination" effect, claimed for interdisciplinary fields, was at work. Due to the language, experiential barriers, and varied backgrounds of the participants, a great diversity of approach was experienced, and is duly reflected in the papers.

Generally, papers in the "behavioral" section view general semantics as a discipline whose applications and implications are to be tested. On the other hand, "humanistic" papers report applications of general semantics as a research tool.

The conference agreed that, as yet, too little research in general semantics has taken place. This volume should arouse much interest in this undiscovered science, and stimulate further investigation.

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THEORIA to theory

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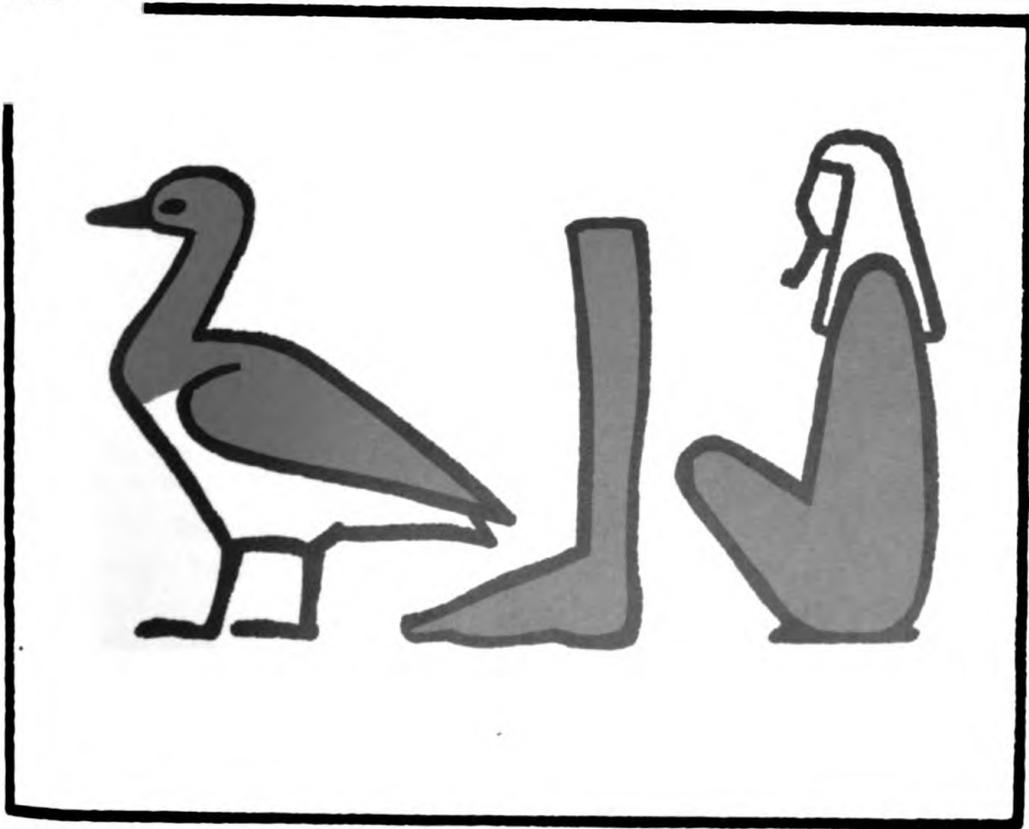
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Quarterly

An International Journal of Science, Philosophy and
Contemplative Religion

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Volume 10, Number 2 (1976)

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THEORIA to theory

An International Journal of Science, Philosophy and Contemplative Religion

Editors

DOROTHY EMMET, *Fellow Emeritus of Lucy Cavendish College, Cambridge, England
and sometime Professor of Philosophy, the University of Manchester*

ANTHONY APPIAH, *University of Ghana, Africa*

LAURENCE KING, *Jesus College, Cambridge, England*

Explorations in the sciences and technology that affect our understanding of religious and philosophical questions—these are the basis of this quarterly journal. *Theoria to Theory* holds that traditional religion has been primarily, and at best, concerned with mystical or contemplative experience; therefore it is important to a widened science in providing one source of insight. *Theoria* was the old Greek name for this insight; *Theory* here stands for an enlarged and revised scientific understanding. The journal represents an effort to keep the two terms with each other.

The journal was started in 1966, when this approach was outside current theological, philosophical and religious fashion, but times have changed, and the interests of *Theoria to Theory* have become those of an influential avant-garde. However, implementing the approach is not so easy. Real understanding proceeds at its own rate, and demands precisely the “waiting on God” that contemplatives should but do not always manage. Any other approach leads, on the one hand, to occultism, and, on the other, away from the spirit of adventure within science.

Editorial correspondence, submitted articles, and books for review should be addressed to The Editor, *Theoria to Theory*, 20 Millington Road, Cambridge, CB3 9HP.

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^AY 1976 issue

The Epiphany Philosophers, Gordon and Breach Science Publishers Ltd., 42 William IV Street,
London WC2.

Editorial

The discussion in this number is on Myth. It grew out of reading Lawrence Blair's book, *Rhythms of Vision* (Croom Helm London, 1975), which is also reviewed by Laurence King. The book brings together information on myths now in fairly wide circulation. The participants in the discussion, along with Lawrence Blair, are John Davy, who teaches at the Rudolf Steiner College in Sussex, Andrew Rawlinson, who lectures in Comparative Religion (mainly Buddhism) in the University of Lancaster, Tim Moore, who lectures on Philosophy in the University of Birmingham, and Margaret Masterman of our own group. We are also printing an article compiled from a longer study on the contemporary interest in myth which Gladys Keable had been writing before Lawrence Blair's book came out. This gives sources and evidence for this widespread concern.

These all speak for themselves and we do not wish to pre-empt what they are saying. We note, however, the difference between this kind of interest in myths and what has been the dominant anthropological view. This latter tied their interpretation to symbolizing people's relations with one another within a social system. On this interpretation, myths ceased to be looked on as esoteric or tall stories, but they also ceased to be interesting except for those working within this particular anthropological framework.

Then came Lévi-Strauss, producing a new and widely influential theory of the structure of myths. He sees them as displaying binary patterns of oppositions, which can be contrasted, reversed, or otherwise transformed into other logical forms of the same patterns. He is interested primarily in structure, but insofar as he ventures on interpretation it is again as symbolizing social relations. For instance, the long myth of Asvidal, which comes from a tribe on

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the Pacific coast south of Alaska, recounts a number of journeys, tasks, matrimonial adventures, on the part of the hero, and his son, all ending disastrously, and the hero finally comes back to where he started from. Lévi-Strauss suggests that the message of the myth is that matrilineal cross-cousin marriage in a patrilocal society produces tensions which have to be lived with—surely a complicated way to bring home what must be a pretty obvious fact. Yet Lévi-Strauss' contrasted oppositions could suggest a wider interpretation. When he speaks of the contrast between things which can be eaten raw and which can be cooked, this might well be how you would see most things if you lived near the starvation level. The division might also help you to bring more of the excluded category of the non-edible into the category of the edible by finding out how to cook it, and so be an invitation to a practical way of dealing with your most pressing problem. It need not symbolize social conflicts over food, or provide a compensatory dream.

Anthropologists were right in seeing that they could find out a good deal about how people see—or refused officially to see—their social relations and duties by studying their myths. This was a gain, but to win it these anthropologists played down the interest of the myth as also showing how people try to explain and relate to their non-human world—the world of physical nature, of animals, of possible gods and spirits. That the myth makers would tend to see the non-human world as an enlargement of the human, and so through the social forms which they knew, could indeed produce a spin-off for the anthropologist, but this doesn't mean that the social forms were what the myth was really about.

There are signs that some of the present generation of anthropologists are seeing the cosmological and religious concerns in the myths as matters to be taken seriously in their own right. So Robin Horton, in two widely discussed articles in *Africa* 37 (1967) on "African Traditional Thought and Western Science" fastens on the explanatory purpose as central, and looks for analogues and differences with scientific views of the world (a return to the approach of founding fathers of anthropology, such as Tylor). More directly on myth, there is Jack Goody's recent superb translation of and commentary on *The Myth of the Bagre* (Oxford 1973). This is a

myth from the Lo Daga of Northern Ghana. (“Bagre” refers to a ritual connected with shrines.) It is concerned with relations between God, man and “the beings of the wild,” who are subordinate (though not quite subordinate) to God. The elders say

“We follow
 God.
 He is the senior
 but we can’t see him.
 It is a god
 who comes down to people.
 That’s what we call god.”
 Do our elders say that
 God’s child is the one
 we follow?

The intermediaries are “beings of the wild.” In the first part of the myth, “The White Bagre,” they pretend to men that they have the secret of death, and can show how it can be escaped. But the second part—“The Black Bagre”—is deeper and more sombre. The people find that a being of the wild has deceived them over the escape of death. “We perform Bagre to learn the ways of God, but it isn’t true that it will save us from death. We don’t know where God lives—not in the sky.”

So there is a recurrent motif,

The affairs of God
 bring great suffering.

And therefore

we assemble
 our children (for Bagre)
 sit them down
 and give them knowledge.
 Then a child
 who is thoughtful
 will know the matter,
 which at this time
 we still perform
 so that one day
 we may help each other.
 These things we do,
 Though they can’t banish death.

The Myth of the Bagre is a religious poem and Jack Goody's translation gives it full recognition as such.

Myth is many-sided, and certainly its interpretation is not achieved through one approach. People tend to make their approach through some special interest. The interest of some of the participants in our discussion is in whether myths can sometimes point to the discovery of facts. These may be facts of past history, as when Thor Heyerdahl crossed the South Pacific on his balsa raft, the *Kon Tiki*, thereby showing that the stories in the myths of the Easter Islanders about how their forebears came over the ocean on rafts might preserve memories of actual fact. They need not only be "charters of social organization"—stories which have no necessary historical foundation but which people use to stake out their claim to a territory—which was how Malinowski saw myths.

* * * *

As we go to press, entries to our competition on how, if at all, religion should be taught in a pluralistic society are not yet in. Our own interest is not in the politics of religious education, so much as in the underlying philosophy of what it is to teach religion as distinct from giving literary and historical information concerning a particular faith. The latter is indeed, part of being educated, and is also examinable. But is it *religious* education? We hope to follow this up after the competition.

Errata

In Leslie Gore's letter on "The Morality of Scientists", *Theoria to Theory* 10/1, on p. 81 line 3 read "far fuller"; in line 27, "N. Bohr", and on p. 82 line 1 read "Meitner". Leslie Gore asks us to state that the blame rests on his handwriting, but editorially we are to blame for not having referred back to him with our typed copy of his letter. Proofs are not normally sent to writers of short comments unless requested, so we should be grateful if these comments could be typed.

REVIEW: RHYTHMS OF VISION by LAWRENCE BLAIR (Croom Helm, London, 1975)

(*The Discussion in the present number arose out of a reading of this book. We are giving this review by way of introduction to it.*)

In "Rhythms of Vision" Lawrence Blair touches on subjects as diverse as the proportions of the Pyramids and Bertrand Russell's theory of sense data. The justification for the meanderings in his delicate prose lie in his subject matter; he is not particularly concerned to increase our knowledge of the disciplines from which he plucks the various surprising facts, but rather to change the attitudes which lie behind our interpretation of our experiences. The central thrust of the book is an attack on the "rationalist myth" of a world of "objective facts", a myth which he says limits our awareness of reality to what has been already formulated and only partially described.

Rising in opposition to this myth, he notes other types belonging to the counter-culture, one of which he labels the "Garden of Eden" myth. These speak of times when men were more spiritually, and even, they claim, technologically advanced than they are now. Lawrence Blair sees this as concomitant with their more sophisticated understanding of the interrelations between the rhythms in the stars, the seasons, and the affairs and bodies of men; at this time, the myths say, men saw themselves not as separated from the world and attempting to master it, but rather as fully integrated with it. Though he argues for the plausibility of this, drawing on the Egyptians' and Aztecs' knowledge of astronomy and mathematics, and the discovery of a possible Atlantis near the Bahamas, the point of the myth is not in its truth but in its meaning—the suggestion of undiscovered laws which could affect not merely our knowledge of the world but our personal involvement with it. At the same time, he does also want to abstract the grain of truth from the ancient myths.

Thus, when he tells of Kirlian photography, he relates it to the older notion of auras. When, say, a hand is placed in an oscillating electric field, an otherwise invisible "electrical" or "plasmic" body can be seen emanating from it; the colour and shape of the "plasmic" body will be affected if the man whose hand it is is ill or angry. When a third of a leaf is cut away and the remainder is placed in the electric field, the "plasmic" body of the original undamaged leaf will last two or three hours.

A rather different case is Astrology, which he would like to see

replaced by a new science of “cosmo-rhythmology”; here matter is regarded as interacting energies resolved into order by coincident rhythmic variance. The effect of the moon on the tides has long been known. He says that it has now been found that oysters open and close their shells in tune with the lunar phases above them, and when moved in hermetically sealed containers, they readjust their opening and closing to the phases of their new position. Even the rhythmic fluctuations in the rate of the precipitation of various substances from water has been ascribed to extra-terrestrial influence.

When reading the book, one does occasionally wonder whether he has got his facts right, but what is wholly admirable is the curiosity and open-mindedness from which the book stems.

Laurence King

Discussion

Myth

JOHN DAVY, MARGARET MASTERMAN, TIM MOORE and
ANDREW RAWLINSON talk to LAWRENCE BLAIR, Author of
Rhythms of Vision

Margaret. I took the initiative in suggesting this discussion because I think that Lawrence Blair's book *Rhythms of Vision*, which expands his Ph.D. thesis, proposes a philosophy of myth which ought to be explored further. All sorts of things can be said about myths, of course, and myths differ in function from one another. But Blair envisages the new-old counter-culture myths (which are the myths in which he is interested) as being simultaneously symbolic pictures of "worlds" and also vehicles of normally unnoticed fact. And I think it is this view of these myths which should be further discussed.

Tim. The one thing I share with this perspective and also with Lawrence Blair's book is the sense that we are in a moment of rather radical transformation in human knowledge, theoretical, practical and institutional—that is, there is a challenge to what you call the scientific establishment. Now it seems to me that the challenge is something which does not essentially come from the areas of experience with which Lawrence Blair is concerned. It occurs within what are already the traditional concerns of the scientists. For example, take water. It is a fact, is it not, that there is no satisfactory theory of the liquid state of matter. So within the sciences there are challenges to their adequacy to deal with the phenomena they have set themselves to deal with. And so I find myself here because I believe we are undergoing a period of transformation; not, however, because

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I think the areas in which this transformation is occurring are leading us towards what is sometimes called the occult.

M. What I found challenging about Lawrence Blair's book was not its facts—they are the same old facts that *Theoria to Theory* has been questioning, grappling with or failing to grapple with—and some of the factual statements in the book are not accurate. What interested me above all was the passage where he says that in these counter-culture myths that are now spreading and circulating so widely, he thinks that what you have got is a symbolism which is at once new and old. I agree with this, but I want to ask him, how does it work? Indeed it is clear that very often you can't take it literally but you don't want to take it only as poetry or only as folklore. He says that there are new-old myths which keep on coming back and are beginning to solidify. Then, as well, he is saying they are still myths, so you have got to think what myth is like. You don't want myth that has no connection with reality, and yet when you talk about myths you are meaning something you interpret, but not in an obvious manner.

T. You know, I think we should not have a merely verbal dispute about the application of the label "myth." What is more important, I think, is to discuss the actual difference between different modes of apprehension of which myth might seem to be one. As I see it, one appropriate application of the term "myth" is the one Lévi-Strauss made of it—something in which you find expressed the whole practical and theoretical consciousness about the world of the people who possess the myth.

Andrew. You mean their whole system—a very wide term covering all available experience, though you delegate e.g. why the earth goes round the sun to other people concerned with those questions.

T. No. In the way I am using "myth" there is no delegation. Myths are wholes. Only when you get fragmented consciousness do you delegate.

A. Yes, and the act of delegation creates a hierarchy.

M. Why a "hierarchy?"

T. Delegation both implies belief in some sort of ordering and creates an ordering.

M. Yes, but not every ordering relation creates a hierarchy;

you can have networks. Are you referring to a chain of authority or to a division of labour?

A. The essential notion is that of an evaluative ordering of the universe; for example, a man may win the Nobel Prize and still be a complete fool and know nothing. Another man may be wise and still be illiterate. This distinction is happily controversial. The questions you ask the wise man are "How can I go through life without suffering?" The questions you ask the Nobel Prizewinner are e.g. "How can we get a rocket back into the atmosphere without it burning up?" These two operate on quite different levels; in the terminology I've used, wisdom includes (mere) knowledge. Broadly speaking, the scientific myth is concerned with knowledge and the myths that are being generated now are concerned with wisdom. Of course, wisdom myths are as old as mankind, but the difference now is that the scientific way of dealing with problems has so inter-fused our language that it is now *included* in the wisdom myths. But the word is "included." And this is why I use the term "hierarchy." That there are different levels of the universe or of consciousness (and ultimately cosmology and psychology are identical) is a primary datum.

T. This is surely why a mere reference to the division of labour is inadequate. There are not just tasks to be distributed. The tasks belong to different ways in which different myths organize the field to be studied, and the question is whether these ways form a hierarchy.

A. I introduced the word "hierarchy" and I stand by it. All interpretations of reality are hierarchical.

M. They are not. This is a well-known fallacy which is always cooked up to justify authoritarianism. Real societies and real conceptual schemata are much more various and complicated.

A. What we and Lawrence Blair are trying to get at are different ways of dealing with the world, and myth is one which potentially must deal with everything.

T. Everything in the experience of the people who have the myth.

A. But their experience can alter.

T. Then the myth must still handle it.

Lawrence. I am saying that the world isn't as cut and dried as those who see it in the purely "objective" way claim, but the way to get further into the underlying order is through personal experience. So the attack is not on establishment science, but on the philosophy into which we have been conditioned.

M. Let me quote from your book:

When the ancestors of the Blackfoot Indians awoke to being naked and lost in a world of so many things they asked Old Man, their Maker, how they should live. He told them to pray, to sleep and to listen carefully to the animals which appeared in their dreams. In this way, their legend goes, they derived from their sleep power which stilled fear and, from the creatures of their dreams, knowledge of how to hunt, and build fires and shelters; and they flourished. (p. 3)

L. Their dreams gave symbols.

M. But how did they find out that fires could be used as cooking fires? We need not just symbols but actual fires which can be used to cook our supper.

L. The practical side of living must be founded on our underlying philosophy. The material requirements must spring from this.

M. You may discover things through your philosophy, but you also need a technology every time you start a fire with sticks or strike a match. If your practical living has to be founded on your philosophy, it is also the case that you have got to have something practical and isolatable out of which you make your philosophy.

L. You have first of all perception—our capacity as developing children to be aware first of all of light.

M. I have had developing children and the first thing they were aware of was sucking.

L. We are talking about development of consciousness.

M. But there is still a practical side. I thought your book was saying that we have these myths, and I want to ask what is their connection with fact as an instrument of discovery? It is because you say that myth can be an instrument of discovery that I think your book is a brave book, since you are wanting to say that for this reason there is much less contrast between these total myths and scientific myths than is sometimes thought.

T. I want to fasten on perception of analogy as crucial. If you

make this a bare appeal to experience, as in my reading of Lawrence's book he does, nothing has been added beyond a rhetorical appeal. It may be possible to give an account of analogy of a more rigorous kind.

L. I'm not sure we are very clear about myth yet. In that chapter I am distinguishing the question of what it is we mean by objective knowledge, when we are told we are diaphanous bags of atoms, indeed of vibrations. So first there is the scientific myth to be examined more closely. The second type of myth is that which emerges in the dreams of the Blackfoot Indians and re-emerges today in our dreams. Beneath the rational currents of our time are emerging these myths from people's dreams, myths for instance of Atlantis and Flying Saucers. These are signs of a broader concept of meaning and of time than the one given us by our scholastic knowledge. People want to know how knowledge is going to relate to my particular understanding of life, of how I stand, and for that one can draw as much from the interior myths which are about in the co-cultures as one can from the "higher" realms of objective knowledge, and it is in the links of the two kinds of myth, those of objective science and those of interior feeling, that we approach the world view of which we find ourselves on the brink.

John. Excuse my intervening, but I cannot make out how you are talking about myths. On the one hand you seem to be talking about them as stories we tell about the universe, and then you talk about them as the consequence of having a different sort of consciousness. For me, I think it is more interesting to see myths as matter of fact descriptions of unusual experience, if one is willing to take as a serious idea the possibility of a shift in people's general everyday consciousness, such as Rudolf Steiner has described in his philosophical works.

M. Can you characterize this shift of everyday consciousness? In my reading of Steiner, I find passages where by "change of consciousness" he really means this notion radically, but most people who talk about change of consciousness water this down into something nearer a change of mood. I don't think in the strict sense people today have had a change of consciousness; they have had a change of philosophy and a change of mood, a change of myth in Lawrence's

sense, but not an actual change of consciousness. I think it is an interesting thought that a myth may be an actual description of what happens to you in another state of consciousness, but then I say you still have to interpret the myth by explaining the nature of the other state of consciousness.

L. Doesn't a change of philosophy and mood precede a possible change of consciousness?

J. I think it is the other way round. Didn't a change of consciousness make people start doing philosophy?

M. I think the question as to whether and how corporate human consciousness has developed is too difficult to discuss now. Surely the change of consciousness the counter culture talks about has generally been one produced by drugs like LSD. That does literally make people see colours, for instance, differently. It alters the world for them. Their perceptions alter. So it is a change of consciousness in a strong sense.

J. I prefer to refer to what we experience every twentyfour hours in the process of moving from dreaming to waking up. You can try and describe your recollection of waking up.

L. What is required is for individuals to centre more consciously on their own dreams if we are to get further in dream research. An individual can look at his own dream symbolism and see how it develops.

M. This is the technique of Freud, though you are not looking for Freud.

A. Charles Reich (not Wilhelm Reich) in *The Greening of America* has a notion of three consciousnesses, 1, 2, and 3. C1 is individual consciousness, C2 what he calls that of corporate man (Government etc.) and C3 is in the sub-culture. Consciousness 3 is what members of that sub-culture automatically recognize in each other, for instance, when hippies wave to each other on the Freeway. Reich uses the notion of consciousness to describe what is in common between a group of people who share certain pictures and interpretations of the world, not *bits* of the world, but *all* of it.

M. Yes, but this is even worse. We lose the whole point of using the word "consciousness" if we use it to mean just change of manners, like waving on the Freeway.

J. I grope for it like this. If you go back to the old mythologies, the stories people tell about the universe which are deeply imbued with their culture, they use what we would call symbols—images which are many-layered and have multiple meanings. Where else do you find that? In dreams. That has been established since psychoanalysis. I don't think it is an accident that that is so.

M. As a way of creating symbolisms that may be right, but when it comes to examining the content of them, though, that's another thing.

L. When you say created, they are not created by us—they are data given; they structure themselves as micro-organisms do. This is the key to experiential philosophy and religion, which my book is about.

M. They are and are not created by us. People who say that we have a too limited materialistic view of the world, and that vast areas of the universe are left to be explored by myths, don't want the myths to fail to tell you about it, but to succeed. Dreams, as seen by primitive people, weren't ways of letting out your sex or projections; they were ways of getting revelations which the wise men of the culture could then interpret.

J. Or it was the wise men who themselves dreamt them.

M. Yes, indeed—pre-eminently so.

T. To return to the question that keeps coming up—why should the belief in the existence of these unexplored areas be described as mythological? Take auras, for instance, Why should they be described as part of mythology? It seems to me that why one is led towards saying this is that, for reasons one is not able to pin down, these beliefs go along with a lot of other beliefs, i.e. those in occult phenomena, whereas in fact all that is possessed in common by things described as occult is that they are not able to be dealt with in traditional science. I would argue that this whole so-called occult movement of ideas is a mirror image of science; it exists simply as a kind of reaction against science, with no further coherence of its own.

M. This is just not true. Again and again phenomena—I won't call them occult or non-occult—which in some particular ancient culture people were initiated into knowledge of, have passed into

being apprehended by more people and then passed not only into science, but into things we take for granted. So the long term process of getting hold of something new, which in the first instance is only available to some initiate, ends up as something from which a new drug, say, or a whole new science, or even sometimes a new world view can come.

T. I'm not contesting that. Lawrence has a number of chapters dealing with various such topics—numerology for instance. But are they all brought together? I think there is nothing in common except that they are not assimilable in current science.

J. I think there is a fundamental reason why these things are now being collected into books. It is because there are a large number of people who have had experiences with which these mythical accounts resonate. Some because of drugs, some because of dreams. And so there is a slight shift in our general consciousness.

L. I think myths are concerned with facts because these can be used as springboards to get to experiences.

M. Yes, but it is not just a question of experiences resonating with these myths. There are also phenomena which should be investigated.

T. I agree, but they should be investigated separately. Why, if a person experiences something under LSD or sees the Great Pyramid in a certain way, or photographs an aura, why ever should we regard these cases as belonging together?

A. All you need do to see why they belong together is read Patanjali's Yoga-Sutras where it is said that you can manipulate the actual mind stuff and you will then enter a world of a different level of consciousness where the subtle body, telepathy, clairvoyance, etc. all operate quite naturally. To me this explanation makes sense.

M. Yes, but some of it is much simpler than that. In the world in which we now live some things actually happen and people pretend not to notice. Phenomena can come into and out of the centre of science according to how the cultures develop, together with the scientific fashions which go with them. Most people never dream there can be such a thing as a change of consciousness, giving access, as it is claimed, to another world, until something which is extra-

ordinary in terms of this present world actually happens to them. And when something extraordinary does happen, there is a lot more to it than just a mythological event. A friend of mine got a fractured ankle; it was X-rayed and there was a delay before they could deal with her at the hospital. So two of the staff asked if they could lay their hands on that ankle and meditate, which they did for two hours, and the fracture disappeared. She could walk on the ankle, and there was no trace of a fracture in a second X-ray. And all the hospital could do was lose the X-ray. It is that kind of attitude from science—an attitude which loses unwelcome evidence and blots out unwelcome events—which we have all got to fight, not because we have read the Sutras, but because such an attitude is a betrayal of science itself; it is plain unscientific. There was another time when it was said that if you planted cabbages just before the full moon they would grow better. I can remember sneering at that when in fact I could have tried it in my garden. In the end some better men than I tried it under controlled conditions, both in Eastern U.S.A. and Australia, and found they grew one third better. Then a well-known scientific journal, in reporting this, said, no we won't say there was a *ray*, because that would be unscientific, but let us say a "factor R" was involved. Then there was Uri Geller's spoons. I tried for a long time to say people were being hypnotized by Geller to see and touch imaginary bent spoons, but now the whole place is cluttered with bent spoons—spoons bent by Geller, bent by patients in mental hospital, bent by children, bent by our friends. So we now have to pass to asking what is the significance of these spoons.

T. But the whole of human life is full of surprising and unbelievable things, and yes, I agree, we try to keep to our way of doing things by trying to blot out the new phenomenon. Of course it is not a praiseworthy thing to do, but it isn't peculiar to science. Nor, I repeat, does it seem to be the case that if you draw attention to these widespread phenomena it provides a reason for thinking they are all of the same kind in any way other than that you aren't able at present to deal with them.

L. They aren't all of the same kind, but, taken together, don't they point to the existence of a broader dimension of the universe?

M. They may or may not. It does still matter how big a revision of science you have to make to deal with any one of them, and how big a reinterpretation you then have to make, consequent on these revisions of science, of your view of the Universe. We want to take a hard look at the kinetic theory of gases, and we might find that Geller and his spoons didn't require all that big a revision. I am not unsympathetic, Andrew, to your desire to go back to the Sutras. But I want to take the more difficult step of going forward as well.

A. Did you say that a generalization and restatement of the kinetic theory of gases might deal with Uri Geller's spoons, as well as with biologically based cases of plasticity being produced without heat, like healing scars? If so, I am delighted.

M. Yes, but don't take this as granted. It's only a suggestion. Such a revision is not made till it is made.

A. But thousands of people have abandoned the materialistic metaphysics. It isn't necessary to the empirical method of science, but it has been assumed. Whether science will adapt itself to mankind gaining a new kind of consciousness or get left behind as mediaeval theology did is something I don't know and I don't much care.

M. It seems that there are many kinds of degrees of revision which existing science must and can weather. But in the end you say, why not make a fresh start and put the extraordinary things into the centre of the picture? It is then, as Tim reasonably says, you must ask, can you be sure they all go together? It may be that some will cluster and a revision deal with all of them, and others won't. Don't forget that bits of paper sticking to amber was once a happening calling for a huge revision in science, but no one for fifteen hundred years saw this.

A. What you are saying is that it isn't simply a matter of pushing at the edges of science; you may have to do something like turning a glove inside out. This fits with what Lawrence says. He wants to go in one big bang from explanations of the cosmos as it outwardly seems to be to explanations of the cosmos as it happens to me as an experiencing entity, and only secondarily say "is it possible that the science we have with all its superb structures can be reasonably pushed outwards?" That in general I might be

interested in. But I'm not really interested in whether the kinetic theory of gases can be pushed outwards to account for the spoons, though, as I said, I should be glad to hear it.

L. If you aren't interested in that, why are you interested in the spoons?

A. Because they indicate a potentiality of human beings to transcend the physical universe and this affects how I live. As a person going through life and making mistakes and causing suffering, I want a picture of the world which will prevent these mistakes and suffering happening. I don't want sophisticated physics. I don't now believe in a post-Humean view of the universe, and therefore I have ceased to be interested in any version of the kinetic theory of gases. Or rather, I am interested in it secondarily. But how is any revision of the kinetic theory of gases going to help me in any way to bring up my children and other things I have to do?

M. It is precisely for things like bringing up one's children safely and steadily that the kinetic theory of gases, and any attempt to revise it, is wanted. The fact that the counter-culture has made a unified total myth out of a collection formed from certain chosen myths is primarily a sociological fact. In so far as some such myths in the past have pointed the way to actual discovery, such a fact is a general philosophical fact. And in that case we look at which myths pointed the way to such a discovery and separate the method, which may be dream-like, from what it points to. Now John wants to stress the possibility that myths, as well, may be literal descriptions from another state of consciousness. I don't think this excludes their sometimes containing discoveries: but it would account for Lawrence in his book trying to unify them. And therefore it's John, not myself, or Andrew, who has something with which to answer Tim.

J. Can I add something to that? I like the implication of Lawrence's taking science as one kind of myth, if it means that you have to take seriously the possibility that what goes on in your mind can affect what goes on in the world. Let's leave aside the spoons, and take healing cases as Margaret did earlier. You can challenge with them one of the dominant myths of science, that what goes on in your mind is quite apart from what goes on in your body

and therefore in the world. This myth is breaking down in medicine itself but most other working sciences still go by it.

M. Well, how can you work otherwise?

J. Why does this myth of a firm and separate outer world, which myth is now dissolving all over the world, come about? It is like the process of waking up. When you awake out of a dream you say “there is the world out there and here I am here.” It is a useful form of consciousness, which in everyday life we most of us go about with for our own safety. And it mostly works out. I can think what I like, but if I think that table will explode, it won’t actually—thank goodness. So, in ordinary life, I can think in ways that won’t affect nature.

M. And this doesn’t mean only that in ordinary life if I’m suddenly in a black temper, this temper won’t kill my children. It means also that, for the most part, we may engage in an intensity of investigation within science of various aspects of nature without our work affecting what occurs. Without this possibility, we would always have had, even when experimenting or constructing apparatus, multiple layers of appearances and, as Andrew said, things “pushing out” conceptually and perceptually in all directions, and we wouldn’t be able to simplify our observation of anything enough to know more about it. This stability of the ordinary universe is a precious thing, so long as we are self-conscious about the limitations of what we are doing when we experiment and don’t remain within the area of stability to the exclusion of exploring anything else.

Could we get back to your suggestion, John, that myths could be literal descriptions of new states of consciousness? The big example of this in recent medicine is given by work on schizophrenics who, it is suggested, may be responding to altered states of consciousness of which they are trying to give a literal and rational description. The tragedy then is that, if this is so, and unless someone is prepared to take the literal description seriously, the person who has the altered state of consciousness will be certified as insane and locked up. When we take these altered states of consciousness as seriously as ordinary consciousness, we shall see our notion of madness is very oversimple.

L. I am interested in pointing out in my book that there are a whole lot of different grids through which one can perceive reality, and if we look through some of the other grids which are not always the conscious ones, then through them we can see changing patterns of belief. These patterns should be taken seriously. In my book I try to bring out that facts are relative. We have put our emphasis for 200 years on what is said to be factual. But I have wanted to say that our facts are as changing as our myths.

M. Not quite, no—unless you adopt a totally relativist and pluralist kind of philosophy of science. But if such a nihilist philosopher of science doesn't get his supper at the right time, facts obtrude. There must be sophistication about the notion of a fact but one also uses facts to question facts.

L. I caution people that facts change.

M. They do, but normally not that much or that fast. I thought your book had a certain respect for facts. It isn't only that ancient myths taken from different cultures differ. It is also the case that in this century the descriptions of an alleged other world given by spiritualists mutually differ, and these differ again from the more science fiction descriptions of other worlds given by Rudolf Steiner and these again from descriptions of Out of the Body Experiences.

As I understand Steiner, what he is saying is that the first step in the investigation of the nature of possible other worlds, as they may be perceived by people in altered states of consciousness, is for each percipient to write an account of what he sees, even if these accounts are then seen to differ. But this is only the first step. As Steiner says, the accounts differ: and so the possibility which I suggest is that they each symbolize in a sort of code. If this is so the question next arises, can anything be done to break this code? For if it cannot, then I think nothing can be done, for, given that all the accounts differ, all we come up against when we start reading them, is each others' deepseated subjectivity.

Most people, and especially most seers, won't accept this possibility of coding, for each insists on the acceptance by others of the literal existence of what he, from his altered state of consciousness, has seen. Steiner says that people should write down what they

actually see. But I think of such an account as a symbolic statement coded in some kind of code. The business of breaking the code is sophisticated, but it isn't the case nothing can be done to try it. This is my quarrel with the normal run of anthroposophists. They don't try it. They insist on all Steiner's accounts of what he has seen being taken as literally true. But why should I believe what Steiner sees rather than a Thai grandmother who sees spirits? You have to believe in some possibility, however sophisticated of code breaking. Now back to myth. In so far as myths are also a code, like allegories and so on, it might be the case that a myth isn't so much a pre-scientific discovery statement (that you are going to find quinine, say, or a new continent, or that you can guide yourself across the seas by wave patterns). It is more like the psychical code. The symbolic coding of a myth, if John is right, is necessary.

A. What do you mean by "code?" I can understand the notion of a picture or network, but how does a code come in?

M. In Robert Monro's "Out of the Body Experiences," he found a pre-determined way of getting out of his body and going to a house and observing about twelve points, of which one had to be a time reference, such as the position of the hands of a clock. Then he would return to his body, ring up the people in the house and check these points, which he had observed, and in a high proportion of points he was right. But there were always certain points about which he was not accurate. One such arose when seeing a family of people sitting at breakfast dealing out playing cards. When he rang up and told them he had seen this, they said, it is extraordinary you should say this, we don't usually distribute our letters at breakfast but just that day and at that time for the following reason we did. The code, then, which his perceptual "other consciousness" was using included using "playing cards" to mean "letters." Such a consciousness, says Monro, perceives one thing and it turns out to be another. He says our perceptions, normal and abnormal, don't allow a vacuum. One guesses. Ordinarily one's guesses don't lead to discrepancies, but "out of your body" this perceptive faculty can and does fill gaps with percepts which it creates, to supplement, or even to supplant, observations of objects or situations which it perceives.

Now take the “other world objects” perceived and recorded in, for instance, Steiner’s esoteric accounts of other worlds. There is no way of checking, as Monro could by ringing up, as to the relation of what was “really happening” to what was perceived. But I want to ask nevertheless if there is anything you can do to get an indirect grip as it were, on all this data, such that it will produce an analogy to the possibility of code breaking? Because if we are just left with saying Rudolf Steiner sees one thing and the Thai grandmother another, where do we go?

J. I think there is a lot of common ground between all the accounts. There are cosmologies in oriental literature which are talking about the same sort of thing as Steiner is talking about: for instance, the subtle anatomy of man. You can parallel Steiner’s hierarchies and Indian cosmologies.

M. But you can’t parallel these, I think, with the African accounts.

A. Isn’t it like seeing something from different angles?

M. You hope sometimes it may be, say, for instance, in the perceived “aetheric” extension of an organism, which suggests the possibility of an extension of physiology. But not when you take accounts of what happens at birth or death or between death and birth and/or of the other world. You feel that these people have indeed a faculty which is alike in them all, but what disagreements there are in what they see!

J. Look, I agree. While the consciousness is changing you have got to have both consciousnesses at once and also to keep your critical faculties going.

A. What I stand by is that there is enough evidence that there is an extra dimension to be investigated, and you have got to do something with your consciousness in order to develop it. But the ordinary person doesn’t need to know how these things work, any more than how a car works if he is to drive it. He wants to know how they can help him get through life.

M. As I said earlier, I don’t agree. It might still be the case that, for instance, we could see better what it means “to make a good death” if we could understand more about how to interpret the accounts of death reported back by people who say that they have become aware of other worlds.

J. I agree absolutely about this. To treat spiritual traditions and techniques as comforts for living is on much the same level as living on pills. I don't see that we can have either freedom or responsibility without insight. But the problem of relying on other people's insights, or breaking their codes, is of course a very real one. But I think it is a problem at several levels. The first is the common sense one. A lot of my picture of the ordinary world is based on hearsay—about China, for example. I have never been there, but that doesn't stop me being interested in the accounts of people who have. Of course, the travellers go to different parts of the country, are interested in different things, and vary a lot in their reliability as observers. You have to take your pick, and learn to read between the lines. I find Steiner particularly lucid, and he also maps out a coherent way of taking the journey one's self, even if it is a very difficult one. But a much deeper question is how it is that I am able to make any sense at all of these travellers' tales. What is the relation of spiritual experience and ordinary experience? Are they separate, or simply distinct? I think Steiner's special interest in a scientific age is that he also offers an account of knowledge in general, and epistemology. Perhaps the key thought here is his claim that real thinking—that is, disciplined thinking—has in it an element of spiritual experience, and he invites you to check up, essentially, by careful self-observation. This makes the obvious starting point for any further journey—a journey you can begin without blowing your mind.

M. What is attractive in Steiner that he not only says this enlarged consciousness could be a step forward, but also he says, keep the two consciousnesses going together, and bring your critical powers to bear on both.

J. Yes, but in what way could they go together? According to Steiner, the next mode of consciousness we can explore—he called it Imagination—is very different from the subject-object thing-consciousness on which we have built science so far. It is like dreaming, or remembering, but much more awake and vivid—as much more awake compared to ordinary waking as being awake is to dreaming. And it is not static, but mobile, dynamic and embodies imagery, symbolic imagery. It's like plunging into a river rather

than standing on solid earth. I'm sure that Jung knew this realm, but he never resolved its relation to science. It shows up under drugs and in some pathological states, but is usually then just bewildering. So why explore it? Because while science based on subject-object consciousness can grasp very securely and clearly the properties of inanimate things occupying three dimensional space, it can't grasp the reality of organized living processes at work in time. Fringe science may talk about subtle bodies and so on, and we may learn to manipulate some aspect of life processes, but it could be dangerous know-how without real insight.

According to Steiner, we shall need Imagination to grasp life as securely as we have grasped matter in classical science with mathematical thinking. Indeed, he sometimes described Imagination as arising out of a kind of intensified mathematical thinking. But what appeals to me about his approach is that he saw the way forward not as blowing our minds, but as developing further capacities we already use for science. He saw that science is really a spiritual schooling, but rather revolutionary compared to older forms of spiritual discipline in that it can be freely undertaken by anyone, independent of the authority of a teacher demanding obedience. What we call science—at least up to classical physics—Steiner saw as the first stage of a discipline that can be extended. We've learned to grasp inanimate reality with mathematical insight. That took several centuries of effort. Now if we work hard enough, we can extend our insight, add a further mode of awareness, and begin to explore the real processes at work in living and sentient organisms. Not research as manipulation from outside, but research as a path of insight.

If Steiner is right, then we may begin to recognize the older myths as descriptions of a mode of experience akin to what Steiner calls Imagination. But our passage through the subject-object mode of consciousness has brought us the possibility of a quite new relation to this so-called myth world. The older myth-makers experienced themselves as children, so to speak. They were dependent on the worlds they experienced in what we would call clairvoyance. We owe it to our journey through science that we can begin to rediscover that world as grown ups, as researchers not dreamers. /

That's the trouble, though, with too much undisciplined wallowing in other modes of consciousness, or in the older descriptions derived from them. Without discipline we can plunge into experiences which are simply disorienting. A lot of what is called the counter-culture reminds me of non-swimmers diving into a powerful river and just about struggling back to shore before drowning. And some people are drowning. But I don't think we have to counter anything except dogmatism about the limits of science or human consciousness. It will be very important, though, to see that learning to swim properly—to research the realities of the subtle bodies and so on—will entail inner disciplines as difficult, or more so, than the disciplines of learning to walk securely in the world of inanimate things that we have spent the last few centuries acquiring.

A. The repercussions on your life and actions will be greater, and you can't play about with this.

The renewal of myth

GLADYS KEABLE

Britain is developing a new mythos. I use the word “mythos” rather than “myth” to introduce what I have to say, to make it clear that I am not talking about a tale which has, according to the Shorter Oxford Dictionary, “no foundation in fact,” but in the sense in which Vedanta or the Christian *Credo* are myths, that is, an attempt by the creative imagination of man to express inexpressible, but experienced, reality, and to reactivate the power which is known to lie hidden within it. The trouble with myths is that, in a given form, they cease to be credible and when even the original experience is forgotten, the great demythologizing campaigns begin. However, since we cannot live fully without creative imagination, they are bound to return, often in unrecognized forms. This is what Roszak’s *Where the Wasteland Ends* (Faber) is about: it is a must for anybody who is bewildered or despondent about the present cultural (or anti-cultural) scene.

Since Britain’s new myth is still growing, it is naturally not yet apparent to the general public; still it is significant that press and public begin to take it seriously at all. For instance, here is a passage from *The Times*, September 16th 1974, which at first sight looks very trad.

“King Arthur is not dead; Cornwall for ever” the bards of Cornwall cried when they met in annual assembly on Saturday. Mystically attired in blue robes, they touched a sword that represents Arthur’s Excalibur, swore fealty to “Cornwall the Motherland”, and affirmed that the ancient Celtic spirit West of the Tamar river was by no means dead.

Interest in all things Cornish, the legends, the history, the old language and culture, is growing. Small groups are learning Cornish in evening classes and more people are sitting the bardic examinations which test competence in Cornish. The Gorsedd, or gathering of bards, revived in 1928 and once widely ridiculed, now attracts interest and respect . . . The ceremony, conducted in

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Cornish, started with trumpets and prayers and a song about King Arthur, symbol of the Celtic spirit . . . The ceremony was decorated with flower dances and offerings of fruit and ended with the traditional cry of peace. But the bards put their hearts into the penultimate cry of "Kernow Bys Vyken," "Cornwall forever."

After the subsequent resuscitation of Cornwall's Stannary Parliament, sceptics might reduce this to another piece of regional nationalism, but if so, it amply illustrates the point that we can best whip ourselves up to our crusades by plunging into the "sacred time" of mythological ritual.

Moreover, a younger generation journeys in the same spirit to Iona or to Stonehenge; their pop festival at Glastonbury, let us note in passing, used a great metal pyramid as its central structure. These junketings (no disrespect intended, pilgrimages were always that), now called "happenings," are held at the solstices or their christian equivalents. So correspondence in *The Times* of the same date as our previous extract is obviously on the wrong track in suggesting that there should be one carefully sited national pop festival site "incorporating all essential facilities" somewhere in the middle of England. The one facility you cannot build in is the ancient power or sanctity which is sought in the pilgrimage site, so if a vast stadium is built and stands forlorn, anthropologists will have to be called in to know why the natives shun the place. Because of course they won't use it, getting together is not what the myth is about; and perhaps we should now make an attempt to sort out its main features.

It runs something like this: Britain in this new Aquarian Age is becoming again what perhaps it once was in the megalithic and bronze ages, the spiritual centre of the world. The sacred places of those times, the great stone circles, were not only solar and lunar observatories, but places of seasonal magnetic power, where man's spiritual and psychic potentialities were greatly enhanced, and healings took place, associated with underground water flow, and with sound or other vibrations. The hills and valleys for miles round these centres were landscaped into giant zodiacal shapes, so that earth became a map of heaven. The first of these shapes was discovered in 1929 centring on Glastonbury, which brings us back (at a much later date) to those legends of Arthur, for another feature of this complex myth pattern is the way in which it reshapes itself

from age to age, through totally different cultures, round the same holy places. Stone circles become celtic forts, castles and round tables; the search for ancient wisdom and power becomes the search for the holy Grail; and so on, until we find ourselves in the Middle Ages, with churches and cathedrals still aligned on the old tracks, using the same holy wells and springs, and—yes—secretly incorporating the same alchemical and astrological techniques.

Now comes the great surprise. For lay people, anyhow, the new myth is more than holding its own, it is presenting established disciplines like archaeology and ethnology with questions to which they haven't the answers; perhaps presenting them brashly, but so far there are still no answers.

Take for example the myth's basic feature, the siting and use of sacred places in prehistoric times. Alfred Watkins¹ was an honest, down-to-earth brewers' representative, who travelled Herefordshire from end to end in the course of business, and so got to know the countryside intimately. One day, looking down from a hilltop, his half-conscious knowledge surfaced and he saw the whole landscape before him criss-crossed by a web of straight lines and dotted with cairns, stones, mounds, pillars, and notches in the skyline of the hills, all aligned on straight tracks—marking the holy sites of antiquity and continued by the siting of churches right up to his own day. He began marking out the sites on a one inch ordnance map. Since then evidence of these straight alignments has been found on every one inch ordnance map of Britain, they covered the whole country. There is nothing esoteric about the information, everyone can check it for himself, and it has also been done by amateurs, members of the Straight Track Postal Club, formed by Watkins' admirers. He himself struggled to find a (literally) pedestrian explanation for it, but of course he could not, since what he had rediscovered, like Aubrey at Avebury, was the magic landscaping of prehistoric Britain. This is an essential difference between ancient and modern myth-making; it no longer depends on hierarchic authority; its value—and its danger—is that any group of intelligent amateurs can test its foundations.

Going on to the astronomical use of the sites, we find even stronger evidence is all the time coming to light, so that after the

work of G. S. Hawkins² and later Professor Thom,³ who has done detailed measurements of six hundred megalithic sites up and down Britain, it is no longer possible to doubt the extraordinary mathematical sophistication of the unknown megalith builders. Or take the landscaping round Glastonbury. Naturally, when this giant zodiac patterning of hills, valleys and rivers was first noticed in 1929,⁴ there were many sceptics. Now, however, since it is known that such landscaping (to assist the path of the dragon) was regularly undertaken all over China, right up to the revolution, it does not seem so cranky to believe in the Glastonbury zodiac, particularly as the truth or otherwise can be (and has been) checked from aircraft.

Speaking of dragons brings us to less easily established features of the myth, but deeply rooted ones, for dragons and winged serpents are persistent elements of our myth, carrying on into celtic times and then on to St. Michael and St. George. The choosing of sites, it was said, depended on seasonal earth power in those places, spoken of as serpent or dragon power. Stukeley's sketch of Avebury in his day⁵ shows long stone avenues and circles so arranged that the whole complex represented the twin symbols of alchemical fusion, the serpent passing through the circle; for which he was laughed out of court. But today, as we realize the universal use of this ancient wisdom-healing symbol in Egypt, India and pre-columbian America, Stukeley's description seems less foolish, particularly as the same symbols were still of paramount importance in celtic-british healing shrines, especially those connected with thermal waters. Well, is there strong geo-magnetic influence in these sites? Guy Underwood, a dowser, set out to test the theory.⁶ It seems there is, and many of the sites are on multiple crossings of underground streams. Indeed every megalithic stone, dolmen, menhir, etc. marks a specific feature of an underground water flow. Other dowsers (e.g. Lethbridge), confirm his findings—but you can confirm it for yourself if you have the dowsing faculty, which is quite widespread. A fascinating follow-up to all these findings is the work done on gothic cathedrals by two Frenchmen. The first, Louis Charpentier, has shown, by a detailed study of Chartres, how every feature of these prehistoric beliefs and techniques is still retained in its construction and use. The site is that of a large prehistoric mound

over a dolmen, the natural meeting place of several underground streams producing strong seasonal tellurgic currents. The tensions of the gothic arch, we are told, reproduce those of the prehistoric stones, thus creating an enclosed area with currents of power having extraordinary effects, which can be further evoked by particular sound patterns—such as plainsong. The astronomical alignments are there, and the landscaping patterns, also the seasonal pilgrimages and the healings. Nor is this a random comparison, since the units of measurement for the construction of all these sacred buildings turns out to be identical.⁷ Chartres was the site of the gaulish druid college. The other evidence from medieval times of continuity of tradition comes from Fulcanelli, the mysterious modern french alchemist, who has now disappeared. Alive or dead? Nobody knows, but oddly enough, on one of his two reappearances since vanishing, to a disciple who knew him well, he appeared thirty years younger.

This man, Fulcanelli, left a book with his pupil Canseliet in 1925, called *Le Mystère des Cathédrales*.⁸ It is about the construction and decoration of Notre Dame de Paris, and shows, through illustrations of a series of sculptures, that the cathedral is a manual in stone of the whole process of alchemy—which could include, but was by no means wholly about, the change of base metal into gold. It is suggested by a reader of Fulcanelli that “the gothic cathedrals have for seven hundred years offered european man a course of instruction in his own possible evolution.” The book also, one might say, provides a philosophic cornerstone for the myth, consolidating it is so that now innumerable problematic phenomena can find their proper place within it. For alchemy is about the very substance of myth, “mana,” cosmic energy, transmutation. It was already on its way up when Jung discovered that the concern of the “great work” of alchemy was man’s own consciousness. But after the splitting of the atom, transmutation had to be recognized as a possibility belonging to the outer as well as to the inner world, and this means that the alchemic myth has to be looked at, for the first time, seriously. Pauwels and Bergier have done this in their predictive work of 1960 about the fantastic, which afterwards became an over-the-million best seller.⁹ Bergier, a chemist, had himself studied alchemy, but in 1937 he was working as assistant to André Helbronner who was researching in nuclear physics, and was after-

wards killed by the Nazis. "He was approached one day by an impressive individual who asked Bergier to pass on to Helbronner a strange—and highly knowledgeable—warning. This was to the effect that orthodox science was on the brink of manipulating nuclear energy, which alchemists had known for a long time. Bergier tried to protest that they did not know the structure of the nucleus etc., but his visitor went on: 'I know what you are going to say, but it is of no interest. I shall not attempt to prove to you what I am now going to say, but I ask you to repeat it to M. Helbronner: certain geometrical arrangements of highly purified materials are enough to release atomic forces without having recourse to either electricity or vacuum techniques.'" He then picked up Frederick Soddy's *The Interpretation of Radium* and read as follows: "I believe that there have been civilisations in the past that were familiar with atomic energy, and that by misusing it they were totally destroyed." He gave a warning that artificially produced radioactivity could poison the atmosphere of the planet in a few years. But of course Bergier was himself an alchemist, so can we not ignore all this as poppycock—only Da Costa Andrede, the atomic scientist, seriously thought that Newton was not only an initiate, but actually knew the secrets of transmutation; there are also the few well-documented accounts of gold having been made; and last but not least, both American and Russian nuclear energy researchers find it worthwhile to study alchemy. Why? A thousand years ago a Chinese alchemist wrote: "It would be a terrible sin to reveal to the soldiers the secrets of your art. Beware! Do not allow even an insect to be in the room where you are working."

Bergier believes (backed e.g. by various recent archaeological finds in China) that there are simple, and safe ways of producing transmutations by alchemical means.[†]

Those writers too in France have their band of amateur experi-

[†] Possibly connected with "magic squares," the proportions on which all sacred buildings were constructed, and which are apparently "the patterns of natural growth." "From a study of their numbers and the rhythms by which they are controlled, the natural scientists of former ages found their way to a source of power which made all technological contrivances unnecessary." (Michell.)

menters and followers, who keep in touch through their journal, *Planète*: not all amateurs either: the nuclear physicist, Charles-Noel Martin wrote to them:¹⁰ "Science is not by any means only that which the tradition of the nineteenth century would have us believe it to be, but it is rather everything which our intelligences allow us to imagine within us and in the world around us; the unusual, moreover, may not be either disregarded or underestimated, because we can neither say nor predict what the knowledge of later times will consist of."

Meanwhile in America parallel explorations have been carried out into the fantastic by Charles Fort, another life long student and recorder of the awkward fact and happening. His work also sparked off a cult of amateur research, which is part of the background of the now familiar american search for new forms of consciousness, for alternative realities. One of the results of tuning in to american speculation is a fresh assessment of the time span of human history. There are the lost cities of the Andes and other parts of central and southern America with their vast monuments and advanced knowledge, where there were certainly human beings 9000 years ago, and possibly even 30,000 years ago. There are also the "portolano" maps or navigation charts of the world from the fourteenth century onwards, with absolutely correct longitudes quite beyond the technology of the time, and the map of 1532 showing the whole coastline of the antarctic continent (commonly thought to have been reached only in A.D. 1770). It shows certain discrepancies, but now it seems this coastline probably did look like this before its glaciation, i.e. about 10,000 B.C. We owe the critical examination of those maps to an american professor.¹¹

We have already glanced at the english scene, which, with its discoveries about megalithic culture, is beginning to take the centre of the stage. John Michell, who in *View over Atlantis* was one of the first to bring the main features of the new-old myth to our attention, has since done a good deal of checking himself of the megalithic sites, e.g. in Cornwall, where they stand most thickly, and has assessed the value of the evidence for our present knowledge of the "old gnosis," as set out by the megalithic builders.¹² We have seen some of these sources, such as a fresh look at the archaeological

evidence by professionals outside archaeology, e.g. astronomers, surveyors, and now a civil servant (Ivimy)¹³ trained to weigh up technical reports; then a back-up from people with unusual gifts, such as dowzers, whose finds are open to checking by imitation or by digging.

Beyond the archaeological evidence, it is now much more possible to relate findings from one culture to another, and from specific correlations it seems much more legitimate than in the days of Elliot-Smith to connect up ancient gnosis both with egyptian thought and technique and with those of Pythagoras. We have mentioned the common unit of measurement, and there is also the whole mystique of the irrational number phi, which “in geometry appears in pentagonal forms of symmetry, notably in the five-pointed star, which was the emblem of the pythagorean brotherhoods.” There also occurs “two different numerical relations between the irrational numbers phi and pi.” Then the ground plans of megalithic monuments are based on geometrical figures associated with Pythagoras, and have definite links with each other across the world, all the seven ancient wonders, for example, as well as the pyramids, Stonehenge and the gothic cathedrals being based on the “magic squares” (already mentioned), which are also associated with the growth of living things. These findings have been played down in the past by archaeologists as *a priori* impossible, but now that connections with mediterranean countries seem likely, and also as Egypt and Greece themselves are possibly successors to earlier lost civilizations rather than the precursors of all rational knowledge, classical writers who spoke of the hyperboreans and their pythagorean beliefs may be given credit for knowing what they were talking about. Celtic cult survivals, including an intense veneration of the human head, make it clear that, as with the pattern of egyptian temples, the image of man was basic to their thought and structures.¹⁴ It may therefore be assumed that, as elsewhere, it was man in relation to the cosmos that was to be transformed by the operation of the serpent power; in the East emphasis being laid on withdrawal from the physical to achieve this through inner “chakra” or energy centres, while in the West, transformation took place through and with the aid of the total physical environment. (I find

myself envisioning Henry Moore's great moorland landscape stone figures.) For the constructions were not, it would seem, just symbolic; the actual form of the layout and the angle of the standing stones (besides their phallic symbolism) were intended, much like a lightening conductor, to attract certain cosmic forces to fertilize the earth serpent power. A strong attraction for present day researchers into this lost knowledge is that the basic language in which the past is communicating its secrets is a mathematical one.

The myth is now aggregating, as older systems did, into one unified whole. It can now, for example, without difficulty take in UFOs, though the evidence and the implications here have not the same solidity as the basic myth of a lost, world-wide high culture in remote antiquity, which is now perhaps as near to being solid history as the Iliad was when Schliemann or Evans began to dig at Troy or Knossos. There are of course a number of well-documented unidentified flying objects, no unprejudiced person can deny this, but speculation as to their nature ranges pretty far; for example in the *Chariots of the Gods* version, vast prehistoric engineering works of unknown purpose are put forward as runways for space ships, the Tassili cave painting of a "spaceman" is invoked, and giant chalk hill figures are said to be signals to the "gods" from outer space who visited earth and taught early man his technology. By "early man" is meant high cultures before the last ice age, or shortly after, and many newly recognized technological finds are put forward as proof of survivals from them, e.g. an aluminium alloy in China of A.D. 250 (aluminium was "discovered" in 1807), electric batteries in Sassanid Persia (third to seventh centuries); there is even a fascinating theory that the Ark of the Covenant, which caused such trouble to any unauthorized handler, was an electric condenser. And there is the metallurgical factory at Medzamor in Armenia, dated to the third millenium B.C., where steel tweezers were found. One could go on indefinitely.

All this is fragmentary and unproven, but one could not say that UFOs and "lost high culture" are randomly associated; they fit together quite well, so a hypothesis is legitimate. As long ago as 1959, Fred Hoyle, who is not primarily a myth-maker, was suggesting in *Ossian's Ride* that the next forward leap in science could come

as information from some distant planet; so why should it not have happened before?

So in imagination man's world grows into vaster proportions both in time and space, and the desire grows with it for a similar inner expansion of consciousness to handle its potentialities and its threats. Thus, external UFOs are matched by internal magic flight (O.O.B.E.'s in today's terminology), levity (as opposed to gravity) obtained by some mysterious use of sound or ultra-sound (as Merlin is said to have moved the stones for Stonehenge, or the pyramid builders their great blocks).

Myth-making then is a basic function of the human mind. It must be respected, and not just manipulated by the rational mind. If it is ignored, it will probably run riot, wastefully; if suppressed and its frustrated warnings not heeded, it will go black and dangerous. How then should it be used? "In the context of cosmic values—and this is the lesson of modern physics—only the fantastic has a chance of being true," wrote Teilhard de Chardin—and J. B. S. Haldane: "Reality is not only more fantastic than we think, but also much more fantastic than anything we can imagine." In our view, the fantastic must be an ingredient of true modern realism, in all areas, the cosmic, the psychological, the historical or the sociological. Like all other cultures, our own is a conspiracy, a bevy of petty divinities who derive their power solely from our unprotesting acquiescence, and constantly deflect our gaze away from the fantastic aspect of reality. The conspiracy causes us to renounce of our own free will the realization that there is another world within the world inhabited by us, another man inside the man known to us. It is imperative for us to break out of this pact, to leave the circle of conspirators. The only way to achieve this is to use differently the knowledge available to us, to establish fresh connections between the various branches of knowledge, to look at the facts of life with eyes cleared of the hypnosis of traditional values. "If we do behave in this way, the fantastic will always reveal itself to us simultaneously with the real."¹⁵

As Pauwels and Bergier then point out, not only can science and technology be out of step, but technological invention on a scale to conquer the world can be used in the service of the wrong theory,

the bad and black myth. So a better alliance has to be made somehow between the different aspects of man's nature, if re-visionary science (and the hyphen is meaningful) is to be firmly founded. "But in our estimation, the essential thing is the underlying intention of expanding man's view of his world, the inspiration we derive from the richness of this world, and our faith in its destiny. These were the three factors that brought about the Renaissance."

Already there are hopeful signs wherever the "alchemical marriage" between the flesh of imaginative doing and the spirit of critical knowing is taking place. From the witchdoctors have come ephedrine and reserpine; acupuncture (which is still magic in the West) is crossing the great divide; a fresh look at platonic solids has produced a patent for a pyramidal razor blade sharpener, and one for powering a boat based on the second inversion of a cube. A new look at Goethe's view of how to enlarge the field of perception while retaining full natural consciousness is overdue—but there have been efforts here and there to explore the possibilities; one thinks of L. L. Whyte, Hans Jenny, Ernst Lehms and others.

There is much adjustment, much redefining to be done. Some attempt has been made here to show the place of myth in this new territory, but magic still needs redefinition (it has at least three different meanings in the books that have been quoted), and science needs desperately to break its bounds, or it is inviting black myth to take over and swamp the frail craft of rationality. As to the role of religion, that is yet another field of enquiry, interpenetrating the others.

This then finishes the substance of what I set out to say, but there is one footnote to add. Another reason why this rapprochement between different sections of the community is urgent is because the present position causes great strain in those people, ordinary sober westerners, who find they are having (unsought) experiences beyond their credibility barrier. Within the last three months, two friends of mine have (severally) sought me out and told me of odd things that happened to them. Are we, they asked, going mad? As it happens, both are shrewd, practical and intelligent people, gifted in their dealings with others, but also with exceptional creative imaginations, and under strain because of the situations they

have to deal with. I assured them of my total confidence in their sanity; they had I think picked on me to ask, because although I move in circles where the paranormal is taken seriously, I am myself known to be totally earthbound, a clod. But I was obliged in all honesty to add to my assurance: "I know just how you feel, because I am pretty sure that I have seen a UFO." Whether this was consoling or a crashing let down I do not know.

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Mind–body interactionism in the light of the parapsychological evidence

JOHN BELOFF

My starting point is, in a sense, the reverse of that adopted by Descartes and, after him, by all the philosophers belonging to the classic empiricist tradition. They took the view that mind alone, or, at any rate, the ideas that were regarded as the constituents of mind, could be known with certainty; matter and material objects, on the contrary, could be known only indirectly, as the putative causes of our sense-experience or alternatively as constructs of our physical theories. As a realist, as opposed to an empiricist, I take the view that, thanks to the progress of science, we already know a vast amount about matter and the behaviour of inanimate objects, we know something also about living organisms which exhibit mind-like behaviour and we have as well an insider's understanding of the behaviour and experience of our fellow beings but, when it comes to the fundamental nature of mind and its essential powers, we know scarcely anything at all. Mind as such remains the densest of mysteries.

There are those who argue that, in the aftermath of the latest revolutions in physics, matter has become so ethereal, so far removed from what we took it to be during the era of classical physics, that the old mind/matter dichotomy has ceased to have any relevance. Thus, we find Dunstan McKee, writing recently in this journal,¹ asking: “does it make sense to maintain the physical/non-physical distinction in science? What cutting edge does it have?” and suggesting that we drop forthwith all further talk about dualism and materialism and start discussing instead “the question we are all interested in, namely ‘what is reality like?’ ” Certainly, I would

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agree with him that it should be the aim of philosophy no less than of physics to help us understand what reality is like rather than chop it up into arbitrary categories. But I would not agree that modern physics has so blurred the distinction between the mental and the physical that the way is open for a monistic conception of reality. Indeed, the only real grounds that I can find for such a contention rest on what the quantum physicists call the measurement problem. They take it now to be axiomatic that the state of a given physical system will differ according to whether a certain critical observation is made or not made. Now this certainly raises problems about the meaning of objectivity in science but it would seem to be equally compatible with an interactionist as with a monistic metaphysics. But, for the rest, although quantum theory confronts us with a highly paradoxical universe when we try to explore the fine grain of the material universe, there is nothing that I know of in the new physics which would suggest to me that matter possesses any mind-like characteristics.

What is it, then, that makes us want to designate something as mind-like and something else as purely physical? To Descartes belongs the eternal credit of having first insisted upon a clear categorical distinction between the mental and the physical. But this does not mean that we are forever bound by the particular criteria he used to make this distinction. All the world knows that Descartes took extension to be the defining criterion of matter and thought to be the defining criterion of mind. *Res extensa* was contrasted with *res cogitans*. But this is clearly open to all sorts of objections, for example percepts and mental images are plainly extended in the geometrical sense even though they do not occupy a region of physical space. Similarly, to a modern physicist the dynamic properties of matter might seem more important than its purely spatial properties. As for mind, the danger of identifying it with its conscious manifestations, as Descartes implied in using the generic term "thought", can be seen in the history of empiricist philosophy. For mind came to be regarded as something so intermittent and fragmentary that, eventually, it was natural to treat it as no more than an epiphenomenon of brain states. If we are to form a conception of mind that does justice to our common sense intuitions

and can serve as the basis for a theory of the self, we shall have to treat it as the enduring seat of our mental capacities and dispositions, not just as a series or collection of specific mental events.

What, then, can we reasonably say at the present time about the respective characteristics of that which pertains to the domain of the physical and that which pertains to the domain of mind? Let us begin with matter. It is still as true today as it ever was that a physical object or entity exists in space, that it can change position in space and that it has the power to attract or repel other physical objects or entities. And that, moreover, is just about all that needs to be said in this context. All the sophistications of physical theory are concerned with the structural complexities of matter and of material systems and with the precise mathematical laws which govern their behaviour. It is harder to know exactly what to say about mind but there are, at any rate, three features of mental events and processes which have no counterpart among physical events and processes. The first of these is the presence of consciousness in the most primitive sense of sheer sentience or feeling, the sense in which we suppose it to be present in all animal life but probably in no plant life and almost certainly in no inanimate objects or mechanical artefacts.

The second is the referential aspect of the cognitive processes in man and the higher animals. I mean by this that our thoughts, percepts, memories and so forth represent, symbolize or otherwise refer to something other than themselves. This is a very vital point and we may recall that Brentano and the 19th century "act psychologists" took this as indeed the cardinal feature of mind. A physical process, *per contra*, however complex, is just a physical process. It may interact causally with other ongoing physical processes but in no sense can it refer to anything other than itself unless, that is, we ourselves choose to treat it as a symbol but, *qua* symbol, it is no longer a physical process. I have deliberately laboured this point because of its implications for the mind-brain identity theory, the most popular current version of materialism. For it makes it extremely dubious whether such a theory is logically tenable. For to claim that two entities are identical implies that whatever can be said about the one entity can equally be said about

the other entity. However, while I can say what my thoughts are about, it seems to make no sense at all to say about the concomitant brain processes that they are *about* anything, they just *are*. But in that case there appears to be an insuperable difficulty about identifying my thoughts or my thinking with any set of brain states or with the electrical impulses in the neural circuits of my brain.²

The third distinguishing attribute of mind to which I want next to draw attention is the familiar intentional or purposive aspect of behaviour which transforms what otherwise would be a mere sequence of movements into a meaningful action. A machine can go through any sequence of movements which the ingenuity of its inventory will allow but no purely physical system can act in the sense in which this implies an intention. I realize that this point would be vigorously challenged by those who have embraced a cybernetic view of human behaviour. I am aware, too, that the study of our skilled and adaptive behaviour has been powerfully influenced in recent times by the analogy with self-regulating mechanisms, just as modern cognitive theory has been strongly influenced by the work in artificial intelligence. I would maintain, nevertheless, that to equate the cognitive processes of human beings or animals with the information processing of computers is to confuse that which is simulated with its simulation. Thus, it is one thing to design a robot capable of performing some perceptual type task such as selecting an object of a particular shape from an assortment of other objects. But it is quite another thing to claim that the robot *perceives* the object because perceiving implies, among other things, having certain conscious percepts and if anyone were to suggest that the robot was conscious we would suspect him of prevaricating in his use of the word consciousness. Similarly, while it is entirely natural to speak of a computer as solving problems, playing games, making decisions or even engaging in conversations we should not allow such talk to obscure the fact that the apparent intentionality of such performances is not anything intrinsic but derives from the fact that we invest them with meaning. It is not merely that the machine is not conscious of the ends which it subserves for it often happens that we ourselves may act purposefully without necessarily being conscious of the fact, indeed all our skills have a certain

tacit dimension, the point is rather that the machine can never become aware of what it is doing and why. Hence, so long as we are dealing with automata, no matter how cunningly contrived to mimic mindful behaviour, we are still firmly within the domain of the physical.

It seems, then, that there is no great difficulty in distinguishing clearly between the mental and the physical but, having made the distinction, there is still one crucial problem to which critics of dualism have always drawn attention and which, indeed, worried Descartes himself and his followers. For the question arises: if mind and matter have no properties in common, how can they interact? Thus we find McKee putting forward as a “conclusive theoretical argument” against a dualism of the categorical Cartesian kind that, either we are driven to deny that the two disparate entities do interact, in which case the mind-body relationship becomes wholly mysterious, or “it still needs to be explained how entities of different kinds can interact, and I do not see how this can be done.”³ This frequently voiced objection was thought to be so unanswerable that all kinds of preposterous solutions—occasionalism, parallelism, idealism etc.—were invented by the philosophers expressly to account for the ostensible mind-body interactions.

Actually, all this philosophical ingenuity was wasted for, when we examine this argument, we find that it rests on nothing more than the assumption that there is only one kind of causation, namely the mechanical causation exemplified by the interactions between material bodies. But, as Ducasse and others have shown,⁴ a careful analysis of the meanings of cause and effect provides no grounds for supporting that, as McKee puts it “the entities must be of one kind.” Stated in its simplest terms, we can say that if we are satisfied that an event *E* would not have occurred under conditions *C* but for another event *X* then, *ipso facto*, we are entitled to call *X* the cause of *E* whatever might be the nature of *X* or *E*, whether one be mental and the other physical or whatever. In the last resort, despite all that philosophers have said to the contrary, it does not even matter whether *X* occurs after *E* rather than before *E* although, obviously, such backward causation would be highly anomalous.

But, although interactionism cannot be faulted on logical grounds,

I would be the last to deny that it does create enormous problems for science and more especially for the unified scientific world view. The point is that physics has provided us with a conceptual framework which makes material interactions intelligible. We have a model of how causal trains are propagated through space in an orderly fashion, of how forces act on bodies and so on. No such coherent model exists in the case of what Ducasse calls psychophysical or physico-psychical causation and, indeed, the question whether any such mind-matter interactions do in fact occur remains a legitimate empirical question. It is not surprising that, when physiology came into its own in the late 19th century, the orthodox scientific view of the mind-body relationship was that of epiphenomenalism which ruled out the possibility that mind could in any way influence behaviour, allowing only, what seemed too obvious to deny, that events in the brain could affect consciousness. Latterly epiphenomenalism has fallen from favour being supplanted by the more parsimonious—though, as we have seen, logically much more questionable—identity theory. The identity theorist makes much of the fact that by literally identifying mental processes with brain processes he has restored to mind its active function since now it participates in whatever causal functions we assign to the brain events. Yet the implications of identity theory are no different from those of traditional epiphenomenalism, namely that a complete theory of behaviour is in principle possible using exclusively neurophysiological terms. In both cases the conscious concomitants are irrelevant, the course of nature would be the same even if they did not exist.

Consider, for example, some simple basic action such as raising one's arm. On the materialist view, the fact that at some instant I decide to raise my arm so that I can reach for something on a shelf, let us say, has no bearing on the question of why my arm rises. The mental event or volition as it would traditionally be called is either a by-product of the particular brain state that initiates the movement of my arm (epiphenomenalism) or it is an integral part of it (identity theory). But, in either case, its explanatory value is nil, it remains a contingent fact that there should be any mental event at all, the behaviour we actually exhibit would be exactly

the same, so long as our physiology remained the same, even if we were just automata. Our mental life is on this view a reflection of our behaviour but has no more influence on it than the colour we choose to paint a machine has on its functioning.

Now it has always seemed to me that to deny the interactionist thesis is to make a stupendous sacrifice of our most deep-seated common sense beliefs on the altar of science. Of course, the adoption of the objective scientific standpoint often entails a sacrifice of our untutored intuitions. But, before we agree to a sacrifice of this magnitude which, in effect, destroys the very basis of the traditional view of what it means to be human and to exercise human autonomy, we ought to make very sure that the science for whose sake we are being asked to perform this act of self-abnegation is indeed a valid one. And it is on this question that I want to make the principal point of this paper, namely that the case for the materialist interpretation of behaviour—and it is a strong one—rests upon what I shall have to call “normal” science (not in the Kuhnian sense but as opposed to “paranormal” science). In the remainder of the paper, therefore, I shall consider what would be the implications of accepting as valid at least the more reputable portion of the parapsychological evidence.

It will not be my claim that this evidence refutes materialism, that would be putting it much too dogmatically, my contention is rather that it supports interactionism which, let us never forget, already enjoys the sanction of common sense. It is true that many who are currently active in parapsychological research—and this applies especially to those who have come to it from the physical sciences—are convinced that the paranormal can eventually be conquered for physics, given only certain extensions and modifications to our existing physical theories. They would deny that parapsychology—or “paraphysics” as some would prefer to call it—represents any sort of a threat to materialism, all that is at stake is our current conceptions of the physical world. And given the fact that, in the present state of the art, parapsychology can be defined only in negative terms, as concerned with that which cannot be explained using currently acceptable scientific principles, they are perfectly free to adopt this stance. The danger of persisting in it,

however, is that it threatens to make the concept of the physical logically vacuous. In the end, to be “physical” may mean nothing more than to be “real.” The difficulty is that we are dealing here with ill-defined concepts and shifting rules. How far can physics be stretched and remain physics? And, if we cannot lay down in advance what are the limits within which a particular world view remains tenable, then there can be no question of proof or refutation.

The pertinent question is what kind of a metaphysic is more consonant with the parapsychological evidence and on this point I would argue that interactionism has a decisive advantage. Recently John Randall suggested that we “re-define parapsychology as the science of mind-matter interaction”⁵ and, although in view of our continued ignorance about “psi phenomena” such a suggestion may strike one as premature, it does, I believe, represent by far the most promising positive characterization of the field that we can yet offer. Indeed, historically, this has always been the dominant view of the field. Parapsychology, we must remember, grew out of the conflict between science and religion which came to a head in Victorian England and was an attempt to reconcile scientific canons of evidence with the transcendental view of human personality that was the legacy of religion. For the early researchers the supreme challenge was to obtain strict empirical evidence for the reality of survival. And, had their patient efforts been crowned with success, this would have vindicated dualism in the most direct manner conceivable since survival would plainly be impossible if the mind were either identical with, or wholly dependent upon, the brain which is destroyed at death. In the event they failed, the evidence they adduced was never sufficiently specific or so unequivocal that all alternative interpretations could be ruled out. And perhaps, in the very nature of the case, it could not have been otherwise.

When, later, parapsychologists turned instead to establishing the existence of the more mundane phenomena of ESP and PK, it was still with the aim of showing that the mind possesses powers which defy an explanation in physical terms. Even allowing for the possibility that there may be senses as yet unknown to the physiologist or novel forms of energy as yet unknown to the physicist, it was

still argued that ESP and PK could not be accommodated within any physicalist framework. Thus, emphasis was laid on the fact that ESP, in particular, appeared to be independent of the space-time parameters which figure in any system of physical communication and that it appeared to be equally unaffected by any material barriers that might be interposed between the subject and his target. Rhine, himself, repeatedly claimed to have proved once for all the “non-physicality” of psi, appealing especially to the time-transcendence as demonstrated in his experiments on precognition. We can now see that this was to take a too naive view of physics. Rhine was right in thinking that psi could not be brought within the purview of the classical physics on which he had been nurtured; those who were at home with the paradoxes of the new physics were by no means so convinced that psi was self-evidently non-physical in nature. Nevertheless, the crucial fact which emerged from the original work of the experimental parapsychologists was the total absence of any systematic relationships between these psi effects and any set of known physical variables. Such weak relationships as could be derived from the data indicated the relevance rather of the psychological variables—e.g. the attitude of the subject, the personality of the experimenter etc.—certainly there was no clue as to any possible physical, or even quasi-physical, mechanism which could mediate the transfer of information between subject and target.

In the face of this still fruitless search for a physical mechanism, some contemporary theorists have been suggesting that we would do best to abandon altogether the causal mode in trying to understand such phenomena and settle instead for what Jung called a “synchronicity principle.” The occurrence of ESP or of PK would constitute a “meaningful coincidence,” a pair of “confluent events,” a case of “anomalous knowledge” or “anomalous action”; whatever expression we use the implication is that no causal transaction of any kind, physical or non-physical, normal or paranormal, is involved.⁶ This strikes me as a desperate expedient which, even if logically defensible, is unnecessary and, if it were adopted, would soon stultify all further inquiry into the phenomena. What I think the situation does demand is a fresh look at the peculiar kind of causation that is involved in mind-matter interactions.

Mechanical causation, as we remarked earlier, consists essentially

in bodies attracting or repelling each other in accordance with fixed laws of a mathematically describable nature. Nothing in the physical world, we can safely say, happens in order to fulfil some particular objective. Nature frequently reveals what may properly be described as “teleonomic structures” where it looks as if they were brought about in fulfilment of some preconceived design but invariably a closer analysis will show that they came into being as a result of some interplay of chance factors and mechanical causes such as holds for the rest of the inanimate universe. Now I want to suggest that the most important single aspect of psychic or psi phenomena in this connection is that they are irreducibly teleological in character. We may hunt in all directions for the pushes and pulls, however subtle, which could account for the effects we observe but we find none. In the end, all that we find ourselves able to say is that a certain effect was achieved for no other reason than that the subject willed it to be so, that, in the ESP test, he willed the concealed target to become manifest or that, in the PK test, he willed the particular physical outcome. In a typical PK test, moreover, the subject knows nothing at all about the particulars of the target system which he is trying to influence which, nowadays, may be an electronic random number generator triggered by a radioactive source or by the fluctuating noise-level in the electrical input. But, even if, *per impossibile*, the subject could be given complete knowledge of the set-up involved there is no conceivable way in which he could utilize this knowledge to achieve his ends. We speak glibly of PK as a “mind over matter” phenomenon but what this expression seems to mean, if it means anything, is that we are witnessing a case of matter behaving teleologically under the constraints imposed by mind.

Given this conception of the psi process we can now look again with enhanced understanding at the commonplace mind-body transactions of everyday existence. In all but one respect the PK situation resembles point for point the basic action we discussed where we deliberately move a limb. In both cases we know nothing, or at any rate nothing to the point, about the physical processes by means of which the task is accomplished. Our contribution begins and ends when an intention is somehow put into effect. The

one difference is that, in the normal situation, it always remains theoretically possible that this intention is itself the effect rather than the cause of the physical events with which it is associated and it is this possibility that keeps the materialist in business. In the PK situation, on the other hand, there is, *ex hypothesi*, no such physical link connecting the subject with the target system which could give the materialist a leverage. It appears, then, that we have only two options: either we must explain both situations, the normal and the paranormal one, on quite different principles or we must regard them both as instances of the action of mind on matter and of teleological causation.

The parallel between ESP and normal cognition is rather more problematical. Nevertheless, it is tempting to think of perception as a case of the mind reading off the information content of the brain on the analogy of the mind reading off the information of the target-object in an act of clairvoyance. This makes better sense, perhaps, than to think of the percept as an automatic by-product of cortical activity. Similarly, it is tempting to think of the conscious recollection of some event as a case of directly retrocognizing a past experience than as the product of an elaborate process of retrieving stored memory traces as the orthodox account would have it. But that is all surmise. The essential point I want to bring out here is that, on the view I am advocating, it is just a contingent fact, explicable no doubt in terms of our evolutionary past, that most of our transactions with the world are effectuated through the brain. Paranormal action and paranormal cognition occur when, for some obscure reason, we are able to by-pass this dependence on the brain and allow the mind to interact directly with the outside world.

One final comment is necessary if misunderstandings are to be avoided. I have argued that we cannot afford to neglect the parapsychological evidence if we hope to arrive at a correct understanding of the scope and nature of mind. At the same time it must be admitted that the picture of the mind which parapsychology presents is very different from that which we associate with traditional Cartesian dualism. In the first place, far more weight must be given to the unconscious activities of mind than is allowed for in conven-

tional psychology even when tempered with a little depth psychology. The fact is that even the most gifted psychic has at best only a very hazy conscious control over his phenomena. Secondly, psi phenomena are very hard to reconcile with the traditional individualistic conception of mind, often, for example, it is very problematical where one should locate the psi source and whether more than one individual is involved. The phenomenon of a "group PK" is one that parapsychologists now have to reckon with. Thirdly, although there are many different ways of conceptualizing what takes place in a so-called telepathic interaction, the possibility of a coalescence of minds is one that cannot be definitely ruled out especially when an awareness of another's pain or emotion is reported. And lastly, and to me it seems, most tellingly, the kind of achievement represented by successful exercise of the psi faculty so far exceeds the mental capacities of the individual subject that it is hard to avoid invoking some kind of cosmic intelligence or information pool which the individual can somehow tap and for which he can serve as a conduit. For all such reasons, the view of mind to which parapsychology may lead us may differ radically from that with which we started. But even if we should end up by having to acknowledge that an individual is only relatively autonomous and that the only abiding reality is some sort of universal mind or spirit which works through the individual minds, this would in no sense dispose of the case for mind-matter interactionism and that, after all, is what this paper has been concerned to establish.

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More about tuning the human instrument

PAINTON COWEN

“Man is simply invited to use all that he has, all that he is and all the good that he can contact, and put the whole lot of this to practical use to construct and extend his world in a way that makes a lot of sense”

Thus Tim Tiley described the essence of Ted Matchett’s work in his comment on *Theoria to Theory*’s interview with him last December. He made it sound so simple! But in one sense it is easy to understand the philosophy behind Creative Action although a little harder to appreciate fully the strength of Matchett’s *meaning/matter/media* theory or the 3M equation as he calls it.

In this article I would like to expand on the practical applications of this equation as I see it after working with Matchett for nearly two years. I will refer to this work sometimes as Creative Action of which the 3M equation is the more theoretical or philosophical approach to the subject.

Essentially Matchett’s work is that of bringing out the creative talent that so often lies dormant in people—even into old age in some cases. In fact he has found that many people in very senior positions in companies and organizations have very often not even begun to find out what it is that they are really good at doing, and whilst their work in the company has been adequate, their own personal lives are often in a mess. Much of this is due to the fact that they have continually denied to themselves what it is that they should be doing. This often reflects itself in the practical aspect of Matchett’s work, where the solutions to problems at work are often accompanied by major changes in the personal lives of people in those organizations.

At the basis of Matchett’s approach is the task of finding *meaning*:

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in fact until a person has found meaning in whatever it is that he is doing, Matchett would say that that person is just not contributing his best capability, regardless of his present achievements. Even if he was, say, the world's leading physicist he could therefore develop much further in his own preferred field. It is through the application of the 3M equation that *meaning* can be found and experienced, but in order to do this it is necessary to tune the human instrument to be in a state of mind in which it can fully appreciate the possibilities of any situation.

In his comment on this work Tony Blake described this state as including the recognition of a reality that every person is capable of discovering. It is a state of mind in which the brain is working with a clarity that is very rarely experienced. It is a clarity that one suspects the human mind should always have, but for some strange reason seems to elude all but the fewest fortunate individuals. Matchett's work in "tuning the human instrument" is therefore primarily to bring people back into this state where everything that one experiences and does is filled with meaning.

Before describing the application of the *meaning matter media* equation I think it is important to understand what is meant by a special "state of mind." There is much talk these days about altered states of mind—of the brain functioning in the alpha state, beta or even theta states. There is also the state of consciousness brought on by Transcendental Meditation which was referred to in the interview when Matchett expressed the fear that the TM state is one in which, for all the good it does, is one that produces little meaning and little help in encouraging real creativity. To fully appreciate the 3M equation there is a definite change of state—it can be felt physiologically in the whole of the body whilst the mind is singularly clear: everything makes good sense as awareness is held totally on the precise needs which the task in hand has to satisfy, and in this condition both the needs and their corresponding actions are obvious. It is quite an ordinary state; all that is needed is that it be recognized and energies flow unimpeded to form the solutions that are required.

I will attempt to give an example of this and how the *meaning matter media* triad functions in such a condition. It is not easy

to describe such an experience because it is close to that which must go on in highly creative minds, and description of this state has challenged mystics and poets throughout the ages. (Also, particularly creative people are often inarticulate about their own modes and methods of functioning.) Nevertheless, I will go in at the deep end by explaining an experience where I was certain that *meaning* was manifesting itself—and therefore the equation was being satisfied. But before doing so I will describe the *meaning matter media* triad as I understand it.

Stated simply, the 3M equation is an equation for perfect form, where *matter* plus *media* combine to make *meaning*. But *meaning* is only made when *matter* and *media* are exactly matched—as a hand fits a tailor-made glove. If *media* and *matter* do not match then something is made but it lacks *meaning*. *Matter* is material. In the case of, say, a carpenter it is the wood and his tools, but it is also his experience, his memory and, most important, the environment in which he is working. *Media* is a requirement, a need; the next form that the *matter* is requiring to be: it is also an active energy signalling up a need; an active absence as much as the *matter* is an active presence. The thing which is requiring to come into being is only partially what the person out of his past experience assumes it is going to be, the rest being supplied by the *media* element, this active absence which is calling forth the required form: the form which is next required in the scheme of things and needs to be drawn out of all the *matter* elements present at the moment. The key to understanding this *media* element—and indeed the whole 3M equation is understanding of the relationship that exists between a person and an object in any moment and recognizing the “active-absence” signals that the object (and everything else in the person’s consciousness) are making to him. They are combining to signal that which needs to be done.

Meaning is then the exact matching of *matter* and *media*—of the active absence with the active presence. It is the exact fit, the dynamic fit which is so suitable that it is felt with one’s whole being—cerebrally, physically and even with the spirit of man. Everything about it tells you that it is right. The crucial element in Matchett’s training is to recognize this *meaning* element, and to use

it as the guiding factor in synthesizing form at any level of complexity. To do this requires building up new sensitivities and a new kind of awareness—especially *meaning-awareness*. This is what is meant by “tuning the human instrument” so that knowledge flows through a person, knowledge that most people are completely unaware that they have until they recognize this “*waveband of meaning*.” But this teaching goes even further, for, as these sensitivities improve, all manner of what might previously have been described as mysteries begin to take on a new significance. Coincidences, for example, become meaningful coincidences and can contribute substantially to the solution of a problem. One finds certain books, certain people, or certain circumstances seem to present themselves in such a way that they are highly meaningful. It takes quite dramatic circumstances for an ordinary coincidence to become meaningful coincidence to people seeped in everyday consciousness, but in terms of the 3M equation, Carl Jung’s “Synchronicity: An Acausal Connecting Principle” takes on a new light. For on the waveband of meaning there are “coincidences” at every turn, and these chance encounters are now no longer interpreted superstitiously but are grasped intelligently and made to contribute to the creation of meaningful form.

The first example I would like to cite is a personal experience and is therefore highly subjective. There is always a temptation to explain away personal experiences not only by claiming that they are not objective, but also by a host of psychological or other rationalizations. Nevertheless as far as I am concerned it is a good example of the *meaning matter media* phenomenon in action.

For over 20 years I have been playing the piano—as an amateur in the true sense of the word: i.e. one who does something for the love of it. On very rare occasions over the past two years I have had what can only be described as a “very deep experience” whilst playing. I felt during such moments that I had gone beyond “thoroughly enjoying” the music, since quite suddenly I had a glimpse of what the music was all about—or what I thought the music was all about, if such a thing was possible. Nevertheless, for me the feeling was absolute; I actually felt that I had become the composer

—someone else was quite clearly playing through me. This may seem ridiculous but it left me with a tremendous feeling of awe since I knew that in that moment I was playing as least as well as Rubenstein —if only for a few seconds! I say this without any self-deception— I knew I was playing superbly; it was just a pity no one was listening! I was reminded very much of T. S. Elliot’s “Four Quartets”

. . . or music heard so deeply
That it is not heard at all, but you are the music
While the music lasts.

In terms of Matchett’s *media matter meaning* triad I would describe this experience in the following terms. The *matter* realm is myself, the piano and my whole accumulated experience of piano playing —practice and memory included. All contribute to the instant of playing. The *media* element is that realm that the music calls forth: at one level it is the inevitability that music demands as a serial time phenomenon, but in another sense it is the recognition of this active absence that now needs to be satisfied. Tony Blake in his article talked about the phenomenon of telepathy, suggesting that it was a process of sharing in one pattern that two people experienced rather than emanations from one brain being picked by another. I would suggest that the experience of becoming highly aware of the composer whilst playing his music is not “possession” or obsession but simply the sharing of a pattern between player and composer, which has “called” the music forth.

The *meaning* element would then be the actual experience of this match between the act of playing and the pattern; an absolute knowledge that what one is doing is absolutely correct, so completely at one with the composer and the needs to which the composer responded that one shares his experience. So strong is this experience of meaning that one has virtually the vision of another world coming into creation with all of the individual pieces fitting each other like a jigsaw. This sort of vision is described in Matchett’s book *Journeys of Nothing in the Land of Everything*:

What Nothing saw amazed him. The amazement reduced as the clarity of seeing expanded. But there was a period in which Nothing was amazed by what

he saw. "It's just like Genesis" he cried. "No, it's not like it, it is it. Everything without form and void, darkness upon the face of the deep, and the Spirit of God moving upon the face of the waters. Rum stuff." he mused. Then he saw where the light was being divided from the darkness. It made him shudder at first.

Such was "Nothing's" first conscious encounter with the waveband of meaning. In his comment on Matchett's work Tim Tiley pointed out that much the same message has been preached using different words by the great religions of the world, and yet when the *waveband of meaning* is accidentally fallen upon by people in the normal course of events it tends to be mistakenly relegated to one of those areas of life that people fob-off as "sentimental" or are even ashamed to admit that it has even happened. "Nothing," in Matchett's book found that he had encountered the waveband by chance for a total of 1.76 seconds in his life! This may well be the pattern for most of us. Particularly highly creative people must experience considerably more than this, but even the greatest geniuses have their days off—or days out of tune. What is new and important in Matchett's work is that on one of his courses and through his private counselling it is possible for most people to experience this waveband for the first time; and they can have the chance of learning how to sustain it from moment to moment. But in order to do this, every person has to make a commitment that they really want to succeed in solving the tasks they have set out to do, whether the problems and new constructions are their own or their company's.

I should mention one other experience of the 3M equation in action in my own life and again I will explain what role the terms *meaning matter* and *media* play in this. About two years ago I became fascinated by the enormous stained glass rose windows in the French Gothic cathedrals and I decided to write a book on them even though I can hardly write and knew extremely little about stained glass, architecture, history of art, symbolism, religious history, philosophy and a host of other things that I should have known about before embarking upon such a venture. I spent months carrying out the research, looking into all these fields, almost despairing at my ignorance. I brought the project to one of Matchett's

courses held at the extra mural department of Bristol University. By the end of four days I had virtually written the book; I had insights into the rose windows that belonged to another dimension, and at the same time I found that the subjects of stained glass, architecture, history of art, etc. all took on a new significance and meaning for me.

How can this be described in terms of the 3M equation? The *matter* realm here was all the initial obvious research that I had done over the previous months, which was now locked away among my memories and in various notes, plus the other people on the course, plus the location with Matchett's specially prepared material, and all my own general knowledge including that which I thought I had forgotten—i.e. memories, dreams and experiences as well as facts and theories. (I should point out here that Matchett's view of the traditional approach to methods of acquiring knowledge—i.e. through the educational channels—is that it is only partially useful. He would say that knowledge from this source is important, but it is how this knowledge is applied and fed into the business of solving problems that the difference chiefly lies between his approach and the “traditional” approach).

The *media* element here is simpler than it may appear at first, namely that there was a need for such a book to be written. This is difficult to appreciate objectively, for who is entitled to say that a need exists for a book on rose windows? As it happened I searched all the main libraries in England and France for such a book without success, so in one sense it could be said that there was a need. But even before doing this research I primarily felt the need inside myself, whether a book on the subject existed or not. It is the feeling for this need that is part of *media* in Matchett's terms—but only if the resultant product has *meaning*. Beethoven's Ninth Symphony or Michelangelo's David are the products of a need that was primarily felt inwardly even if an external need such as a commission existed. I wouldn't dream of comparing my effort to the products of these great masters, but what is important is that it was as important for me to produce by book as I imagine it was for Beethoven and Michelangelo to produce their work. Something inside me compelled me to strive ahead with the project, and it is

only through obeying this inner necessity—a necessity deep within but also “beyond” oneself that anything great can be accomplished. *Meaning*, then, is the feeling that the end product is right—note “feeling” rather than thinking, as one’s whole body/mind/spirit system is involved in this appreciation. It is what I would imagine it is like, psychologically, in giving birth to a baby—indeed many artists writers and inventors compare the productions of their creations to childbirth!

Another example I can recount from my own life is the experience of swimming and underwater diving. In both of these activities it is absolutely essential to have a *feel* for the water. Such an ability is the primary difference between those who find it easy to learn to swim and those who do not. Some people seem to have a built-in natural predisposition for water, which manifests itself as a sort of “extra sense” of buoyancy. In Matchett’s terms the medium of water presents both *matter* and *media* as does the human body which will swim or sink in it. Among the many possible combinations of pattern of relationship that can exist for the body and the water are those which have meaning, because they accept the constraints and laws governing both elements. Then behind and within these patterns and criteria are the *media* patterns of need and opportunity. To the extent that a person can recognize this *media*—all be it intuitively—his body can in that instant swim in a way that exploits all the freedoms for achieving perfection of action. It is then that swimming takes on an entirely new character. He then swims in a way that is truly analogous to Beethoven’s composing, or Holst’s responding to the inner “music of the spheres.” Note that the opportunity for such perfection of expression does pre-exist the moment in which the swimmer and the water actually meet and that it is not merely a function of material composition of these two elements of water and man. This opportunity or need can be thought of in terms of the spirit as well as body and intellect, certainly in terms of musical rhythms and harmonies. It is not primarily a function of constraints but rather a function of freedoms and “freedoms to” rather than merely “freedoms from.” This swimming analogy is so very important for understanding Matchett’s contribution to learning

and releasing potential because its *media* dimension is not immediately obvious, yet on reflection few could deny that these *media* openings and freedoms do exist. At first the water is merely water and the swimmer is merely a complex of learned behaviour. But as the art of swimming is perfected it is as though the material elements of the water and the swimmer are transcended: the constraints of one on the other becomes secondary and the freedoms for new movement patterns (Matchett's *media*) are the most important factor. It is the same of course in my own—or anyone else's—playing of music or composing of music. At first the matter elements of composition and technique seem all important but once these have been mastered it is as though doors keep opening in all directions to present freedoms that are so exciting yet highly patterned, and relate and respond to one's own deepest needs and sensitivities. Then Matchett's invisible *media* is making its presence obvious, not merely to consciousness but to every faculty and every depth of one's own being. The swimmer if he begins to move up to international standards comes to know such freedoms as the professional musician comes to know freedoms which he—and many a back-street jazz musician—make articulate. Then his world is a world of openings far more than it is a world of constraining conditions. For him Matchett's *media* takes precedence over *matter* because *media* is freedom unlimited whereas *matter* is freedom's limit.

Let us consider our swimmer in terms of Matchett's full 3M equation and thereby clarify the crucial *meaning* term. There is a requirement that *media* plus *matter* shall become meaningful and further that this happen in full consciousness. So the swimmer as he swims must recognize *media*, *matter* and *meaning* and he must know when the triad is perfectly in balance. To do this would be impossible at the level of generalization. It becomes possible—and easy—only in the briefest time period. It is *in the moment* that our swimmer must learn or be trained to become aware of the freedoms that are being offered to him in the *media* dimension, which he cannot do while his attention is elsewhere. *Media* communicates its opportunities to him to the extent that he can “listen” with a still mind and to the extent that he has conquered all of his own fears, desires and habits that would hold him prisoner. As Tony Blake said in his comment

on Matchett's work "the person must be prepared to move into the darkness for it is within the darkness beyond all previous experience that the *media* openings and patterns exist." As the swimmer responds to them he does of course change a great many relationships with matter at many levels but he does this only because *media* patterns and *media* communication have shown the way. As he learns to open himself to both *media* and *matter* in the moment each becomes obvious and are distinguishable and comparable. He can learn to adjust his sensitivity to both and to either as one adjusts the two channels on a stereo record-player. It is in the making of these inner comparisons and adjustments that one is able to judge whether or not the form which is being manifested in the moment is meaningful or not. If there is an exact match of *media* and *matter* in the moment the resulting form is totally appropriate and is the best that it might be *for that instant in time*. The term "the best" is very much an understatement because the judgement is actually one concerning whether or not the freedoms available have been taken up to their fullest and most appropriate extent. If so the swimmer has in that moment an incredible relationship with the water. He is neither its prisoner nor its master. Nor is he merely totally at one with it. In that moment of acute awareness he has been able to break through into an entirely new relationship in which the latent possibilities of water-and-swimmer-in-combination are realized to the full. Then if he has developed a high sensitivity to the other dimension in Matchett's triad he knows with deep certainty that meaning is maximized in that instant and in that moment the relationship that exists between himself and the water is one of perfected form. Such heights and qualities of meaning can be sensed immediately and directly when the human instrument has been tuned to measure and respond accurately on this special waveband of sensitivity. As he continues his swim such assessment and response is then made consciously and intentionally in every stroke and breath.

This immediate and direct sensing can be seen in many examples in nature—for example in a squirrel as he jumps through the trees knowing which twigs will support his weight and those which will not. This kind of inner knowledge can be developed in human

beings—it is after all developing intuition or “In-tuition” for all these terms and relationships of the 3M equation.

Before moving on to another example of the 3M equation in action I should mention a proviso necessary for the equation to function. It seems to be a law of the equation that it shall only function in order to produce meaningful results—i.e. it can never work for curiosity’s sake. For example the writing of this paper is itself a need; I detect this need as something other than satisfying the request of the editorial staff of *T. to T.* or the need of clarifying Matchett’s work. It seems necessary that it should be written and with the acceptance of the recognition I find that it becomes easier to do. But if I stop to ask what might result from this composition everything dries up—so, I do not ask and get on with writing it!

Using the writing of this paper as an example of Creative Action in action, I can illustrate another facet of Matchett’s thinking which may help. It is a requirement that is at first difficult to realize, namely that I dissolve the barrier that exists between me and that which I am doing (this is superbly illustrated in Matchett’s book *Journeys of Nothing in the Land of Everything*). One can see this in the case of a master carpenter who has acquired a real feeling for the wood with which he is working. Oak for example has a different feel from pine and the carpenter attaches part of himself to the wood to help fashion it. The same feeling can work against him of course—he will wince physically if he sees the wood being attacked with the wrong tool! It is the same with the pianist and the music—he “loses” himself in it; or the actor who forgets himself and becomes the part, or myself writing this paper. The requirements of this paper call to me and I find in response that I am able to write. The key is to get part of Me out of the way and the material just arrives (the other part of me remains to act as a sober check on the situation, what Matchett calls “Meta-Control”). All thoughts of how clever one thinks one is or how much knowledge one possesses has to be forgotten. All acquired knowledge from study and experience will always be there to be used when required, but must of itself flow into the work obeying *media’s* call. As soon as I try to impress anyone with knowledge then the

passage down which all appropriate and really new material flows, becomes blocked.

The key to all of this and to the solving of problems by this approach is that of becoming extremely objective—to the extent of almost standing outside oneself, but from a vantage point where the meta-control can operate. Then the paradox of extreme *subjectivity* takes over. When in this state one can learn to handle it, and get answers to problems, but the main problem until then is to learn how to do this, and this is what is at the core of Matchett's work.

I have devoted a lot of this article to my own experience of Creative Action and would like now to take a more objective look at how this approach works with other people. It is not easy to describe another person's experience, neither is it possible to lay out a plan of how Matchett does this work in the industrial and commercial setting. This is mainly because he has no set approach or set formula; his own actions are governed by the 3M equation which responds to the differing needs of each situation. But in his approach to industry and commerce Matchett describes his work thus:

This is not another methodological or simple step by step procedure. It can only occur when a person has acquired an optimal way of working much akin to the relaxed stress-free state in which a master craftsman performs physical tasks. The optimal state can be maintained for hours at a time, over the whole period in which important work is being produced.

Once again we can see that even in a teamwork situation the core of Matchett's work is focused on the performance of the individual. Yet that individual's part in the team becomes an essential part in the *matter* element. In group design work for example, the art of applying the 3M equation is one of getting the group's mind tuned to the needs of the situation where many of the *matter* elements will be held in common by members of the group—some consciously some unconsciously. But gradually the group members are made aware of the shared *media* patterns which Tony Blake gave us in his explanation of E.S.P. In such a situation each individual in the team feels remarkably free yet seems to be working in the high-

est possible gear. A vitally important element here is that this approach helps dissolve inter-personal problems so often lodged at the personality level, by focusing on the task in hand. The solution to that task is invariably coincidental with the solving of these inter-personal problems. I can quote Matchett in his approach to industry where he says that he takes the difficulties, constraints and apparent deadlocks as the starting point, not only to the problem at hand, but to the whole running of that section of the company—be it research, sales or production. Many companies are afraid of this approach as it gets truly to the roots and relationships of problems and I suspect that many people in industry do not have the courage to face up to the real consequences of getting total solutions rather than partial ones.

This brings in a crucial aspect of Matchett's work which becomes more and more relevant in the approach to solving industrial problems as every day passes. In getting the 3M equation to work it is essential that every individual or group feels right to the depth of the problem—to the aspects that people are very often afraid to confront, both in themselves and in their companies. Until absolutely everything is faced honestly and without reserve, the *media* realm has no chance to operate in consciousness: the active absences can only be felt when all the channels have been opened to the active presence—fears, warts and all. On the shop floor or in the board room there is often fear to speak up at the appropriate time and it is this fear that subsequently cuts off the individual or the group from the spontaneous act that could have been a vital element in leading to a solution of the problem. In this case an important part of the *matter* element has been blocked by fear: the *media* element is very strongly inhibited and therefore little meaning is forthcoming.

Matchett's work in industry is difficult to describe in detail since so much of it takes place at the personal level (highly confidential counselling is a crucial feature of this work). Creative Action can only be judged by its results. There is not necessarily an aftermath in the form of a reorganized department or company as is the result of so many management consultancy involvements. I suspect that many such people, however sincere they are to help companies

or organizations, feel they have to leave visible signs of change in order to justify their presence. In Matchett's case it is principally the people in the organization who have changed because their own changed ways of working and that of their whole department—or even whole company—has become more meaningful and this helps their whole organization forward into a more meaningful era.

To end this article I shall try to help people over a stumbling block in the approach to this work. It is in fact a point that is central to Matchett's philosophy and the functioning of the 3M equation. It is a common human failing to over-value knowledge, especially that which is obtained through much labour. Of course such knowledge is important, but equally important is to recognize the limit of its validity and to know when it is necessary to look further—even if the approach to that knowledge is by a path that is completely unknown. Tony Blake spoke about this “trusting in the unknown” as another vital key in understanding Matchett's work. Rather than trust in the unknown, human beings usually grasp at some half truth for safety's sake—to avoid thinking or experiencing what is really happening or is being said to them. This is a strong block in the *media* stream, as people so often mistake a half truth for the real truth. It is usually done by putting the nearest available label on an action or view or theory or by saying that it is *like* something else—anything to avoid seeing the experience for what it is or the theory for what it tries to say. Because these half truths or half solutions so often look good or sound good they are accepted, and all search for something which is the real answer with real meaning stops in its tracks.

In terms of this article some people may find a temptation to say “Ah yes—but this is only lateral thinking” or “I have experienced that and it's not like that.” Certainly there are many aspects of Matchett's work and the 3M equation that are superficially like positive thinking, lateral thinking, Zen Buddhism, Taoism, the “Law of the situation,” meditation, loss-of-self experiences, or certain “psychic” or synchronistic phenomena—even the early churches' “praying without ceasing.” It is all of these and paradoxically none of them but possibly beyond any of them as they are generally understood. For in Matchett's work we see how some of these are half truths and if we let them get in the way then they will obscure a clearer

view of reality. For Creative Action is the most powerful tool for solving so many pressing and exceedingly complex problems that only reveal themselves to those people who are fully prepared to admit that they are there, and who have an equally firm resolve to solve them, assuming a total—and totally honest—personal responsibility.

Comment

More thoughts on Schumacher: insight and implementation

These thoughts were originally prompted by the interesting discussion with Dr Schumacher which was published in volume 9, number 1 of this journal. They were over laid by pressures of work in Brussels, but I hope they may still be of interest since they certainly remain a major cause of worry to me. The tenor of what follows is affected by two-and-a-half years of experience of the efforts of nine sovereign states in Western Europe to stave off decline by an element of cooperation.

As I understand it, one side of Dr Schumacher's argument may be summed up in his identification (on page 6) of the "factors of exclusion" which prevent ordinary people from participating fully in the shaping of their lives. These factors are "gigantism, complexity and costliness . . . They exclude more and more people. You have got to be rich to get in. And that is where people become unhappy." The other side of his argument concerns the husbanding of the world's resources, an argument which he shares with a broad range of informed opinion from the Club of Rome to the Friends of the Earth and the Alternative Society.

It is in the linking of these two elements that the importance of Dr Schumacher's contribution lies. And yet, though one's instinct needs little prompting to follow his argument, a nagging worry remains at the end of the interview. What worried his interlocutors most, it seems, was his apparent dismissal of the benefits of modern large-scale technology. I myself think this more apparent than real. On the other hand Dr Schumacher's insistence that in the present political climate all he can do is to demonstrate that the simple

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works and the basic is adequate worries me more. It worries me because it reflects a tendency I come across elsewhere to contract out and to acquiesce in the fact that the gap between insight and implementation has grown wider in recent years. To do Dr Schumacher justice, his withdrawal into a prophetic role ("let them hear or let them forbear" appears to be his conclusion) is validated by his close concern with the practical application on a small scale of his insights. But the problem is not there: small scale experiments can be carried out anywhere. It lies in the translation of these insights into policies which are capable of being applied on a national and international scale. If this cannot be done, the exercise is fruitless.

Being at present once again involved in a small way in the decision-making process after a lengthy academic interlude, I am much struck by the difference in attitudes in government between the 1950s and those of the present. Clearly the difference is accounted for largely by the fact that during the earlier years we were engaged in the process of reconstruction. It was still possible for ideas which originated in quite a small way, such as those about educational policy, many of which emerged from *Frontier* discussions during the war, to find their way into the bloodstream of national decision making because the range of public intervention was more limited and the belief in the possibility of building a "better world" had not been eroded. By now the habit of public intervention has established itself and resulted in a vast superstructure of public commitment. At the same time our freedom of manoeuvre, which was small enough then, has been further restricted by the expansion of our interdependence with the rest of the world community, some of it inevitable, some of it arising from the very gigantism which Dr Schumacher deplures.

This has led to a growing sense of impotence on the part of decision makers, and to a situation in which the question about what to do arises more acutely at the point of implementation than at the point of analysis and insight. It is striking how often decision makers, whether they are politicians or administrators, when faced with a particular insight or analysis, will agree wholeheartedly about what is wrong and needs to be put right. Equally

surely will they sadly shake their heads and conclude that the implementation of the insight is quite impossible. There is no way of getting from where we are to where we want to be. The obstacles are insurmountable. What are these? I think Dr Schumacher's factors can be translated into decision-making terms in order to provide a clue.

Gigantism can be equated to some extent with the obstacle caused by the doctrine of uniformity. In modern democratic societies it has become an article of faith that social and economic benefits shall be spread uniformly across the territory for which those making decisions are responsible. This is a laudable commitment and recent discussions about devolution show how important it is politically. Even where, as in the United Kingdom, this commitment is fairly fully honoured, inequalities remain and give rise to political protest. Just as, for example, a housing subsidy must apply at Land's End as at John o' Groats so any other insight in the social policy field which involves government action must, for implementation purposes, be designed to cover the country. Hence the gigantic scale of social security schemes, of the national health services, of educational provision, with all the gigantic mistakes made in such fields as teacher supply, investment in comprehensive schools and universities. In all these areas, if decision making had been on a smaller scale, the mistakes would have been much less costly. It is a moot point whether the benefits would have been greater or less.

Now that the principle of intervention has been extended to the European scale, the problems of gigantism are multiplied four-fold (from, say, a population of 60 millions to one of 250 millions). The principle of uniformity applied to agricultural policy has, as is well known, led to the gargantuan mountains and lakes of foodstuffs, the cold storage for which is so expensive that no resources are left to transport them to the starving millions in other parts of the world. Faced with the consequences of the doctrine of uniformity, which few politicians without a death wish are likely to challenge, decision makers may be forgiven if they say: "your insight is absolutely correct, but it is quite impossible to implement it!"

Costliness may without difficulty be equated, in the context of decision making, with the principle of perfectionism. This principle

runs roughly like this. In the past there was provision, whether of income, or of housing, or of education, or of transport, etc. for a small privileged proportion of the population. This provision was of a high order, because this privileged minority was able to pay for it. The rich had high incomes, houses with gardens, schools with a high pupil:teacher ratio (the major difference between the maintained and the independent system), they had cars (never mind about the chauffeur), and so on. Now everyone must enjoy provision of this kind, and therefore the model to be used in making this provision must be that established for the minority in the past. Anything less would amount to "levelling-down" rather than "levelling-up." After twenty-five years of struggling with this principle, not only is the country all but bankrupt, but the gap between the services which can be provided for a small minority and those that in fact are provided for the population as a whole is almost as large as ever. If simpler models had been adopted it is conceivable that the general level might by now be higher.

It is difficult to assess the efficacy of the ways in which other countries have tackled the same problem. I have the impression, however, that in some respects they have been less perfectionist and yet more successful. In the housing field, instead of providing houses *for* people, there has been much more emphasis on house building *by* people. They have been encouraged to build their own houses by means of low interest loans and a more open relationship between the amateur and the professional. Having had a builder to lay the foundations, families have laid their own bricks. The plumber has come in to deal with the drains, but the family has done the wiring, etc. The time lag has been long, but the objective has been achieved. Again, there has been much less taking over by the state of the voluntary agencies providing social services of all kinds. The assumption by government of direct responsibility for a wide range of voluntary activities has been in the interest of perfection, but has led to financial and administrative exhaustion. The voluntary principle has atrophied and has now to be revived through the volunteer Bureau set up by government! By now the expanding professions and the decision-makers outbid each other in a succession of non-possumus attitudes.

Doctors, lawyers, social workers, educators claim successively to have reached the end of their tether. Governments shrug their shoulders and retreat into inaction. The result is a stalemate of frustration.

Complexity runs through the system at all points. But it is cultivated by the self-defining tendency of institutions. Whether the institution is an industry, a trade union, a school, a government department or a cricket club, its established procedures, hallowed by tradition, reinforced by the inertia of its officials and the vested interests of those who control the institution, render any proposal for change too complex to be contemplated. We are told, for example (*Economist* 24.4.76) that to charge income tax at 15% across the board would give much the same yield as the present byzantine system of differential charges, as well as saving the £500 million or more which goes into the effort of collecting or avoiding tax. But it needs little imagination to envisage the complexities of such a change which will be propounded by and on behalf of the 80,000 inland revenue staff most of whom would become redundant, not to mention the armies of accountants whose services would no longer be required.

A factor which Dr Schumacher left out of account is the plain imperfection of people, and particularly of people whose job it is to take decisions. Analysts and prophets are not necessarily less wicked than decision makers, but they are less likely to benefit by their wickedness. In this country we assume a high level of probity among our decision-makers, and do so with reason. But action is more likely to lead to blame than inaction. And in a society where the rate of change is high and the demand on the decision makers commensurate, they may be understood, if not forgiven, if they mask their imperfection behind a smoke screen of inaction.

It seems that the rapid growth of public intervention in the generation since the war has led us into an impasse. Paralysis has set in at the very point at which a new burst of energetic action is needed. Because government has intervened on an increasing scale, people's expectation of government intervention has been raised to levels which government can no longer meet.

The failure to meet these expectations arouses resentment and disillusion while the capacity for self-help has been eroded.

It is for this reason that Dr Schumacher's "hear or forbear" attitude worries me. If things are as he describes them (and I believe his analysis to be largely correct), then the political effort to bridge the gap between insight and implementation must be made. Dr Schumacher may well argue that that is a job for others; and it is right that a much wider range of people must be drawn in to do the bridging. But thought needs to go into priorities; into possibilities of redeployment of public intervention resources; into the rediscovery of self help. (It is curious how Community Development, originally adapted from the Settlement movement to underpin the Colonial Development and Welfare Act, is now being reintroduced at home under Government auspices.) If, for example, we are to move from fossil fuels to income fuels, and if this can be done only by a reduction in the scale of power use, then how do we get from A to B? How can public expectations be scaled down without political upheaval? All these are essential elements in any model of change such as that which Dr Schumacher envisages. None can expect him to provide all the answers. I hope he may be persuaded to go on from the earlier interview to discuss the questions.

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Comment

Barry Hallen on philosophy and traditional culture

In "A Philosopher's Approach to Traditional Culture," Barry Hallen argues that the philosopher, *qua* philosopher, has a place along side the anthropologist in the study of traditional cultures¹ and that, as a philosopher, he makes a distinctive contribution to such research. He then goes on to describe what he regards as the philosopher's role in such endeavours. Now, while I agree that philosophers *can* and *do* make significant contributions in this area, Hallen has not, in my opinion, established their right to do so. That is, if he is to defend his conviction, he must demonstrate that one might participate in such an enquiry while continuing to perform as a philosopher rather than an anthropologist. And it is here that Hallen encounters his initial failure. To sustain his position, he is then obliged to limit the techniques available to philosophers in such a way as to render their efforts practically useless. Thus, even though I believe Hallen's principal thesis to be sound, I find nothing in his paper which would justify its acceptance. And here, I shall endeavour to demonstrate why Hallen's defense fails and how it might have succeeded.

Traditional culture is generally thought to be the exclusive domain of anthropology. And it is this conviction that Hallen opposes. For, according to him, there is a legitimate place for philosophy "in what has heretofore been the anthropologist's business;"² one might pursue this line of study while continuing to function *as a philosopher* rather than an anthropologist. In short, Hallen believes that the philosopher has *his own unique*

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place in such endeavours which might be distinguished from that of the anthropologist, and that the philosopher makes a distinctive contribution.³ We might then inquire as to how, in such contexts, a philosopher is to be differentiated from an anthropologist. To this question, the analytic tradition⁴ has a ready answer. As represented by this tradition, “the function of philosophy is wholly critical.”⁵ Whereas science pursues factual knowledge, philosophy is solely “concerned with the meaning of terms and propositions.”⁶ And anthropology would, of course, be included among the sciences. Yet, since Hallen is attempting to justify “the philosopher’s direct participation”⁷ in such an enquiry, consistency would preclude his distinguishing between philosophy and anthropology along these lines.⁸ He must then have an alternative criterion. It soon becomes evident, however, that the manner in which he would draw this distinction is inadequate to the task.⁹ Having thus failed to distinguish philosophy from anthropology, Hallen could hardly claim to have established his thesis.

His problem might be simply stated as follows: The claim that philosophers have a distinctive role in the study of traditional cultures presupposes a standard by which the philosopher’s contribution to such research might be differentiated from that of the anthropologist. But, since Hallen cannot draw this distinction along conventional lines, he must seek an alternative. And when his alternative is found lacking, his thesis collapses.

Yet all is not lost. For Hallen’s contention that philosophers can and do make important contributions in this area might still be defended. And it is here that he places his primary commitment. Problems only arise with his additional claim that this contribution must be, in some way, *unique*, distinct from that of the anthropologist. If he were then to deny that there is anything distinctive about the philosopher’s approach to traditional culture, he would *not* be obliged to provide a criterion for distinguishing the philosopher’s role in such endeavours from the anthropologist’s and could thereby avoid the foregoing problem. To do so, he would only be required to maintain that, while philosophers contribute in this line of enquiry, their contributions are in no way unique or peculiar; they are essentially the same as those of anthropologists.

There is, moreover, ample precedent for such a move. The demand for a precise distinction between philosophy and the empirical sciences is of relatively recent vintage. Aristotle recognized no such requirement. Nor did any of his successors until the advent of positivism. And one need only reflect upon our intellectual tradition to see the folly of such a demand. What of an Einstein, a Newton, Neils Bohr, or Galileo? Was their work philosophical or scientific? Such a question admits of no clear answer. And that strongly suggests that we have been trying to draw distinctions where there are no clear differences. On the basis of such examples, one might plausibly argue that, insofar as one contributes to knowledge, whether as a scientist or as a philosopher, his contribution is of one kind. All knowledge is cut from the same cloth; it cannot be neatly partitioned into discrete packages.

We must, of course, admit that we know certain things which are more general and/or abstract than others. And, if there is any distinction between philosophy and science, these are the lines along which it must be drawn. But the difference is one of *degree*, not kind. Our most abstract principles are deeply rooted in the concrete, while our knowledge of particulars is redolent with abstraction. Each is inextricably bound to the other. So that regardless of how we might choose to differentiate between science and philosophy, the distinction is largely arbitrary. And while it may prove convenient to draw such distinctions, we must recognize that they are neither absolute nor inalterable. From this vantage point, it would be quite incorrect to maintain that there is an approach to traditional culture—or any other area of inquiry for that matter—which is peculiarly philosophical. By the same token, there would be no purely scientific approach. Hallen's conviction to the contrary would then be indefensible.

But, for Hallen, this view has an additional advantage. For, as was observed earlier, his conviction that the philosopher's contribution to the study of traditional culture is in some way unique forces him to restrict the manner in which philosophers might participate in this enquiry so as to render their efforts practically ineffectual. Were their research so circumscribed, their contribution would be negligible. Indeed, judging from the example he offers

in his own work Hallen is himself unable to abide by these limits. If he were then to adopt the position delineated above, such restrictions would no longer be necessary. In his study of traditional culture, the philosopher might employ any of the techniques which serve anthropology without fear of encroachment. And this, I believe, would provide us with a far more realistic and practicable conception of the philosopher's approach to traditional culture than the one which Hallen offers.

At times, Hallen appears to be toying with a position not unlike the one which I have outlined. For example, his contention that "... philosophers . . . play . . . a role in the search for truths about the world"¹¹ might well be interpreted as denying any precise distinction between science and philosophy. Yet, he ultimately shies from that conclusion. Here, one might speculate on Hallen's reasons for rejecting such a view. And, while we are given nothing explicit, there would seem to be one plausible explanation, viz., that he believes that, unless we admit to a precise distinction between philosophy and empirical science (anthropology), we could not properly identify any individual as a philosopher rather than a scientist (anthropologist) and hence, could not meaningfully say that the philosopher, as such, has a legitimate place in the study of traditional culture. But this assumption is, of course, mistaken. Even if we were to admit that there is no clear distinction between philosophy and empirical science, we might still quite properly identify certain individuals as philosophers and others as scientists (anthropologists). Our ability to do so does not require that there be a neat separation of science from philosophy. It is, instead, based upon a variety of different *pragmatic criteria*. How he describes his own work, his professional training, his long-term dispositions and objectives: it is by means of such characteristics rather than any precise distinctions between the philosophical and the scientific that we identify the philosopher. But here again, our criteria are vague. The difference between the scientist and the philosopher is only one of degree. And certainly, one recognized as a philosopher on this basis might well take an interest in traditional cultures and contribute to our understanding of them. Yet the objects and methods of his inquiry may be precisely the same as those of the

anthropologist. Nor would he be any less a philosopher for this.

Thus, while I agree that the philosopher has a legitimate place in and might make important contributions to the study of traditional cultures, I am in total *disagreement* with Dr. Hallen's conception of *what* the philosopher's place is and *how* he might contribute to such endeavours. As I perceive it, his failure lies in accepting the doctrine that philosophy and science are mutually exclusive activities¹²—one which has sustained a good deal of bad philosophy. Since his opponents rest their case upon this principle, by accepting it, Hallen exposes himself to their objections. But this dogma is itself suspect; there are good, independent reasons for its abandonment. Were Hallen to do so, his principal thesis would become eminently defensible. But his conception of the philosopher's approach to traditional culture, i.e., how a philosopher might contribute to such an enquiry, would then require extensive revision, or perhaps even outright abandonment. In either case, Hallen's programme would prove unsatisfactory.

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NOTES

1. By a *traditional culture*, I take Hallen to mean a community (or those parts of it) in which ancestral beliefs and institutions are the dominant influences.
2. Hallen, Barry. op. cit. *Theoria to Theory* 9.4. p. 261.
3. Unless this is what Hallen is maintaining, I do not see how he could claim that "the philosopher's contributions would be supplementary . . . but invaluable . . . because of his own special interests and training." (cf. *loc. cit.*) For, if they are *supplementary*, they must be distinct.
4. Hallen apparently identifies this conception of philosophy with that philosophical approach commonly known as Linguistic (or Conceptual) Analysis. Yet, it was, in fact, adopted by most, if not all, recent schools of analytic philosophy. See, for example, *Tractatus Logico-Philosophicus*, 4.111 and 4.112.
5. Ayer, A. J. *Language, Truth, and Logic*, (London: Victor Gollancz Ltd., 1964) p. 48.
6. Copleston, Frederick C. "Philosophical Knowledge", *Contemporary British Philosophy*, edited by H. D. Lewis (London: George Allen & Unwin Ltd.,) p. 120.

7. Hallen, Barry. *op. cit.* p. 261.
8. On this point, Hallen himself would seem to be confused. For, initially, he would appear to be denying that philosophy is to be distinguished from science on this basis. But later, he recommends the philosopher's doing anthropological fieldwork "because the . . . first-order experience . . . will give him a better understanding of the anthropologist's task." (Cf. *A Philosopher's Approach to Traditional Culture*, p. 264.) This suggests that Hallen still regards the *first-order* activity as the exclusive preserve of the scientist, in this case, the anthropologist, and that the philosopher is relegated to a *second-order*, i.e., "wholly critical," inquiry. But this would be inconsistent with his endeavour to justify "the philosopher's direct participation in . . . the anthropologist's business."
9. Hallen's only attempt to satisfy this requirement is his claim that "there are certain problems or areas of human endeavour which are generally regarded as the philosopher's own preserve . . . It should be the philosopher's concern to enquire whether other cultures address themselves to these problems . . ." (Cf. *A Philosopher's Approach to Traditional Culture*, p. 2.) We might therefore assume that he would identify a particular activity as philosophical in virtue of its posing and seeking answers to a certain set of questions. While I shall not pursue the matter here, this criterion might be shown to be inadequate for a number of reasons.
10. Cf. Hallen, Barry. *op. cit.* pp. 264 ff.
11. Hallen, Barry. *op. cit.* p. 259.
12. "Philosophy is not one of the natural sciences." (Cf. *Tractatus Logico-Philosophicus*, 4.111.)

Review

The Way of Non-Attachment

—The practice of insight meditation
by Dhiravamsa

Turnstone Books, London, Pp. 256 £2.50.

The author of this book came to England in 1964 in his twenties, as monk-interpretor to the Chao Khun, Phra Rajasiddhimuni of Mahadhatu Monastery in Thailand, on a visit to teach Buddhist Insight Meditation, and in the autumn of that year, when the latter returned home, he became leader of the Vipassana missionary work in Europe. A Buddhist Temple was established in 1966 in East Sheen, endowed by the Thailand Buddhists and acquired by the Thai Government, and soon afterwards a small meditation centre taking five meditators was opened near Hindhead, which became Dhiravamsa's home as Chao Khun. This centre was generally fully booked, and I myself visited it five times for periods of a week at six monthly intervals between 1968 and 1971. At that time Dhiravamsa married a young French wife, who had come as a meditator, and by this act ceased to be a monk, lost his position as Chao Khun, and after a few months the meditation centre was closed down.

This is worth mentioning, because from that time a new freedom from the traditionalism of his background appeared in Dhiravamsa's writing, and he began to travel widely, and his name was seen on the lecture lists and meditation courses of a number of different universities and groups. His latest book *The Way of Non-Attachment* on the practice of Insight Meditation, is his longest and I think, the best of his four.

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The greater part of the book is a friendly textbook of living in the Buddhist pattern, with gentle pressure to realize that we are like skins of an onion, and having peeled through to the middle, there is nothing there. It also contains a useful appendix of a practical kind on the principles of Vipassana Meditation, including the exercises taught in his retreats, and an outline of the Buddhist faith.

While Insight Meditation does not require techniques, because the meditation can be any and everything as it comes along, the recognized way to begin it is by concentrating with awareness on one's breathing in meditation. With back erect, and keeping as motionless as possible with eyes closed, the meditator mentally watches the rise and fall of his abdomen in breathing, noting it at first with actual words "rising, falling, rising, falling." Both rigidity and slackness are avoided, and one rests in an alert state. As time goes on the body begins to be more and more relaxed and the breathing gentler and slower. As thoughts of all kinds arise, what caused them is remarked on, omitting the personal aspect, but they should not be pursued, and as soon as possible a return is made to awareness of breathing. So when your knees become stiff instead of formulating the thought "I am stiff," instead you note "This is stiffness" and this helps in turning away from the sense of self-activity, and brings in its place some return to the primal sense of unity out of which consciousness arose long ago. Each feeling should be mentally acknowledged but not allowed to turn into a soliloquy: thus you encourage yourself to think not "I hate . . ." but rather "This is called 'hate,'" and not "I am curious" but "This is curiosity." This process makes for awareness of the mechanisms of the mind, and as time goes on one comes to understand better what touches off any reaction. For instance, questioning oneself about such things as nervousness and flurry, which produce irritability, can make conscious body tiredness, while malice and hatred can show up as having animal roots in sexual insecurity and fear. To see this more clearly can undermine feelings of guilt, which may give way to a more wholesome desire to manage better as part of a whole process of life now in growth and development.

Fullness of attention to each thing done or experienced is the

aim of Vipassana Meditation. If you are talking to someone, you talk to them and listen to what they have to express, with full awareness. If you are cooking, you must cook wholeheartedly. If you are walking, you note the movements of your body, which provides the right background for regarding what attracts the senses (bird song, leaves emerging, cars passing, the state of the weather.) When thoughts come, or a matter arises which needs to be dealt with, then the whole attention is given to that until it is finished, but when it is finished—that should be that. In this way, trouble, contradiction, passion, and so on, are starved of their obsessional quality.

This reminds me that I have had the good fortune in my life to have known two Nobel prize winners, one of whom had the maddening habit of stopping walking if he spoke to you, because he could not speak and walk at the same time, while the other told me that he found it absolutely impossible to have a wireless in the car while driving as he needed to direct his attention fully to the road. These two seemed to have much more one-pointed awareness than most of us, and for this reason penetrated more deeply into existence.

This return to greater simplicity, by means of watchfulness and attempts at bare attention, can bring an understanding of what innocence really is, because the world begins to unveil its spiritual light and beauty as we cease to impose ourselves so much upon it. As you follow the practice, the feedback from life is clear, concrete and recognizable, like raising a sail on a small boat instead of rowing. Many people—including myself—discover that when we are faithful to living in the moment, awareness—and for me failure and forgetting to try come often enough—extraordinary coincidences in which one gives and receives help become common, as though one is part of a flowing pattern of life which one cannot see. The coincidences can be as small as from a needed book unexpectedly appearing, to the stranger on the railway station, who had no money and needed a bed for the night, proving to be a valuable contact.

Vipassana Meditation leads to a state far removed from the instinctive unity with life of the primitive. In it the conflicts of ethical and rational man which have gone alongside his maturing

as an individual, gradually give place to a deeper consciousness in which the alienation between reason and instinct, heart and head, and the light and shadow side of our nature, is increasingly overcome.

The author points out that the more popular forms of meditation today are those which promise success in achieving happiness and peace, that is the Tranquillity Meditations, such as those taught by the Maharishi's Transcendental Meditation, and the Krishna Consciousness Movement. He wrongly (as I think) includes Sufi and Christian contemplative prayer under the heading of Tranquillity Meditations, since both follow upon the realization of dividedness and guilt, and lay emphasis on the purgation of the emotions. However, Dhiravamsa stresses that any Tranquillity Meditation, when not attached to the search for insight, may easily become a substitute for drugs, and a means of integration of the personality at too low a level, and in this he is right. I wonder, though, whether the Buddhist way has sufficient incentives within it, to harness the passions of ordinary men to a desire to purify the corruption of the world and to build new patterns of society, or whether it is more likely to lead to a saintly world-renouncing individualism? Dhiravamsa once remarked to me that it was much commoner for Westerners to experience an outpouring of love for all creation in meditating than it was for Easterners. Perhaps this is because most of those meditators were Christians first?

DAMARIS PARKER-RHODES

Sentences

I. LETTER TO THE EDITORS

*whether in the body
or out of the body
i do not know;
whether in time
or out of time
in bread and wine
god's image simply IS*

*outside that image
mere commotion
as male and female,
love and hate
wrestle with concepts to be named
and filed away for future use
by young homunculus.*

*see the ticker-tape outpouring
coils of answers on the ground
but one question always dodging -
what is man?
what is man, so firmly anchored
on the image of his home,
yet in fallen world to roam.*

*each time and each out-of-time
pristine light falls on that image
man grows up outside himself
sees his world as made anew,*

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*knows he knows he always knew,
then the old computer starts
and his home is lost to view.*

*what is man, here and hereafter?
reason can but weigh the word,
yet remembers how in silence
it once knew god's image is.
man in god and god in man
ever since the world began
partners in creation's plan.*

T. M. HERON

II. SEPARATED

*Programmed to survive:
Forced to select, make meaningful
the random input of the ear and eye, retrieve
the import of chameleon words.*

*Oh, to escape the cogitations of the mind,
release the ceaseless clamour of the will,
mute memories' chords
be still*

No echo shadow thought.

*Silence, passivity.
The radiant flower
Felicity.*

CHARLES KOHLER

Notes on contributors

JOHN BELOFF is Senior Lecturer in the Department of Psychology at the University of Edinburgh. His chief interests lie in philosophical psychology and in experimental parapsychology, and he believes that these two fields are not unrelated. He is the author of *The Existence of Mind* (1962) and of *Psychological Sciences* (1973) and the editor of *New Directions in Parapsychology* (1974). He served as president of the Parapsychological Association for 1972 and of the Society for Psychical Research from 1974–1976.

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The cover design, of the Egyptian Earth God, Geb, continues the series of the four elements. The god's name is here depicted phonetically; first by the white-fronted "geb" goose, secondly by the leg standing firm on the ground but also representing the sound "b". And thirdly, the seated god.

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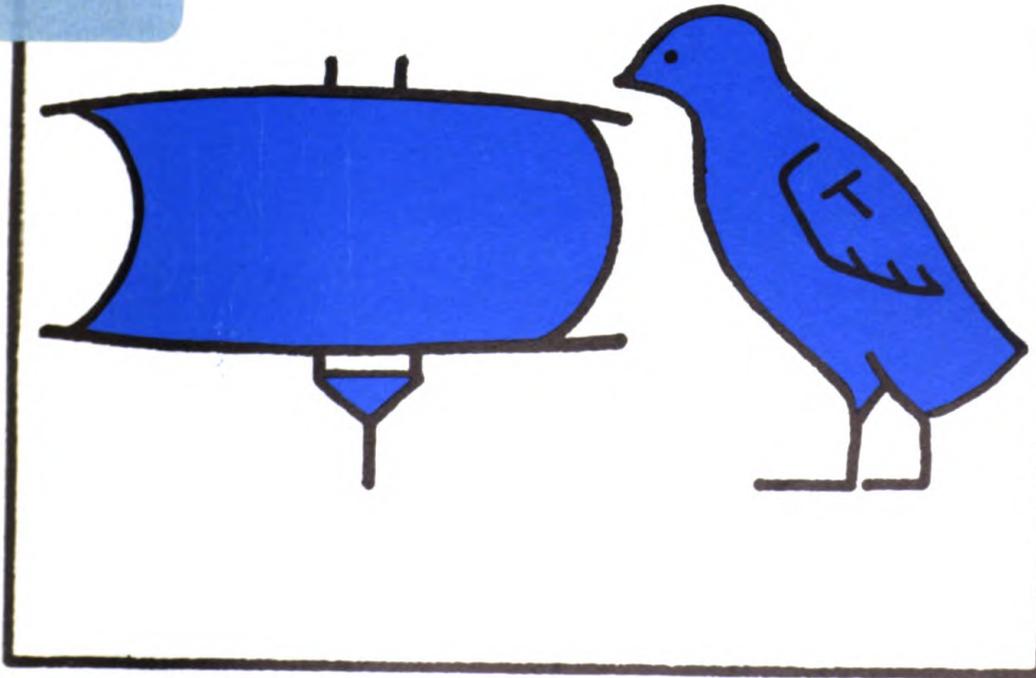
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THEORIA to theory

An International Journal of Science, Philosophy and Contemplative Religion

Editors

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Explorations in the sciences and technology that affect our understanding of religious and philosophical questions—these are the basis of this quarterly journal. *Theoria to Theory* holds that traditional religion has been primarily, and at best, concerned with mystical or contemplative experience; therefore it is important to a widened science in providing one source of insight. *Theoria* was the old Greek name for this insight; *Theory* here stands for an enlarged and revised scientific understanding. The journal represents an effort to keep the two terms with each other.

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Editorial

This number contains a more than usual amount of material in which scientists are speculating about their work. I. J. Good is well known as a speculative scientist. His article on "Partially Baked Ideas" (P.B.I.s) in our very first number introduced a phrase which has now established itself. In the discussion on "Time" Chris Clarke and Frederick Parker-Rhodes show how cosmologists and biologists (especially the former) think about the universe in ways very far from intuitive common sense. Indeed, there never was a more misleading description of Science than "organized common sense". It is an imaginative enterprise, but imagination controlled by the need to achieve mathematical precision and to suggest empirical consequences. So Chris Clarke presents the "Big Bang" theory of the origin of the universe as an abstract postulate to introduce "directionality" into the process. But the directionality can be mathematically formulated in the Second Law of Thermodynamics, and the Big Bang view, better than its rivals, fits a lot of empirical data, like the very uniform radiation at a temperature of 3°K which seems to fill the universe. This doesn't of course show that the Big Bang is necessarily the right theory of the origin of the universe; what it shows is that this is a controlled and not bizarre speculation. I. J. Good goes a good deal further out into speculation, as he would be the first to admit.

Sarah Corbet's article on "Hunting Wasps" (not speculative; based on close observation) completes our series on "Prototypic Organisms", and we shall now be looking for a publisher to turn the series into book form. By introducing us to their animal or plant a number of biologists have shown us the spectacles through which they see nature (a phrase we used in our editorial introducing the series in T. toT. IV iii), and they have brought out how their par-

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ticular organism is of evolutionary interest. Sarah Corbet's article is on *solitary* hunting wasps. These may not seem especially prototypic, at any rate in the sense of featuring in the biological literature. For centuries, of course, and in other literature besides the biological, from Virgil† to Maeterlinck, people have been fascinated by the social life of bees; wasps have had a less good press. Aristotle remarked that "there is nothing divine about them as there is in the tribe of bees" (*de Generatione Animalium* 761a 2-5). Here we have an account of one kind of *Hymenoptera*, solitary wasps, showing that their behaviour is no less fascinating than that of the social ones, and hardly less complicated; indeed sufficiently complicated in these invertebrates to raise special problems found in vertebrate behaviour. Notably there is the role of altruistic behaviour in evolution and of evolution in the development of altruistic behaviour.

* * * * *

We received Alfred Glucksman's article, highly critical of Jacques Monod's views on the cell in "Chance and Necessity", last February. Since then we have been grieved by the news of Monod's death at the end of May. We are told that he was suffering from a malignancy, and went on working and seeing people right up to the end, which is indeed what we should expect of him. The discussion he had with Anthony Appiah and Mark Fitzgeorge Parker in the fog at London Airport (see T. toT. IX ii) shows his deep moral concern—deeper and more open than people would gather just from reading "Chance and Necessity". He said that he wanted to be our friend, and invited any of us to visit him at the Institut Pasteur. As our memorial to him, we gratefully recall the discussion in IX ii, and Alfred Glucksman's article in this number is the kind of vigorous intellectual argument we think he would have welcomed.

* * * * *

Our competition on "How, if at all, should Religion be taught in a society where there are people of many faiths?" brought in a

† *Esse apibus partem divinae mentis*. Georgis IV 220.

number of essays, and our judges, Eric Ashby and David Lane, M.P., said they enjoyed reading the short-listed ones submitted to them. The prize was divided between Catherine Salmon and W. H. Burns, and their essays are published in this number. These two are both looking at the problem in a first-hand way, and believe that there is indeed something to teach. Catherine Salmon is a student dealing perceptively with the challenge of a job she is about to undertake. W. H. Burns is clearly a seasoned campaigner who sees the inadequacies in some of the fashionable proposals which are being mooted. Most of the contributors relied heavily on quotations from the now considerable literature, or described syllabuses such as the new Birmingham one. These two were among those who wrote in an individual way.

Discussion

Time, physical and biological

CHRIS CLARKE, FREDERICK PARKER-RHODES and
BOB SMITH

Bob. I take it that we are not going to have a general philosophical discussion on Time. If we were it would be well worth considering, for instance, J. G. Bennett's work (in *The Dramatic Universe*). He has a very original concept of three-dimensional time, involving sequence, recurrence and potentiality. I realize that just to say this doesn't give much of an idea, but when people are discussing Time in the broader sense I think this should be looked at. However, today we have you, Chris, a physicist, and Frederick, a biologist, here; and let's hear how you define the notion of time in your work.

Chris. Well, I come to this as a relativity theorist, and that results in rather an abstract approach. I look at space and time as being built up (conceptually) in stages, with more structure at each stage. To begin with one has only a bare manifold with no properties other than a rudimentary idea of "nearness" (technically: a topology) and a concept of "smoothness". At this first stage the four-dimensionality of the universe is fed in that will later give rise to the three dimensions of space and one of time.

Then one puts in fields—smoothly varying physical quantities—on the manifold. One of these fields is the metric field, which, according to relativity theory, is responsible both for the basic geometry of the space-time and for gravitational effects (which both amount to the same thing in relativity theory). If this seems to you too abstract to be called space-time, then let's call it "S.T."

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Anyway, this next stage that the metric field leads to has more structure: the directions pointing from any point in the manifold can now be classified into “space-like” and “time-like” and the time-interval (or T-interval, to avoid begging the question as to whether we really have *time* here) or S-interval between nearby points is given a precise numerical value.

This gives a very localized T, but more is needed to give any sort of *uni-directional* trend, any distinction between past and future. The next stage involves making some kind of cosmological assumptions. If one assumes that S.T. is, on a large-scale average, homogeneous in the S-direction (physically interpreted as meaning that the universe is on average the same at all points at a given time) and assumes Einstein’s equations governing the relations between the various fields and particles, then one is led to the Big Bang model of the universe as the simplest global structure that is compatible with astronomical observations.

This now gives us a universal T with a directional structure, because of the assumed origin of the universe in the Big Bang. The basic idea now is to try to derive all the phenomena which we usually think of as properties of time itself as properties of *events in T*, the bare, abstracted time. The directionality of these events is supposed to be due not to a fundamental property of time, but to the directionality imposed on the solutions of the equations of physics by the Big Bang model. This model has as a consequence, for example, the fact that the sky looks black at night. This is Olber’s effect: in a Big Bang model the light from distant galaxies becomes redder and dimmer the further away they are, so that the total light we receive from them is quite small, unlike what would happen in a static infinite universe. This gives a basic directionality to thermodynamics. It is claimed that this in turn gives a directionality to the process of making records (let’s come on to what this means later) and hence leads to the directionality, in time, of memory which is the basis of the distinction between past and future.

We ought to think now about the adequacy of all this. Are there other aspects of time which this view has no hope of explaining? What happens if one looks at it from a different point of view: what does the organic tell us about time?

Fred. What does the organic tell us about time? On the reductionist view, of course, organisms can be fully accounted for in terms of their physics and chemistry, and that way time is just the same in biology as in physics, apart from the context. But if one thinks of a living organism as a form, manifesting itself through an ever-changing collection of atoms and molecules, rather as a wave of the sea manifests through an ever-changing portion of water, then it is this form, rather than any material that may be associated with it, that one is ultimately studying, and there is no reason why time as it affects matter should be specially relevant to such a living form.

But we don't just have persistence of form. Organisms reproduce their form, but never perfectly, and since there are inevitable differences in viability between variant forms, repeated reproduction leads to long-term change, favouring ever more viable forms as against the less viable. An increase in diversity of types, at first slow, but accelerating because of the accompanying increase in diversity of habitats to adapt to, becomes apparent. Evolution, of which at least a narrow leading edge shows progress in complexity, seems to be a predictable accompaniment of life.

Does this make biological time different from physical, or is it only a question of a different kind of events enacted in the same kind of time? Either description might be defended, but I would claim that in relation to biological phenomena, but not to physical ones in isolation, time has an inherent direction: you can't read it the other way on, whereas in physics you can. More importantly, in organisms (either as individuals or as species) *information* increases with time—I mean the information which specifies the structural and functional aspects of an organism—whereas in physics it is entropy which increases.

Chris. Yes, this looks like a contradiction because information is often defined as negative entropy. But there needn't be a conflict, just a gap in the physical picture. If we're dealing with open biological systems, then physics allows information to increase, but there are only partial explanations in very particular cases of why it should be so—no fully general account.

Fred. Well, an organism, if we think of it as a form imposed

on the substance we see it in, is virtually “made of” information, in the same sense that particles in physics are “made of” energy. It is real enough for us to be able to read it off, to some degree, from the DNA. The inevitable increase in diversity which I mentioned, and the reaction of evolving forms to it, is biologically a sufficient explanation for the increase of information with time. There are ever more kinds of organisms, and each kind needs to get ever bigger information-wise.

Chris. But for me the ultimate source of this irreversibility must be traced back to the Big Bang.

Fred. But don’t cosmologists say that the whole process is itself reversible, and that in principle it could collapse again onto a point—a super black hole? So we don’t really know, from anything inherent in the system, which way we are going. But in biology there is an inherent directionality. Speaking anthropomorphically, the drive of living things is to outwit the march of time, either by keeping alive as long as possible (like tortoises) or by reproducing enormously (like cod).

Chris. Yes, it’s certainly possible for a Big Bang model of the universe to expand and then recontract towards a point, but the equations governing the fields can’t tell you unambiguously what happens to physics in such a situation. One possibility which I would favour is that the direction of the processes which define the “arrow of time” (entropy increase and so on) reverses at the point when the universe changes over from expansion to contraction. Of course this means that memory and everything else that we use to define the direction of time reverses as well, so that the net result is that everything is the same! The “direction of time” which is actually experienced in such a model is just the direction that goes away from the nearest bang, whichever it may be—with a chaotic region in the middle. So in a sense the “direction of time” reverses in such a model.

Fred. Wait a minute—this needs a lot of thought. You are now claiming that your theory can say in what direction we can experience things. But it seems to me that this is inherently impossible, because the whole philosophy of physical science is to keep the observer, the experiencer, out of it. Experience is a biological notion, and our

sense of direction in time is a perceptual function. To say, as you presuppose one might, that our world is now in a contracting phase which we necessarily observe as an expanding one, is surely archetypal nonsense?

Chris. No. When one talks about a contracting phase one means “contracting relative to the abstract parameter t in the model”. One only gets a contradiction if you assume that the abstract T (with its parameter t) is the same thing as the real time which we experience. But if a physical theory of time is to be any good it has to explain why we experience time as we do.

Fred. On the contrary. The fact that we experience time in such a way that we are led to say that entropy increases depends, I would have thought, on the nature of experience. This is something which takes place in a physical world, which, without it, could be described as easily in terms of decreasing rather than increasing entropy.

It is obviously circular to say that entropy increases, if the direction of time is defined by this effect. But the circle is broken if the direction of time is defined by something at least in principle independent of entropy. Such an independent thing could be the increase of information in an individual organism, for instance, a human observer; it is this which is the basis of our memory.

But what then is the link with entropy? Presumably the increase of information involves thermodynamically irreversible processes. Such an effect is not limited to organisms: one thinks of craters—and footsteps—on the moon, from which one can infer something about its history.

Chris. These are the “records” I mentioned earlier. I must say, I’ve never really understood what is the essential feature of the universe which determine that things like craters exist *after* the impact, and not before. I mean, if we define the direction of time by the increase in entropy of isolated systems, why is it that both for memory and for craters the characteristic event (the impact) is always found at the past end of the history of the system bearing this trace and not at the future end? Just saying that it is all part of a general entropy increase, or appealing to the initial lack of correlations between different parts of the universe, doesn’t seem to pin down the mechanism involved.

Fred. The thing here is that we see the formation of a stable configuration. The difficulty lies in what we mean by “information”. In physics, its only real sense is negative entropy; but we’re confusing this with its biological sense, where it involves actual messages, written in the genetic code, for instance, which operate by being translated.

Bob. Surely biological information isn’t all in the genetic code?

Fred. Oh, no! There are at least four different levels at which it operates. There’s first the genetic level I’ve just mentioned. Then there’s the information in the chemical differentiation of parts, and their consequent mutual influence through chemical diffusion (if not something quicker), for instance hormones. Thirdly, in the sensory system, together with its converse the muscles and glands, in which specific messages, carried by the nerves, link the organism with its environment. Fourthly, at the human level, there is the socially integrative speech function, and all its offshoots.

Chris. Which of these increases?

Fred. They all do. Genetic information increases in the course of evolution. Chemical heterogeneity increases as the individual develops. Increases of information at the nervous level is exemplified in memory, of which there are various kinds. Finally, at the linguistic level, we have oral tradition and eventually the accumulation of written records.

It is important to note that in each case there is a form involved. The first three affect the form of the organism as such, either its initial plan (in the genetic code), or modifications of this reflecting environmental influences (chemical and sensory effects). The speech level belongs to a different order, since the form it affects is primarily social: though of course it is also reflected in the individual through memory and life-habits.

Bob. What has this to do with forming craters on the moon?

Fred. Strictly speaking the craters don’t contain information in this sense; but we ascribe information (of the linguistic type) to them in making inferences about how they got there. The information is thus in *us*. The most basic part of it is the distinction between presence—characteristic of impacts which have already occurred—and absence, which marks those events which have not yet occurred.

This is the only criterion by which we distinguish between “already” and “not yet”.

Chris. But what I still want to know, as a physicist, is how this relates to the parameter t in the abstract model, which is purely physical, and could be replaced by $-t$.

Fred. It is a feature of your mathematical theory, this t , and is not something that can be experienced. You have raised the question, at least for me, of what would be required to *verify* your theory.

Chris. The ways of verifying the theory are indirect: the expanding-contracting models have different physical characteristics from those that only expand (different amounts of deuterium are made in the Big Bang, for instance) and one can check these indirect consequences. At the moment it looks as if we are really closest to the expanding-forever situation.

Fred. All that that means is that we may be able to say now whether the world will end by a reversal of Olber’s effect, or by all the matter running away. The Olber’s effect reversal takes a finite time t , the other an infinite time: but so what?

Chris. I think the point of this expansion-contraction business for us is that it shows up the distinction between the physicist’s time and the biologist’s. For the physicist, time is primarily this t , which is so abstract that it can make sense, in the context of a particular model, to say that the local time-sense defined by physical processes in the t -substratum reverses. But your biological time seems to be really made of change: for physics, change takes place *in* time, in t , but for the biologist the drive to change seems to come first and it is change which defines time,

Actually, several physicists (such as Finkelstein, Bastin, Penrose) are looking at alternatives in which some kind of *process* is taken as basic, rather than the S.T. picture—and this process could be directional. I’ve just started developing one of these myself: a scheme where the basic elements are primitive particles and interactions. Again, it’s very abstract: perhaps we should call them P’s and I’s, because there is to begin with no space or time such as one normally associates with particles. Space and time are built up from relations between the P’s and I’s. It looks as though one can get back to the

S.T. model in a suitable approximation, but this is all very tentative at the moment. I don't yet see whether I am using something more 'dynamic' than the physicists' t , or not.

Bob. This seems to be getting even more abstract than before. For me, you'd have to take real memory and consciousness into account.

Chris. Yes, that shows up a physical defect in the P.I. model (and even more in the S.T. model!). So far I haven't tied it in with quantum theory, and for quantum cosmology I need to put a lot of weight on the progressively developing memory in the universe. It's this accumulated memory which is responsible for the crucial elements in quantum theory, the "measurements" which allow things to crystallize into one state rather than another. I know this is still a long way from biological time and consciousness, but isn't it in the same sphere?

Fred. We must remember that memory is unidirectional. That, certainly, is the main point of my criticism of you when you say for example that the Big Bang could happen either way. One doesn't need to be a reductionist to admit that if *all* the laws of physics were reversed, then memory would go backwards too; and as this is, in my view, the one thing we might measure the direction of time against, the supposed "reversal" would be a washout.

Bob. The whole question of time "reversing" is one of relativity. If you can't say what time is reversed relative to, then how can you say whether or not it *is* reversing? To make the idea meaningful, I think the only possibility is to find some kind of observer-consciousness outside.

Fred. Consciousness is best considered, in this context, as a special kind of information-processing, a repeated self-monitoring effect, in which one is not only conscious of what one sees, but also of one's being conscious of it, and (in principle) so on. Obviously, each monitoring operation must follow, and not precede, the operation monitored (so that the moment we are conscious *of* is always a step behind the one we are conscious *in*). But overall the monitoring runs parallel with the activities being monitored, which include the operations of consciousness themselves; the same relations hold in high-level computing systems. This means

that consciousness, if we take this to include *all* levels of the monitor-system, is not itself a very reliable time detector. It is through *memory* that we are conscious of time, and short-term memory at that.

Chris. I'm sure all this is touching something which physics very much stands in need of. In trying to combine quantum theory with cosmology, I've become convinced of the need for a kind of memory in the universe which exerts a structuring influence, giving a background against which quantum theory can make sense.

Bob. You're getting a long way from consciousness now. In fact, it looks as though you're defining "memory" in such a broad sense that it loses all its meaning. When I use concepts drawn from consciousness, like memory, I want to use them in a much stronger sense.

Going back to what you said about footsteps on the moon, and the universe having a memory. If Robinson Crusoe came along and said he saw footsteps on the moon, and inferred that a man had been there, he would have needed to have been able to form an image of the man. If all he sees is a footprint, then this wouldn't suggest a *man* unless he'd had conscious experience of men in the past. So the footprint stimulates *Crusoe's* memory, not the universe's.

Fred. How metaphorical is all this about memory? It strikes me we are talking about two different things under the one name.

Chris. I know it's a long way from memory as we think of it in biological time, or from consciousness: but still, isn't it in the same universe of discourse?

Black and white hole hierarchical universes

A synthesis of the steady state and big bang theories

I. J. GOOD

“Great fleas have little fleas upon their backs to bite ’em
And little fleas have lesser fleas, and so *ad infinitum*,
And the great fleas themselves, in turn, have greater fleas to go on,
While these again have greater still, and greater still, and so on.”

Augustus de Morgan, *A Budget of Paradoxes*
(1872, p. 377).

It is doubtful whether any cosmological model will ever be generally accepted, and a choice between models, all of which are consistent with the observational data, may always need to be made by aesthetic judgment.¹ In my opinion, the concept of a steady-state universe is aesthetically preferable to that of a big-bang origin of all that exists, and some of us were disappointed when the evidence accumulated in favour of the latter concept. The question arises then whether the steady-state concept can be maintained in some modified form without appreciable adhocery. This can be done by assuming that universes form an infinite hierarchy and a plausible way of arguing that this is so depends on the notion of a black hole. In an earlier form this proposal was made by Good (1972, 1973b) and is now expounded with some corrections and elaborations. It is a synthesis of the steady-state and the big-bang theories. A part of the present theory has been anticipated more than once in science fiction. Nevertheless it might be wrong.

In the usual Steady State theories, it is assumed that there is continual creation of matter and that our observable universe has existed

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forever. It is also assumed that the large-scale properties of our universe are the same everywhere and at all times. This is called *the Cosmological Principle* (see, for example, Sciama, 1959) or the Cosmological Principle of Uniformity.² Observations made during the last twenty years (from our earth) fairly strongly supported the Big Bang hypothesis rather than the Steady State theory in its original form (due to Bondi and Gold), and this appeared to undermine the cosmological principle. But it is possible to save the principle by replacing it by a *Grand Cosmological Principle (of Uniformity)* in which one assumes that the large-scale properties of the *entire* universe are essentially the same at all times, where “large-scale” implies a much larger domain than was intended in the Steady State theory in its original form.³ The [Black (and White) Hole Hierarchical Universe theory, which I am going to describe, also resolves the paradox of a beginning for time and is consistent with the Grand Cosmological Principle.⁴

In a nutshell the basic idea is that the entire universe consists of an infinite hierarchy or tree of universes and that the mechanism for the branching depends on black holes and would be facilitated by “continual creation”. The theory seems beautiful to this beholder who believes that any theory of black holes that would rule out the (Black Hole) Hierarchical Universe theory is probably itself mistaken. (Compare Dirac’s remark quoted in Note 1.)

Because the theory is based on the notion of black holes I shall summarize some of their features as explained by Roger Penrose (1972). (See also Penrose, 1968, and Ruffini and Wheeler, 1971). The concept of a black hole is conveniently introduced by considering the evolution of stars according to current theories. In about five billion years the sun will evolve into a red giant of diameter about 250 times that of the sun today. It will then evolve into a white dwarf about the size of the earth, with its electrons etc. packed close together. It will then cool off to become a black dwarf. But a star with twice the mass of the sun would have too much mass to settle down to be a white dwarf, and its gravitational force will cause it to collapse further to a state in which it will explode as a supernova. This has a collapsed (non-exploding) core known as a neutron star which consists of neutrons tightly packed together and

which has a radius of about four miles. Neutron stars were predicted by Baade and Zwicky (1934) and their theoretical properties were developed further by Oppenheimer and Volkoff (1939). Since 1967 the concept of rotating neutron stars has been found to explain pulsars.

Neutron stars of a few times the mass of the sun would collapse once again and become black holes from which, apart from quantum-mechanical “tunneling”, there is no return.⁵ By this is meant that matter and radiation can get into a black hole but cannot get out (Laplace, 1976, p. 305; Oppenheimer and Snyder, 1939). But the existence of black holes is in principle observable from outside by their gravitational effects on the radiation that just fails to be captured.

Black holes are believed to have a further property that seems counter-intuitive at first. When viewed by a remote observer O_1 outside the black hole, the objects falling into the black hole never pass the so-called “event horizon” which will here be regarded as the surface of the black hole. But an observer O_2 who is himself falling into the hole passes through the event horizon without even noticing any special local phenomena. This incongruity in the clocks of the two observers is more remarkable than the familiar one of special relativity. According to O_1 , O_2 appears to be flattened against the event horizon as if by a steamroller in a cartoon. To O_1 the interior of the black hole therefore has a somewhat metaphysical existence, but in a geometrical model we take the There-You-Are point of view.⁶ For rotating black holes the Steamroller surface is distinct from the Abandon Hope surface.

It is usually accepted that a non-rotating black hole without electric charge must have a space-time *singularity* within it and that everything inside the black hole falls into the singularity and is totally crushed by the gravitational field (Hawking and Penrose, 1970). A singularity is a portion of space-time where present physical theories break down. There are various conceivable kinds of singularity. (See Misner, Thorne, and Wheeler, 1973, p. 940.)

But presumably all black holes rotate, and although rotating black holes also have singularities of a kind if certain conditions are satisfied (Penrose, 1974), it seems possible for matter (and

energy) in them to avoid singularities and instead to pass through a "wormhole" (an "Einstein-Rosen bridge") into another region of space-time.⁷ (See Hawking and Ellis, 1973, p. 360.) It is natural to assume that the smaller the angular momentum of the black hole, for a given mass, the more these wormholes will resemble singularities and the more crushing they would be to the unfortunate spelunker. But at any rate the matter that can squeeze through may well form a "pimple" or "mushroom" connected by a thin neck, and by a black hole, to the orange that is our home, the observable universe.

Whether the pimples should be regarded as new universes is to some extent a semantic and quantitative issue, since the amount of interaction with the mother universe might depend on the width of the wormhole. We may think of a singularity as a limiting case of a wormhole when the width of the wormhole tends to zero, and thinking of a singularity in this manner suggests that the energy that is sucked into a singularity also emerges into another universe with its quantity conserved. Calling the pimple a new universe seems especially appropriate when it emerges from a singularity. For the sake of simplicity of exposition, I shall regard each new pimple as a new universe although it usually has an umbilical cord connecting it to a womb (black hole) of its mother universe. Lovers of mythology might suppose that the mother universe must first be impregnated by God. As a theological diversion, it is entertaining to equate each universe with a God, along pantheistic lines, and to conjecture that some of these gods would be atheists, that, is they would not believe in the existence of a single God who created everything. According to ancient Babylonian mythology, these gods would have been justified in their atheism since the first gods, Lahmu and Lahamu were begotten by a watery chaos (Jacobsen, 1957).

Since we are assuming that time has been going on forever, our own observable universe must, with unit physical probability, have an infinity of ancestors. I am here assuming that the laws of nature have not evolved, over the generations, from something entirely different. Maybe our ancestral universes evolved from more primitive ur-universes where the concept of time, for example, was inapplicable, just as eggs and chickens evolved from ur-eggs and ur-chickens. But it is simpler to assume the eternal validity of the Grand Cosmological Principle.

Is our observable universe, like each living human, one of the most recent generations? Perhaps. But if a further assumption is made, we might “already” have numerous generations of descendants; “already” in the sense that in principle it would be possible to travel to them but not “already” in our ordinary time scale. The further assumption, which is analogous to Mach’s principle (e.g. Eddington, 1946), is that the elementary particles in each new universe are of masses roughly proportional to the total energy in that universe, or the particle masses might depend on the width of the wormhole from which they emerge.⁸ (Also small universes might develop much more quickly than large ones, so our universe might already have an infinity of descendants.) If then there are any “white holes”, which by definition are “Black holes with the time reversed”, in our observable universe,⁹ and which originated from black holes in other universes, they might be expected to contain elementary particles smaller than those to which we are accustomed. This is an additional speculation but it would follow naturally from the winding-space arguments of Good (1962a). It may be capable of some observational confirmation. If it is true, then the complete model, though hierarchical, would not have a pure tree structure because some branches would grow *into* other branches. The structure would then be an oriented linear graph combined with temporal aspects that would make it exceedingly complicated.

One advantage of the Hierarchical Universe theory is of course that it prevents the big bang from being a *total* mystery.¹⁰ It seems unscientific to bring God in at a *finite* time back in the past: creation all the time or creation an infinite time ago seems more reasonable to me. I must concede, however, that, owing to the possibility of transforming the time scale, it may not always be clear whether a point in time is at a finite or infinite time ago, as pointed out by Milne (1935). Our observers O_1 and O_2 provide an illustration of such a transformation, although this example was not known to Milne as far as I know.

It is believed that most black holes arise from rotating matter, and this might imply that our space is not isotropic. The breakdown of the law of “parity” shows that space is indeed not isotropic. The breakdown of this law shows that, in our observable universe, right-handed and left-handed systems of coordinate axes can be dis-

tingued. In accordance with Mach's principle this would be a natural consequence of the rotation of the observable universe. This rotation is presumably too slow to have been directly observed, but it is to be expected if our speculations are correct.

To summarize then, the (Black Hole) Hierarchical Universe theory, though speculative,

- i) is a synthesis of the big-bang and steady-state theories;
- ii) to some extent explains the breakdown of parity;
- iii) to some extent explains the expansion of the universe;
- iv) to some extent explains how the big bang arose;
- v) saves the Cosmological Principle (in a "Grand" form).

The Hierarchical Universe model is reminiscent of the ivory spheres, one within the other, that many Chinese craftsmen carved in past centuries,¹¹ and this was my reason for choosing the earlier name "Chinese Universes". But, since the universes form a logical tree, the name "Hierarchical Universes" seems more descriptive.

The Steady State theory in its original form assumed that our observable universe has existed forever. Then the fraction of matter that could sustain life would be vanishingly small, because nearly all matter that had existed would have fallen into black holes. On the Hierarchical Universe theory the fraction may be small but is not vanishingly small and therefore it seems to be a better theory, leaving aside the observational evidence against the original Steady State theory.¹²

The Hierarchical Universe theory has something in common with a proposal by Hjellming (1971), who assumes just two "sheets" (as in the speculation of Einstein and Rosen, 1935) interconnected by black hole—white hole singularities. It would of course be interesting to know what observations could discriminate between the various speculations. Perhaps for this it would be necessary for the speculations to become theories in the sense of making quantitative predictions to at least 1% accuracy.

I am indebted to Dr. Ronald Adler and to Dr. George Debney for several useful comments and references to the literature, although they have not expressed wholehearted support for these speculations. Adler points out that the notion that we are in a black hole, and that

there are external observers, is novel, but without the outside observers “it is a very old idea and a favoured cosmological model—the Friedmann universe”. (See, for example Adler, Bazin, and Schiffer, 1965, pp. 364 and 383; Tolman, 1934, §163; Friedmann, 1922.) The referee, Dr. Christopher Clarke, also made very valuable comments.

Adler mentions that Carter (1968) pointed out that a charged black hole has the same gyromagnetic ratio as that of the Dirac electron.

Roger Penrose (1976) informs me that he briefly speculated about hierarchical universes in a paragraph on page 122 of his Adams Prize essay of 1966, but he says “I don’t think I really believe it though!”

Notes

1. Weinberg (1972, p. 19) points out that Einstein became dissatisfied with all relativistic field equations for a single gravitational field largely on aesthetic grounds. Dirac (1963) even said “. . . it is more important to have beauty in one’s equations than to have them fit experiment . . . That is how quantum mechanics was discovered”.
2. Bondi (1960) and Hawking and Ellis (1973) define the *Copernican Principle* as the assumption that our position in space is not specially distinguished in any way. I think this is the same as the Cosmological Principle of Uniformity.
3. “Universe” unqualified is intended to mean our observable universe, or occasionally another universe observable by its inhabitants (if any), and “entire universe” means the collection of all such universes.
4. This (Black Hole) Hierarchical Universe theory is entirely different from the (Continually) Branching Universe theory, which is sometimes less well called the Many Worlds theory, though both theories could be called branching or hierarchical. The latter is a theory due to Everett (1957), and perhaps partly to his senior professor John Wheeler, and was designed as a meta-physical (?) underpinning for quantum mechanics. In Everett’s theory the universe splits into many almost identical universes whenever there is a particle interaction anywhere. The theory is bizarre enough to be true. For its under-baked predecessors see Good (1962b), Leinster (1934), de Camp (1940), and Asimov (1955). “Hierarchical universes” is used in yet a third sense by de Vaucouleurs (1970) and by Wertz (1971), namely to describe a state of affairs in which the average density of matter decreases as larger and larger volumes of space are taken. A specific form of this model was proposed by C. V. L. Charlier with clustering of galaxies, clustering of clusters etc., as a resolution of the Halley-Olbers paradox (see Misner, Thorne, and Wheeler, 1973, p. 756). To distinguish between the three meanings we could refer to Black Hole Hierarchical Universes, Continually Branching Universes, and Hierarchical Clustering of Galaxies.
5. Curiously enough, energy can be extracted from a *rotating* black hole though no matter can escape once it falls in. This is explained by Penrose (1972, p. 45.) It is not quite accurate to say that nothing can get out of a black hole, for it is theoretically possible for particles to emerge by quantum-mechanical

tunneling, as Carr (1975) has pointed out. This would lead to the evaporation of a black hole of 10^n tons in about 10^{3n-11} seconds. Hence a black hole of mass greater than 10^{10} tons would last longer than the age of our observable universe. The sun weighs 2×10^{27} tons. Observational evidence for black holes is summarized by Gursky and van der Heuvel (1975) and by Hawking (1972).

6. We can imagine God creating the whole of space-time "in a flash" and saying "There you are!", although it is difficult to imagine this unless God lives in a second time dimension. The integration of space and time in the theory of relativity is evidence for the There-You-Are universe. Whitrow (1972) calls it the "block universe". Perhaps it was this idea that made Einstein believe in determinism.
7. Einstein and Rosen (1935) suggested that possibly physical space should be represented by a mathematical space of two nearly identical hyper-sheets, a particle being represented by a "bridge" connecting them. In my speculative article on Winding Space, Good (1962a), I gave a plausible reason for expecting that there are an infinity of such sheets. (The argument suggests that there are an infinity of possible kinds of elementary particles with masses varying from one part of the universe to another.) The "other region of space-time", mentioned in the main text, might be one of these sheets, but it is not necessary to assume this. Winding Space has curvature but may be unbounded.
8. Mach (1893/1960, p. 284) conjectured that inertial frames are determined by "the earth and other celestial bodies", Eddington (1946) that elementary particle properties were determined by the distribution of matter as a whole (though he did not reference Mach). It is about as fair to use the expression "Mach's principle" to mean that local laws depend on very distant matter, as to use "Copernican principle" to mean "Cosmological principle". Hoyle and Narlikar (1974) work out in detail a principle more like Eddington's than Mach's. They even allow particle masses to take negative values, and this leads them to a model consisting of many universes. Their model is I think not hierarchical and therefore cannot be similar to the independent proposal in Good (1972, 1973b) where the existence of universes of positive and negative masses was also conjectured.
9. I used the expression "white hole" in Good (1972) in a different sense, but the meaning in the present text seems to be standard.
10. This is not quite true since there is another theory, mentioned by Sciama (1959, p. 142), in which the universe is assumed to stop expanding, then to contract to a point, and then to start all over again with a big bang. This oscillating or Phoenix or bang-bang theory, as it might be called, really consists of two parts, one of which (the contraction) has some evidence against it (for example, Wagoner, 1973), though the subject is controversial. The other part of the theory, Phoenix rising from the ashes, is almost as speculative as the theory proposed in the present paper. The intuitive appeal of the oscillating theory is that "what goes up comes down". Hoyle and Narlikar (1974, p. 181) say, "This goal [the oscillating universe theory] has often been sought, but has never been attained within the scope of the usual theory." They apparently achieve the goal by assuming a form of Mach's principle. As Musaios, a pupil of Orpheus said, "Every-

thing comes to be out of One and is resolved into One" (Cornford, 1952). Neither Sciama nor Hoyle and Narlikar mention the names of the previous seekers of the Phoenix theory,

11. In Good (1972, 1973b) I assumed that infinite densities would arise in black holes or in their singularities, and interpreted this in terms of the background of infinite (negative) density that occurs in Dirac's concept of an electron (Dirac, 1974, p. 273). The universe that would grow by continual creation within the singularity would then consist of matter of opposite sign to this background and so of opposite sign to the matter in the external universe. (This is not to be confused with antimatter, where the signs of the *charges* are reversed, instead of the signs of the masses.) In the picture of carved spheres some were of ivory and some were of ebony, alternating in successive generations. But this notion of universes of two signs can be regarded as an additional speculation.
12. I am not entirely sure that the logic of this statement is sound, but consider the following analogous argument which is certainly sound. Eddington (1933/52, p. 5), after pointing out that the earth and sun are of middling size, *qua* planet and star, says "So it seems surprising that we should happen to belong to an altogether exceptional [exceptionally large] galaxy". He apparently overlooked that if a planet is chosen at random it is more likely to belong to a specified large galaxy than to a specified small one. This point is argued in some detail by Good (1973), and, as mentioned there, ". . . in my next reincarnation, assumed to be on this planet, I might very well be Chinese but would be surprised to be born in Liechtenstein".

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Monod's concept of "the cell" and of "teleonomic systems"

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In *Chance and Necessity* (Fontana, 1974) Monod presents a rational (the word 'national' in my copy is presumably a misprint) philosophy of modern biology based on the molecular biology of the bacterium *E. coli* which he has been instrumental in elucidating. The account of the structure and function of this bacterium is admirably lucid. His extrapolation to higher organisms of the principles applying to and sufficient for bacteria is open to criticism on biological grounds. This essay is concerned only with these aspects and not with the speculations about evolution, language, social theory, philosophy and religion.

According to Monod the persistence of the characteristic identity of living organisms and of their species depends on the "invariance" of the genome (the total of inherited material which is responsible for inheritance) which is founded on the "necessity" of the chemical properties of DNA and proteins, while the evolution of the species is due to the "chance" of mutational events in these compounds. These changes are the only source of creating diversity in the genetic structure of living beings and whether they are compatible with the survival of the organisms, and thus acceptable, is decided by their "teleonomic structures". This summary of the tenets reduces them to their essential elements, though they are elaborated in the book with qualifications. As an extreme reductionist in respect of biological phenomena Monod will not object to this crude reduction of his philosophy of modern biology.

Issue is taken with two main points: 1) the extrapolation from bacterial "cells" to somatic or germ cells in higher organisms neglects some essential and important differences between bacteria

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and higher organisms such as mammals and is not justified; 2) the reduction of the teleonomic structures in the organization of mammals to the cybernetic level of "cells" neglects their role and variation at different planes of the organization of tissues, organs and organisms and the "teleonomic systems" become merely a *deus (dei) ex machina*.

On the first point the criticism is on safe biological grounds. The second point is more difficult to deal with, since the knowledge of the integration of cells, tissues and organs into the structure and function of a higher organism is an as yet unsolved biological problem and varies with species and in the same species with sex. Thus we have to analyse whether and what contribution the concept of "teleonomic structures" makes to the elucidation of this integration.

Bacteria reproduce asexually, produce exact and identical copies of the parent in the offspring and thus preserve the genetic invariance for generations unless a mutation intervenes. Mammals reproduce sexually with male and female gametes contributing to the genetic make-up of the offspring which is thus not an identical copy of either parent. The total amount of genetic information stored in the chromosomes remains constant in the diploid offspring as the gametes are reduced to a haploid state by meiotic divisions during their differentiation. Diploidy is restored by the fusion of the two haploid gametes. The contribution from both parental germ cells introduces the variation in the genetic constitution of the resulting individual and thus a diversity which is considered to be of evolutionary value to the species. Bacteria conjugate occasionally by a one-way injection of DNA from one into another resulting in a transient and partial diploidy which is corrected by the extrusion of superfluous genetic material. This process is fundamentally different from the fusion of two gametes in sexual reproduction. Thus sexual reproduction introduces diversity in the genetic constitution of the offspring, which in the asexual proliferation of bacteria is brought about only by mutation.

In mammals mutations occur in somatic cells as well as in gonocytes. Mutations may cause some abnormalities in somatic cells such as malignant growth. In bacteria somatic and genetic mutations are identical, while for the evolution of higher organisms only the

genetic mutations matter. Monod accounts for the high incidence of certain mutations in man by stating (p. 116): "in a higher organism, for example in a mammal, the genome contains a thousand times as many genes as the genome of a bacterium; and the number of cellular generations, hence the number of chances for mutation, in the germinal line (i.e. the line of cells from ovule to ovule or from spermatozoon to spermatozoon) is very great in a higher organism". The number of generations of germ cells differs in males and females: production of gonocytes in women is limited to about 8 months of fetal life as compared with some 50 or 60 years in men following puberty. The chances for genetic mutations in men thus exceed by a factor of 50 or more those in women, assuming that the duration of the mitotic cycle is about the same in both sexes and neglecting the reduction of ova from about 7,000,000 in the 5 months old fetus to about 500 during the whole of the reproductive period of about 38 years in women. Meiosis in oocytes lasts longer than in spermatocytes and if this stage is assumed to be particularly liable to mutations, the sex difference in chance for these events might be reduced to about 20%. Though less likely to mutate, ova have a greater chance for fertilization than sperm: 1 in less than 500 ova as against 1 in 3,000,000 sperm (a spermatogonium with a mutant gene produces less than 100 spermatozoa and 300,000,000 sperm compete for fertilization at a time). These sex differences make it impossible to equate bacterial with genetic mutations in mammals.

In some respects bacteria resemble somatic cells of higher organisms, since both replicate asexually and produce identical copies of themselves. Somatic cells, even when capable of proliferation, are differentiated and closely linked with other cells of the same or a different kind of specialization within a tissue or organ. Except when grown under artificial conditions, they do not act as individuals like members of a colony of bacteria, but react in concert with others to signals from each other, other parts of the body or from outside. Only the blood cells are free from the bondage of tissue organization and are thus more alike to bacteria. The likeness is greater between the stem cells with their less restricted capacity for proliferation than their daughter cells which produce only a limited number of generations. The similarities do not extend beyond the absence of tissue

bonding and are not reflected in the organization of the cells: bacteria are closed against the outside by a wall, their genetic material intermingles with the cytoplasm which has a simple structure; their activities are geared to the uptake of nutrients for the rapid reproduction. Somatic cells have a thin cell membrane, their chromosomal material is separated from the cytoplasm by a nuclear membrane and there are a number of specialized internal structures. They are concerned with the formation of specialized compounds rather than with their own reproduction which usually occurs at long intervals compared with bacteria. The specialization for the making of specific substances may actually conflict with their survival and capacity for proliferation as in the case of the red blood cells which form haemoglobin not for their own benefit, but for that of the organism as a whole.

The genome of a mammalian somatic cell contains an enormous amount of information, most of which is not activated during its life span, while bacteria may use many of their genes. The relation between operational and inactive genes may thus be different in the haploid bacteria and the diploid somatic cells of mammals and be reflected in a different and more complex pattern of gene control. Indeed a system of integratory, sensor and receptor genes has been postulated (*Nature*, 1976, 259, 270–271) for the diploid eukaryotic somatic cells in distinction from those present in the haploid prokaryotic bacteria. Monod recognizes (p. 133) that bacteria have nothing primitive about them, but are specialized organisms. The unqualified use of the term “cell” for bacteria and somatic cells or gonocytes hides fundamental differences in organization. One is reminded of the fable of the ass which after accidentally stumbling in a river, found the sack it carried much lighter, but when doing it deliberately on another occasion found the sack much heavier—because the first sack contained salt and the second sponges. Cells like sacks may have different contents. It is not sufficient to state: a cell is a cell, is a cell, is a cell, but it has to be specified, what cell is meant and what is meant by a cell.

These few examples may suffice to point to areas of fundamental differences between bacteria and mammalian cells. Some other facts such as the diversity of female somatic cells with either an inactivated

paternal or maternal X-chromosome, the suppression of faulty genes on such chromosomes by some somatic cells or the elimination of cells carrying them in some sex-linked genetic abnormalities, the deaths of some cells during embryonic development which are capable of survival at other sites, imply high degrees of diversity within even the same cell population as well as the action of extracellular regulatory mechanisms which render the extrapolation from bacteria to mammals futile. The action of such regulatory and integrating factors is acknowledged by Monod who terms them "teleonomic structures", but he tries to reduce them to the cybernetic system of cells and further to the stereoscopic recognition properties of proteins.

Do his statements about the teleonomic structures shed any light on the integration of cells into tissues, of tissues into organs and the whole of the organism which involve complex interactions between cells of different sorts, regulation by nervous, humoral and various physico-chemical systems at different levels of organization? His concept of the teleonomic structures can be gleaned from the following quotations:

"The essential teleonomic project consists in the transmission from generation to generation of the invariance content characteristic of the species. All structures, performances and activities contributing to the success of the essential project will hence be called 'teleonomic'. This allows us to put forward at least the *principle* of a definition of a species' 'teleonomic level' . . . (which corresponds) to the quantity of information which, on the average and per individual, must be transferred to assure the generation—to generation transmission of the specific content of reproductive invariance . . . It is a matter not only of the activities directly linked with reproduction itself, but all those that contribute—however indirectly—to the species' survival and multiplication" (pp. 24–25). This all-embracing statement is refined on p. 51:

"The concept of teleonomy implies the idea of an *oriented, coherent* and *constructive* activity . . . Proteins must be considered the essential molecular agents of teleonomic performances in living beings." and on p. 52:

"All these teleonomic performances rest, in the final analysis, upon the proteins' so-called 'stereoscopic' properties, that is to say

upon their ability to 'recognize' other molecules (including other proteins) by their *shape*, this shape being determined by their molecular structure."

He admits that the role of the nervous system, of blood vessels, of endocrine regulators as intermediate agents in the integration of cells and organs are not covered by these statements and goes on (p. 79):

"In multicellular organisms the coordination between cells, tissues and organs is guaranteed by specialized systems; not only the nervous and endocrine system, but also direct interactions between cells. I shall not here discuss the functioning of these systems, which has as yet almost completely evaded microscopic description. We will, however, accept the hypothesis that in these systems the molecular interactions which ensure the transmission and interpretation of chemical signals rest upon proteins endowed with discriminatory stereoscopic recognition properties . . ." He goes on on p. 88:

". . . the 'cognitive' properties of cells are not the direct but rather a very indirect expression of the discriminatory faculties of certain proteins. Nevertheless the construction of a tissue or the differentiation of an organ—macroscopic phenomena—must be viewed as integrated results of multiple microscopic interactions due to proteins, and as deriving from the stereoscopic recognition properties of those proteins, by way of the *spontaneous* forming of noncovalent complexes. But it must be recognized that this 'reduction to the microscopic' of morphogenetic phenomena is not yet a working theory of those phenomena. It is more a position of principle which specifies only the terms in which such a theory would have to be formulated if it were to aspire to anything better than simple phenomenological description. This principle defines the objective to be reached but throws little light on the way to reach it." This is a crucial admission that the teleonomic structure of organ systems and organisms is no more than a term without specific implications as regards the phenomena of integration and it is more than questionable whether these can be analysed and understood by the reduction to the properties of proteins. The same objections apply to the statements on p. 94:

"The *ultima ratio* of all the teleonomic structures and performances of living beings is thus enclosed in the sequences of residues making

up the polypeptide fibres, 'embryos' of the globular proteins. . . . In a very real sense it is at this level of chemical organization that the secret of life (if there is one) is to be found. And if we could not only describe these sequences but pronounce the law by which they assemble, the secret would be declared open, the *ultima ratio* discovered." Monod jumps here from the "position of principle" (p. 88) and the "hypothesis" (p. 79) to an assertion that teleonomic structures are globular proteins or their precursors. This is further amplified on p. 102:

" . . . how does each species, using the same materials and the same chemical transformations as all the others, maintain, unchanged from generation to generation, the structural norm that characterizes it and differentiates it from every other? We now have the solution to this problem. The universal components—the nucleotides on the one side, the amino acids on the other—are the logical equivalents of an alphabet in which the structure and consequently the specific functions of proteins are spelled out. All the diversity of structures and performances the biosphere contains, can therefore be written in this alphabet."

The analogy with the alphabet in this context implies that the knowledge of the alphabet and its use accounts for the structure of a language. This is obviously not so: an alphabet has no bearing on grammar, syntax, variation of the meaning of words in different contexts (i.e. "cell" can refer to prisons, honeycombs, monasteries, car batteries, the whole or parts of living organisms, political units, etc). Indeed the alphabet itself is conditioned by the language, when "a" becomes alpha or aleph and there are also languages without an alphabet as for instance Japanese. The part or constituent does not provide a sufficient or adequate guide to the structure of the whole. Monod attacks with scorn and wrongly the holistic attitude to biological phenomena for neglecting the analytical approach, while this approach is considered merely as insufficient to account for the integration of parts into the functioning entity of organisms. In the parable of the Martian engineer (p. 80) who would not understand the working of an earthly computer without dissecting the basic components, a knowledge of earthly propositional algebra and familiarity with earthly engineering designs and electronics is assumed. Sheer

reductionism to the level of bacteria or further to the properties of proteins neglects the problem of integratory processes of components into the structure and function of higher entities. This attitude is reminiscent of the student of systematic zoology who got only as far as vermes. When asked in the examination about the proboscidea he answers that "the elephant is a large mammal with small eyes, which in spite of their size can still see worms. Annelida are classified. . . ."

This critique is not intended to belittle or doubt the success of unravelling the structure and function of bacteria as elucidated by Monod nor the importance of nucleotides and amino acids for the structure and function of all living beings. It is directed against equating bacteria with mammalian cells and organisms and against the reduction of the essentially holistic concept of teleonomic structures to the properties of proteins and thus ignoring the very real problem of the integration essential for the formation of higher organisms.

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Prototypic organisms XIV

Hunting wasps

SARAH A. CORBET

It is difficult to describe the behaviour of insects in an objective way. For the great majority of the few million species of insects in the world it may be possible, but the task is much more challenging for the wasps. Like their relatives the bees and ants, wasps do amazingly elaborate, adaptive and apparently purposive things. It is easy to describe their activities as if they were the consequence of reasoned decisions, but to do so obscures the crucial and fascinating questions that surround the evolution of such behaviour.

Birds are set apart from most other vertebrates by their ability to fly, and their whole way of life depends on this ability. Similarly, wasps (and bees and ants) are set apart from other insects by the complexity of their behaviour, and their life styles depend on an inherited behavioural repertoire that may be remarkably complex. There are common features in the behaviour of these insects, the aculeate hymenopterans. Most of them walk or run fast and directly, moving their antennae busily as they go, so that it is often easier to recognize them as hymenopterans in the field by their determination and speed than by the more conventional morphological criteria. But superimposed on this common proclivity for high-speed living is a great diversity of species-specific behaviour patterns. There are leaf-cutting ants, slave-making ants, honey-pot ants and safari ants; there are bees that make cells from poppy petals and bees that make cells with the woolly hairs from leaves; and among wasps there are species that prey specifically on bees, or on hoverflies, or on leaf-hoppers, or on weevils, or on caterpillars. The ants are all social in some sense, but among both bees and wasps the majority of species

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are solitary. It is the social species with their conspicuous communal nests that are best known to most people. The species that live in large societies cannot afford to be choosy in their selection of food. Social wasps are carnivores with catholic tastes, and social bees patronize a wide variety of flowers. The solitary species, with sparser populations, can afford to be more selective. It is among these solitary species that some of the most specialized and bizarre habits are to be found, and it is from solitary forms that the social forms must have evolved. In this article I will introduce the solitary hunting wasps by considering a group whose life-style is known in some detail. They are not typical—no species can be a type for such diversity—but they illustrate one of many ways of being a wasp.

The wasps in question belong to a genus called *Passaloecus*. They are small (about 5 mm long) and black, and unless you search for them you will not see them. They may live in your garden: until more people choose to notice them we will not know how common they are. I shall deal with three species of *Passaloecus* that resemble each other so closely that they cannot be distinguished with certainty except under a strong lens. They are called *Passaloecus insignis*, *Passaloecus gracilis* and *Passaloecus corniger* and they all live in beetle-borings in my wooden outhouse. I took the opportunity to examine the differences in behaviour between three closely similar species living in closely similar habitats (Corbet and Backhouse, 1975). The problem of species recognition was overcome by catching each specimen anaesthetizing it lightly, identifying it and marking its back with a distinctive pattern of tiny spots of enamel paint, so that when it was seen after release it could be recognized.

The results proved unexpectedly interesting because whereas two of the species hunt food (greenflies) to supply their brood in a conventional way, the third species is a thief. It acquires its greenflies not by hunting them, but by removing them from the nest-holes of other wasps. All the species share a common annual cycle. The wasps emerge at the end of June from the nests in which they developed. After a brief courtship and mating, the males die and females start work. Each one finds a nest site and then stocks it with greenflies, laying an egg in each cell before sealing it off and starting work on the next. Inside the cells the eggs hatch and the wasp larvae begin to develop, each feeding on its ration of paralysed greenflies. The wasps

probably overwinter as mature larvae or as pupae, to emerge as adults the following June.

Selecting a hole for a nest site is a time-consuming job: female wasps run and fly over the beetle-ridden planks of the outhouse, entering hole after hole, only to back out seconds later and move on. Eventually one hole receives special treatment. The wasp may enter it and back out several times, spending longer inside than she did in the other holes. The ultimate distinction for a hole is to be backed into. Wasps back into holes they are about to stock, but they very rarely enter any other holes that way. After backing into a hole the wasp may modify it before she begins to stock it with greenflies. The large oval exit holes of some beetles are narrowed at the mouth by a wall of pine-resin with a central hole just big enough to admit the wasp. Smaller holes may be widened. Excavation of this sort that takes place out of sight deep in the hole can be detected because periodically the wasp backs out of the hole and kicks sawdust from the entrance. This behaviour is accompanied by an audible buzz that frees the wings from sawdust. Occasional buzzes issue from deep inside the hole while the wasp is at work.

When the hole is ready the wasp begins to stock the first cell with prey. This involves capturing greenflies, paralyzing them, and installing them in the hole. These wasps take only greenflies but they are surprisingly catholic in their choice of species: many different sorts of greenfly, from different host plants, are taken by each species of wasp, and often there are several different species of greenfly packed together in the same cell. The three species of wasp differ in their hunting strategies: *P. corniger*, the thief, does not hunt at all; *P. insignis* hunts on foot; and there is a little evidence that *P. gracilis* may hunt on the wing, swooping to seize a greenfly from a leaf. We rarely saw marked (and so identifiable) wasps hunting, but the behaviour of *P. insignis* is fairly well known thanks to a female that returned repeatedly to a colony of greenflies on the underside of a large leaf of giant hogweed. She flew to the leaf, landed, and walked until she was close to a group of greenflies. Then she walked slowly, stopping from time to time to stand with feet set firmly and move her whole body from side to side about two or three times per second, as if visually fixing the position of a greenfly. Sometimes, as the wasp approached, several of the greenflies flicked their bodies from side

to side, and the wasp often responded to this sudden movement by hesitating or backing away a few steps. Eventually the wasp would approach very close to a greenfly, move her body from side to side a few times, and then suddenly pounce forward and snatch the greenfly in the mandibles, giving an audible buzz as she did so. Soon afterwards she flew towards her hole, carrying the prey below her, held only by her mandibles, with its long axis parallel to her own. *P. gracilis* and *P. corniger* carried greenflies in a similar way. The captured greenflies were paralysed, but not killed, so that they were immobile but their hearts went on beating. Most hunting wasps paralyse their prey by stinging it, but *Passaloecus* seems to do it by biting the neck of the prey, perhaps damaging the nervous system. Sometimes this trick doesn't work: I have seen a *Passaloecus* stocking her hole with unparalysed greenflies. Each time the wasp left for another greenfly, her last victim walked safely out of the hole and away.

Females of *Passaloecus corniger* do not seem to hunt: they steal their greenflies, already paralysed, from the nests of other species of wasps or even from other members of their own species; so that some stocks of greenflies may be stolen and restocked two or three times before being finally sealed into a hole. Furthermore nest-holes into which the stolen greenflies are put are often holes usurped from other wasps of their own or another species. In *Passaloecus corniger* the exploratory behaviour involved in hole-selection is just like that involved in prey-finding, and hole-selection and prey-seeking can only be distinguished by context or consequence: a wasp that has found a nest-hole begins to carry greenflies into it; one that has found a hole stocked with prey begins to carry greenflies out of it. The holes from which our *P. corniger* stole greenfly were often within a few centimetres of their own, and were often incompletely stocked. The thieves visited them while the owners were out. The thieves, with a shorter distance to travel, could often remove greenflies faster than their owners could deliver them, especially if the greenflies' feet were tangled together so that *P. corniger* could carry two at a time. In such cases the cell quickly emptied and might be abandoned by the wasp that had been stocking it. An empty hole like this might be taken over by the same or another *P. corniger*.

The thief sometimes arrived to collect a greenfly while the owner was in or near the hole she was stocking. In such cases apparent threat behaviour was directed towards the thief by all three species of wasp. If the owner was inside her hole when the thief tried to enter it, the thief usually withdrew quickly and waited, a centimetre or two away. The owner then sometimes remained in the hole with her head at the entrance, or emerged and stayed near the entrance, making a sudden movement towards any wasp that approached. The thief waited nearby making frequent approaches but usually backing away when the owner started towards her. These situations might last for many minutes, interrupting the stocking behaviour of both wasps. Such interactions were common, but actual fighting was rarely seen. Fighting wasps bit and stung at one another.

When a cell contained its quota of greenflies the wasp laid an egg in it and partitioned it off with a wall of pine resin before beginning to stock the next cell. When a whole series of cells was completed, filling the hole, the wasp would make a thicker wall of resin flush with the surface of the wood, and then stick onto it droppings and pieces of debris that camouflaged it against the rough brown surface of the surrounding wood. A female *P. corniger* would return to her hole repeatedly during the next day or two and give it a treatment that may have been an even more effective protection than the visual camouflage. She would trail the tip of her abdomen over and around the sealed hole as if scent-marking it.

For the first three days after being sealed, while the resin hardened, wasp holes were vulnerable to robbery by *P. corniger*. The thieves removed the resin plug bit by bit in their mandibles, leaving a ring of glistening droplets of resin a few inches away from the hole. Then the thieves stole the greenfly from the opened hole. Nests of *P. insignis* and *P. gracilis* were often broken open in this way, but those of *P. corniger* were usually safe, perhaps protected by their often-renewed scent-marking. The only two *P. corniger* nests that were opened like this belonged to wasps that were prevented from renewing their scent marks (one died and one was anaesthetized) and in each case the hole was burgled within three hours of the owner's disappearance.

All holes have some chemical defence, because pine resin contains

repellant compounds that must give some protection to the wasps who borrow them to seal their holes, as well as to the pine trees. But it looks as if *P. corniger* leaves an extra chemical message on its holes, repelling potential burglars of its own species.

Solitary bees and wasps seem to require high temperatures for normal activity: they are generally most conspicuous in hot sandy places, and they are active only on warm sunny days. When the air temperature is low *Passaloecus* sits in hot spots and warms up. As the morning sun warmed the surface of the planks in which they were nesting the wasps moved to the warmest part of the hole, the entrance. A little later they emerged and moved to another microhabitat that was several degrees warmer than the air, flattening themselves against the sunwarmed surface of the plank or crouching in the warm valley along the midrib of a honeysuckle leaf. Later in the day their activity might be interrupted if a cloud crossed the sun, and as the air cooled in the evening wasps that had entered their holes became less and less likely to re-emerge.

These wasps are thought-provoking beasts. It is hard to see how they can inherit a rich enough set of behavioural instructions to enable them to find suitable holes, excavate or narrow them as appropriate, hunt or steal greenflies, paralyse them, and seal the holes and defend them against *Passaloecus corniger*. But behaviour of this complexity is a feature of ants, bees and wasps in general, and some behave in even more elaborate ways. The sand wasp *Ammophila* holds a stone in its mandibles and uses it as a hammer to consolidate the plug of its hole. Wasp behaviour is adaptable to a limited extent. The adaptability of *Passaloecus* behaviour is illustrated by the female of *P. insignis* which returned and resealed a hole that she had sealed the day before and that had been burgled by *P. corniger*. The other side of the coin is represented by the *Passaloecus* females that camouflaged the white pine resin of the front door by ornamenting it with dark particles, even against a background of a white-painted board, where the dark decoration made the door very conspicuous.

One aspect of hymenopteran behaviour that has excited considerable interest relates to the evolutionary significance of "altruism" and "selfishness". Some hymenopterans, such as social bees and wasps, behave in an altruistic way; that is, one individual may increase the

fitness of another at the expense of its own fitness (Wilson, 1975). When individual fitness is measured in terms of the numbers of surviving offspring it is easy to see that maternal care is not altruistic, because it contributes to the mother's fitness by helping her progeny to survive. But the community service of sterile worker honeybees does look altruistic at first sight, because these workers will leave no progeny. If one sees evolution as a process of selection acting on *individual* organisms, it seems impossible to evolve the sorts of altruistic behaviour that ants, bees and wasps indulge in. But the situation makes more sense if one regards natural selection as a process acting on *genes* rather than individuals. Then it is clear that selection favours any gene conferring behaviour that will make that gene more likely to survive. So it favours altruistic behaviour in which an individual promotes the survival of others sharing a high proportion of its own genes. Thus it favours maternal care, in which a female defends others (its progeny) that share many of its genes; and it favours altruistic interactions between individuals as closely related (and as genetically similar) as the queen bee and her sisters, the workers. Altruistic behaviour in social Hymenoptera can therefore be seen as a consequence of kin selection. Some challenging examples of apparently altruistic behaviour in other animals are harder to explain (Wilson, 1975).

While altruistic behaviour is expensive for the individual, it may benefit the community, and one explanation for its evolution involves group selection, or natural selection at the level of the population rather than the individual (Wynne-Edwards, 1963). When group selection is pitted against individual selection, as in the evolution of altruistic behaviour, individual selection is likely to win, for two reasons. One is that the altruistic behavioural trait is unlikely ever to become established in the group, except in a small group by chance, if the individuals possessing it are disadvantaged; so group selection will never have an opportunity to act on it. The other reason is that individual selection must work faster, on a shorter time-scale, than group selection, because the life of a population is likely to be longer than that of an individual, and populations must be fewer than individuals. For these reasons group selection is unpopular as an explanation for altruistic behaviour. But that does not mean it does

not happen. Group selection may be unsuccessful as an opponent of individual selection, but when the two forces work together group selection can help a lot.

Although examples of altruism among animals are rare, there are many adaptations that seem to benefit populations, not necessarily at the expense of the individual. This is evidenced by the rarity in nature of cannibalism and other such directly harmful interactions between conspecific individuals. In this context the robbing behaviour of *Passaloecus corniger* takes on a special interest. It makes sense for a thief to steal prey from another species (as skuas do when they take fish from gulls in flight) because the evolution of such behaviour is supported by both individual and group selection. So *P. corniger* is entitled to steal from *P. gracilis* and *P. insignis*. But *P. corniger's* theft of prey from conspecifics is different. Individual selection may favour indiscriminate theft, but group selection will not: local populations of *P. corniger* that waste their energy by stealing from each other would surely be at a disadvantage by comparison with populations that stole only from other species.

There is a little evidence that *P. corniger's* apparent scent-making of newly sealed holes may repel others of its species and so reduce the likelihood of conspecific burglary. A scent-mark applied earlier, before the hole was sealed, might prevent burglary during stocking, but if the scent repels owner and thieves alike perhaps it would be disadvantageous to apply it before the owner herself has finished visiting the hole. This leaves us with the possibility that conspecific burglary by *P. corniger* may be non-adaptive, and perhaps should be seen as a problem that evolution has so far failed to solve. It is salutary to focus on evolutionary imperfections sometimes. Perhaps they make it easier for us to see evolution as a continuing process, and to avoid the temptation to see each organism as having miraculously achieved adaptive perfection just before we happened to look at it.

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Meister Eckhart

I. Experience and beliefs

KATHARINE M. WILSON

The relationship between experience and belief is far from being always a simple affair. If one is a Quaker one values experience, taking that for the truth, and devalues belief. If one is an orthodox Christian one puts belief emphatically first. However, most of the great Christian mystics came to terms with orthodoxy, and certainly wished to. But Eckhart failed to pass the test in spite of his protestations—interestingly and not surprisingly.

Eckhart clearly took experience for the first thing. He says, “If God were able to backslide from truth I would fain cling to truth and let God go”. And more, “He who seeks God under settled forms lays hold of the form while missing the God concealed in it”. He says of the sacraments, “That man never gets to the underlying truth who stops at the enjoyment of its symbol”. Nor is that the best life which is lived by obedience to commands, or is guided by principles, or even ordered by what we today call reason; “as long as thou dost thy works because of the kingdom of heaven, or God, or thine own happiness, from without (that is to say), all is not well with thee”. We should find our basis in what is central to us as a human being, and live by that, not by some external revelation, for “my ground [is] God’s ground”. Once we find this we can live spontaneously from it “without a cause” other than itself, “For life lives in a ground of its own, wells up out of its own. It lives without a cause for it lives itself”.

This “ground” that is at once the core of every man and the place where God is united with him is no idea or theory, but found by

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experience, and no more to be denied because it is subjective and few attain it, than that man can climb Mount Everest. More mystics have found this centre than ever men have stood on Everest and all describe it in the same terms. So Eckhart can say with certainty that God and the soul are “entirely one”. He says it with unambiguous emphasis. “The soul is not like God; she is identical with him, the very same as he is.” So he affirms, “All creatures are the utterance of God. Like as my lips proclaim . . . God, so does a stone’s existence”. He says this not solely as meaning God is creator but that he is immanent. God is “in the soul innately”. Also he says, “God is inseparable from things; he is more innate in them than they are in themselves”. This correlates with his observation that when one finds one’s ground, one can and should live spontaneously. Not only do they correlate, they support each other. “Everything by nature is pursuing God after its own fashion. Fire draws upwards, earth falls downwards”. What are we to understand by God? That he is the one power.” And man is “more happy than” a stone not “because of having God, but because he is aware of God”.

Eckhart was a Dominican accustomed to disputing about theology in the school of Aquinas. This is not ill-considered fantasy. How God can be in concrete and separate things he has considered well. “God is neither this nor that as these manifold [and separate] things are: God is one.” He is in everything “as preserving their unity of nature . . . As such God is in all places and in each place God is all at once”. I take it this has a psychological basis. Talking of “divine essence” he says, “God is one alone . . . it is by itself in stillness so profound it cannot of itself reveal anything at all . . . The impartible essence of divine nature is unity. Now unity cannot reveal itself to itself”. This is at one and the same time a statement true about God and about the soul identified with God. The “stillness so profound” if anything seems more apposite from the human angle, but it is used here of God.

Multiplicity in the face of Oneness or Unity makes the main metaphysical problem of a mystical philosopher—not entirely because in logic a thing cannot be indivisible and multiple at the same time; at least so it is considered. Eckhart has much to say of it from the mystical angle where he is concerned with different stages of development. This is what he is discussing in his statement about

the sacraments as symbols. If we look at the most important of them, on one plane of experience the wine is taken to be turned to blood and appears divine in itself. On another it becomes a symbol, not in fact turned to blood, but effecting the same psychological experience as if it were. This is to “enjoy” the sacrament as symbolic and he says it is a hindrance to getting at the underlying truth, “the union of the soul with God”. The man of religion may experience God in all the multiples of creation, but though they serve in their place, they block the way to the further goal where there is only the One. “If only thou couldst suddenly be altogether unaware of things,” Eckhart exclaims. Any image is necessarily created by initial sense perception and so has its origin without. But there is no “image” or likeness in the centre-most place in one’s mind, the ground where God is met. “And the freer thou art from images the more receptive thou art to his interior operation.” Only the ground of the soul “is free from means and images, that is why God can freely unite with her without form or similitude”. “Consequently there is nothing so unknown to the soul as herself.” This is so also of ideas. Not the most learned theologian “can conceive with all his learning what God is in the very meanest creature, not even in a fly”. “God is a thing no mind can reach or grasp and that is all I know about him.” To discover this, “turn from things and realize thyself in thy naked essence”. When one is transcending multiplicity with its images and knowledge and thoughts “God leads this spirit into the desert, into the solitude of its own self, where it is simply one and is welling up in itself”.

Just as the experience of multiplicity led Eckhart to deduce God in his creation, in each created thing, so this further experience in the simple solitude of his own Oneness implies a God not in creation. To distinguish this from the other, he calls it the Godhead. “In the abstract Godhead there is no activity: . . . the soul . . . casts herself into the desolate Deity where neither act nor form exists and there, merged in the void, loses herself; as self she perishes, and has no more to do with things . . . Even so is naughted the soul entombed in God.” Then she “discovers herself in uncreatedness”. She breaks through multiplicity to unity, having lost every desire, image, and understanding. And on this experience his doctrine of the Godhead is based. He defines it by contrasting experiences. God and Godhead

are as different, he says, as active and inactive, as earth and heaven, as outward man and inward man. He talks of the soul following "God into the desert of his Godhead". God is the creator, the active, the immanent. The Godhead is beyond God, beyond creator, or as he puts it, "God in activity is manifold and knows multiplicity. God as one is absolutely free from activity." About the Godhead we know nothing at all, "for God is beyond knowing". He refers to his "nameless nothingness".

From experience, then, Eckhart deduces a thorough-going Pantheism, whose blinding light dazzles his Christianity. One misses the crucifixion and resurrection as a dominant theme. It is not one that goes naturally with mysticism. Its symbolism belongs in the class of initiation rituals where old attitudes are sacrificed to clear the ground for a new sort of life, and it has features in common with the Eleusinian mysteries in bringing the participants eternal life. The resurrection is not a suitable symbol for the mystic goal since it implies a further set of images and a new sort of existence not belonging to the void of the mystical climax. Nevertheless, since the Eucharist is a sacrifice not only in propitiation for the sins of mankind but as a total giving of the Self, it has some affinity with the mystical way. Yet even when Eckhart uses images of sacrifice and death he does not seem to be thinking in terms of the Christian ritual. In his sermon, *Amor est fortis sicut et mors* (Love is as strong as death) he preaches on God's love leading us into himself by way of a series of deaths. He says death takes from us "all perishable things" including any benefits derived from "pious practices: from prayer or meditation, from virtues, holy living . . . from things wherein a man finds spiritual comfort" and finally puts him "beyond reach of any merit or reward that he might earn". These are all things that those seeking God must sacrifice before they can find him. And Eckhart presents this as happening in stages with three deaths—not as one symbolic, absolute cataclysmic ritual, but as a life's development. First we must be detached "from friends, possessions, honours, ordinary pleasures". When this is achieved the soul turns to higher things. "She occupies herself in pious practices and relishes them . . . she likes these ever so much better than the others." But these also must be given up. The third death is the hardest of all, for it entails giving up serving

in hope of eternal life. This is more bitter than a ritual sacrifice, which offers that hope. He comments on this last sacrifice, “mighty few have finished with all passing things”. When the seeker has passed this test nothing remains but the passive ground of the soul, where all created life is forgot and the soul passes into the Godhead. This is the goal—the void of nothingness, and it is beyond what can be experienced symbolically or expressed as belief since it is beyond imagination and conception. It has called for the rarest purity of motive. If love is the motive, as Eckhart says, then it is the greatest love, for everything has been sacrificed for it. It is absolute—divine.

Incidentally it occurs to me that this may be required of the agnostic mystic facing his actual death. Possibly it could be done only out of a self-surrender involving the general state of loving without love of any particular thing, that John of the Cross refers to. Eckhart attributes the possibility to God’s love which “drives all his lovers out of multiplicity.” We could translate: there is some influence in human psychology which drives us towards that goal as if it might be life’s flowering—a state of self-giving without choice seen everywhere else in creation.

Although the crucifixion and resurrection story does not correlate with mystical experience, the Christmas myth does. Hence Eckhart’s stress on the birth of Christ. One of his sermons on an aspect of Christmas opens by referring to St. Augustine saying, “this birth is always happening . . . What matters is that it shall happen in me”. And he constantly talks of the birth of the Son in the soul. “‘God sent his only-begotten Son into the world’, by which ye are to understand not the external world; it must be taken of the inner world.” He interprets the main teaching of Jesus of Nazareth as referring to it. This was what Jesus referred to when he said he must be about his Father’s business, for God’s business is the work in the passive soul, Eckhart comments on “The Kingdom of God is at hand. Yes, the kingdom of God is within us”. Of the annunciation he says, “This involves the notion of our being the only Son whom the Father has eternally begotten”. And he interprets “A little while ye see me, and again a little while and ye do not see me”, as referring to advanced stages in mystic development. At one stage the seeker has “potential knowledge” of God. This happens when he is still active. But there comes a stage when he must

be “receptive, when God takes up the work”, leaving “the mind quite free from images and without activity”. The man who is “poor in spirit”, “wills nothing, knows nothing, has nothing”—the state conducive to seeing God.

Although in his more difficult passages Eckhart’s theory of the Trinity relies on the theology of his time, he also interprets it in the light of mystical experience. Thus his illustration of the Trinity in terms of creation correlates exactly with mystical development. In his theological exposition he begins with the Godhead, the uncreated. The Godhead is passive, a void without qualities or distinctions of any sort, the One. Out of this the first person of the Trinity arises passively. But God the Father is not passive but active, the creator. Whereas the Godhead “effects” nothing, “it is God who effects all things”. He creates the Son, who is passive during that activity. In this birth the soul is born back into God. “Between the only Son and the soul there is no difference”. “The Father, pouring himself out as love into the Son, there his love is as it were reflected, the Son pouring himself back into the Father”. At the same time the Holy Ghost is revealed, emanating from the “free will” of the Son.

All this happens within us; it is “the Kingdom of God”. And Eckhart describes it from the other angle, of our experience. He says our first disposition is for all acts of the soul to originate in the created and to progress by the help of images. From this we develop step by step to their elimination, until when all else is gone (the spiritual as well as the material), we merge into the uncreated. The reason most of us do not realize we have this nature is because the soul originates in created images. So the progression from that knowledge involves travelling back in the reverse direction to creation, if I may put it like that. In fact it is clear that his theology has been discovered on the heels of experience. He described the Trinity in imagery of three creations—of God, the Son and the Holy Ghost. And he asks us to “Now observe in the soul three sorts of going-forth out of three sorts of nature which she has”. The first is her created nature, the second her nature as the Son of the Trinity and the third “functioning in the Father”. These involve three deaths. At first we seek God in our outer, active life, these “outward disciplines are of little worth” comparatively, and the first death lies

in giving up these as values. Then follows a contemplative stage, where “The work of the inner man is vision in knowing and loving”. But this too must be superseded by a third “death of the spirit”, when everything is relinquished, including God, for created things have God, and to be united with God we must lose all the attitudes belonging to us as created, which is to say as Son. “And now the soul fares forth out of this . . . wherein she discovers her nature according to the uncreatedness of the image.” What she seeks is not in multiplicity, in the persons of the Trinity. She “breaks through to get to where God is a kingdom in unity”. So the third death is into the Godhead. It is now that the soul recognizes that she is God, and no different. She “recognizes her own beauty”.

Thus we see that Eckhart’s theology and his description of the mystical progress are the same. He describes the one starting from the uncreated as theology, and the other starting from the created as the way the soul travels towards what she innately seeks.

II. Historical perspectives

DAVID BLAMIRE

Katharine M. Wilson’s essay amply testifies to the fascination that Eckhart exercises over those concerned with mysticism. His thought and language are venturesome, his paradoxes and hyperboles audacious, and the imagery that he uses captures the faculty of imagination in us. Despite his remoteness in time he is capable of speaking to us today because of the spiritual depths he explored. There is a tension here between historical context and present relevance. Katharine Wilson is more concerned with the latter, and naturally so. My comments relate more to the historical context and the problems that precede interpretation. They do not deal directly with the substance of Eckhart’s thought, an enterprise that would require more detail and precision than is available in the space of an article.

Meister Eckhart (c. 1260–1327/8) is undoubtedly the most im-

portant of the medieval German mystics. He is also the most perplexing. In his own day he was a figure of controversy and ended his life in the midst of a trial for heresy which concluded with a papal bull condemning fifteen statements of his as heretical and a further eleven as dangerous. The effect of this was to force much of Eckhart's writing into anonymity and thus to create the first problem in historical scholarship: what can be established as authentic?

The immense mass of manuscript material contains not only copies of sermons that Eckhart actually preached, but that do not bear his name, but also many other sermons and treatises that are falsely attributed to him. When Friedrich Pfeiffer published his collection of Eckhart's German works in 1857, he worked somewhat carelessly from a textual point of view and also included much material that is now regarded as spurious. It is only in the present century that reliable editions of Eckhart's works, both German and Latin, have been undertaken. The German works, which figure most in the discussion of Eckhart's mysticism, are being edited by Professor Josef Quint, who has made this his life's work and who has so far published four out of five projected volumes since 1936. On the basis of a thorough examination of the manuscripts available for each sermon or treatise Quint provides a normalized Middle High German text, full variant readings, parallels from other works of Eckhart including those in Latin, and notes on difficult passages. He identifies wherever possible the source of Eckhart's numerous quotations from the Bible, the early Fathers, and other theologians and philosophers. He also gives a modern German translation.

Unfortunately, many English readers, moved by what they have encountered of Eckhart in translations, are quite unaware of these basic editorial problems. The only recommendable translations of Eckhart into English are *Meister Eckhart: an introduction to the study of his works with an anthology of his sermons* (25 German ones) by J. M. Clark (1957) and *Meister Eckhart: selected treatises and sermons* (2 German sermons and 4 treatises; 8 Latin sermons and extracts from 2 commentaries) by J. M. Clark and J. V. Skinner (1958). A good American translation is that by Raymond B. Blakney

(1941), but this was produced when only the very beginning of Quint's edition had been published. The two-volume translation of Miss C. de B. Evans (1924–31) is based on Pfeiffer and thus cannot be regarded as wholly reliable, nor does it draw attention to the problem of authenticity.

The interpretation of Eckhart has been a matter of controversy since the Middle Ages and remains so. A reading of Ingeborg Degenhardt's study on his changing reputation—*Studien zum Wandel des Eckhartbildes* (1967)—shows how much modern writers have adapted and twisted Eckhart to fit in with their own ideas and purposes. Unless one has an informed understanding of his historical situation, the foundations of one's interpretation may turn out to be sandy and ideas that one sees in Eckhart may prove to be simply one's own in an enhanced disguise.

The twentieth century editions of Eckhart's Latin and German writings have placed him firmly within the context of scholastic philosophy and theology. In a recent study (1965) Bardo Weiss comes to the following conclusion about Eckhart's attitude towards the central teachings of Christianity.

Eckhart mentions the most important events in the matter of salvation (*Heilsgeschichte*). He describes original sin; for him the incarnation of the Son of God in Jesus Christ is the way to our own divine birth (*Gottesgeburt*). He is acquainted with the meaning of the suffering and glorification of Christ. Our master honours Mary and feels quite at home with the sacraments of the Church. According to him man finds final perfection only in a future Beyond. Yet all of this is of little interest to Eckhart. All too easily the facts of the history of salvation threaten to become symbols for what happens always, above all time. On the other hand the history of salvation with its visible consequences is valid for him only as the external preparation for the internal divine birth.

... Through the fact that Eckhart knows and presupposes the history of salvation his mysticism remains embedded in Christian belief. Any attempt to deny Eckhart's mysticism its specifically Christian content must shatter on this. On the other hand a dangerous onesidedness in this mysticism, up to now too little noticed, is unmistakable. Not only because of its proximity to pantheism can Eckhart's teaching be wrongly understood, but the history of salvation and with it an essential part of Christianity is pushed to the periphery and not taken sufficiently seriously.

Eckhart's sermons were preached primarily to nuns, and all his works were directed to people who were deeply imbued with the Christian message through the celebration of the mass and the recitation of

the daily offices. Eckhart's teaching could perhaps be considered dangerous if removed from this context. That would not be the case with any of his contemporary hearers, though it might well be the case today.

I am loath to look at Eckhart's teaching in terms of an opposition between experience and belief, because it does not do justice to the facts. The matters for which Eckhart was condemned do not belong to the area covered by the creeds, but lie more in the realm of scholastic disputation. The trial documents (which have been translated by Blakney) are not easy to follow, and there is still disagreement about their interpretation. Eckhart was certainly concerned to go beyond the external forms in which Christian teaching is expressed. But where he says: "If God were able to backslide from truth, I would fain cling to truth and let God go", he is not putting God and truth in opposition, but rather asserting their complete identity. I suggest that the contrast between experience and belief is a modern one that arises to a large extent because we are reluctant to grant the validity of non-literal modes of thought. Neither Eckhart nor his contemporaries were particularly concerned with the literal, historical understanding of their texts, but probed instead into their various deeper levels of allegorical, spiritual significance.

The medieval German mystics used a wide range of imagery to attempt to convey their experience. Mechthild of Magdeburg in her *Flowing light of the Godhead* has frequent recourse to the imagery of sexual union that has its Biblical origin in the *Song of songs*. To the post-Freudian sensibility this has become somewhat suspect, and Eckhart's avoidance of it makes him more accessible than Mechthild to the modern mind. Tauler and Suso are fond of eucharistic and Passion imagery, while Rulman Merswin expresses himself in the form of structured visions. Eckhart's most striking images are those of the birth of the Son in the individual soul, of the ground of the soul, of detachment and the whole theology of the *via negativa*. A good deal of his appeal today lies in the closeness of much of what he says to Zen (which Suzuki has pointed out) and to Oriental mysticism in general (see, for example, Rudolf Otto and Ananda Coomaraswamy). I think Katharine Wilson is quite right in emphasizing the psychological roots of Eckhart's concepts. Much of

his imagery does belong to areas of language that express common human experience apart from any specific Christian context. However in grappling with Eckhart's ideas I feel myself touched by a spirit that is very close indeed to that of Jesus in the parables. It is certainly more intellectual, but there is a pushing at frontiers of awareness, a boldness, even a brazenness, in overturning old and familiar modes of thought in order to reach something that is purer and clearer than our mortal senses know.

III. Christian mystic

AMY K. CLARKE

Katharine Wilson has done good service in drawing attention to Meister Eckhart's place in the age-long tradition of mystical thought and prayer, and to the qualities which he has in common with the mystical writings of many religions and many parts of the world. A complete account of his many-sided work, in both German and Latin, would include some illustration of his strong emphasis on reason and the use of the mind, and his capacity to teach and direct souls at many different stages of understanding and need. But Katharine Wilson's main concern is with that part of his teaching which has the most lasting appeal and is most relevant to our own time.

She emphasizes the official condemnation of some (though not all) of his propositions. The condemnation was not universally acceptable even in its own day; and succeeding centuries have done him more justice. In the early part of this century, both Anglican and Quaker writers gave him a very high place as (in Dean Inge's term) a "philosopher mystic"¹. I should myself like to stress the fact that he stands firmly not only in the line of mystical writers in general, but among the great Christian mystics. His condemnation seems to have been due to the extreme and startling character of some of his expressions (for he was by nature an extremist) rather than anything fundamentally non-Christian, even non-Scriptural, in their thoughts. His insistence on the need to pass beyond all

images is common to all the great Christian mystical writers—noticeably St. John of the Cross, and the author of the “Cloud of Unknowing”. All of these describe a condition of prayer when human capacities for conceiving and experiencing Godhead has gone as far as it can, and there is no instrument of mental and spiritual understanding left by which God can be apprehended: the consciousness is left in nothingness, but in a nothingness the deeply positive effects of which are realized outside the time of prayer. But the writer with whom Eckhart has most in common is his younger contemporary, Ruysbroeck. Eckhart’s “desert Godhead” is Ruysbroeck’s “waylessness” and “wild”, and the first form of Ruysbroeck’s “inward exercise” is a “going out beyond all things into the Emptiness”² The “coming into the sheer Being of Goodness” described by Eckhart is paralleled in Ruysbroeck, “he possesses the Being of God”.³ Eckhart at times makes his point in terms of vehement negations which are alien to Ruysbroeck’s “Thou shalt love Him as He is: a non-God, a non-person, a non-image”;⁴ but their thought is essentially the same. Especially when he is writing in his native German, and not in the more formal style of his Latin works, Eckhart’s forthright energy and concreteness of expression have always to be allowed for, and they form one of his greatest charms. Whether his subject-matter is negative or positive, he handles it with the same freedom and the same trenchant style. In the lovely little treatise “The Nobleman”, the man in the beginning of prayer-life is compared to a baby who still “holds himself by the wall”, and is fed with milk. In the second stage, “he turns his face towards God, crawls out of his mother’s lap, and smiles at his heavenly Father”. But when allowance has been made for this quality of style and temperament, there is nothing in Eckhart which cannot find a parallel in “classical” Christian writers whose place in the mystical canon is secure.

Katharine Wilson gives us a fine account of Eckhart’s sermon on “Love is as strong as death”. Here again, the “series of deaths”—entire detachment even from what seem to be the highest goods and readiness to sacrifice them—follows a line of thought which he shares with Christian mystics from St. Paul onwards. He expresses it with great urgency and beauty; and Katharine Wilson’s re-application of it to the agnostic perhaps facing actual death is very relevant and

thought-provoking. All this part of her essay is a valuable and appreciative description of Eckhart's thought in some of its most characteristic aspects and ways of expression.

When she comes to relate this to his Christian belief the link which she makes seems less than adequate. I should like to plead with her to work out in some later paper a more satisfactory relation between Christian mystical life and the strong faith of those who lived it and recorded it. In her present essay, as in that on Julian of Norwich, she seems to see two things—the reality, which is the mystic way leading into the Nothingness, and a series of symbols of two kinds, the alleged past events of Jesus Christ's life, death and resurrection, and the symbols now in use in the sacramental "rituals". None of these is conceived as possessing any reality, as really expressing and conveying in human terms any activity of God. The undoubted fact that for some 2,000 years Christians have believed, and still believe, that, in ways variously defined, this is just what they do convey, surely deserves rather more serious consideration. A starting point might be found in Eckhart's own insistence in a number of passages on the *activity* of God. "Wherever He is, He must act and speak His Word."

Notes

1. *Light, Life and Love*. London, 1904, p. xv (cited in *Meister Eckhart*, J. M. Clark and J. V. Skinner, Faber and Faber, 1958).
2. *John of Ruysbroeck* (trans. C. A. Wynshcenk Dom, ed. Evelyn Underhill. John M. Watkins, 1951), p. 151, "The Adornment of the Spiritual Marriage" LXX.
3. *id.* p. 150.
4. *Meister Eckhart*, ed. F. Pfeiffer (Göttingen, 1914), p. 320.
5. *Meister Eckhart*, Clark and Skinner, *op. cit.*, pp. 151–152.

Competition essays

How (if at all) should religion be taught in a society where there are people of many faiths?

I CATHERINE L. SALMON

For many centuries there was a generally accepted philosophy of religious education in Britain, a philosophy which was seldom articulated in detail but one which underlay and determined the sort of teaching that emerged. Basically this philosophy saw the function of religious teaching as the creation of Christian discipleship in order to ensure the continued existence of Christianity, and worship was regarded as the natural climax of such teaching. Since the middle of this century there has been a gradual growth in emphasis upon the freedom and needs of the child, thus while still intending and hoping to create Christian faith, religious teaching sought to foster independence and a free response.

There are two main objections to this view of religious education in a pluralist society like contemporary Britain:

1) There is no longer a single religion or system of belief on which there is *complete* agreement, even though there may be considerable agreement between the Christian Churches.

2) There has been a fundamental shift in our understanding of what sort of process education is. It can no longer be regarded as a means to an end, but rather it is seen as an end in itself. It cannot be seen as something which tells us *where* we are going but rather as indicating the ways in which we may travel. It therefore involves the acceptance of certain procedural principles which do not allow the unquestioned passing on of *beliefs* as *facts* to qualify as education.

A pluralist society is one which has a number of religions, philos-

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ophies or conceptions of life. However, modern means of communication allows the ordinary man to become aware of these to an extent that would not have been possible even twenty-five years ago. Such a situation may encourage the growth of tolerance, but the mutual recognition of the difficulties involved in finding the “ultimate truth” does not inevitably lead to the general assumption that one religion or “philosophy of life” is as good as another; nor does it negate the influence of man’s concern for such matters over the rest of his life. Therefore although a pluralist society no longer adheres to the explanations of the meaning and purpose of existence offered by only one religion or “philosophy of life”, it does not deny that man is in need of explanations. Rather it accepts that there is no uniformity of belief on such matters and allows every man to make up his own mind.

In such a situation it would seem even more important that every member of society is equipped with the knowledge, skills, sensitivities and abilities necessary to decide for himself. The educator’s task is to discover what these abilities are and how they are best developed. Unfortunately, thinking in the field of religious education abounds in confusions, paradoxes and uncertainties. This is evidenced by the way “religious education” has been used to describe a number of very different activities. For example:

- 1) Education based on religious values.
- 2) Teaching intended to give a “religious view of life”.
- 3) Conversion to a particular religion.
- 4) Nurture in the faith of a particular religion.
- 5) Teaching intended to transmit information about a religion or religions.
- 6) Teaching intended to develop in pupils the essential “tools” for understanding and thinking about religious issues and phenomena.

The first four interpretations of religious education are unacceptable in a pluralist society where there is no general consensus of opinion on religious matters, as well as failing to meet the demands laid down by educational criteria. The fifth interpretation may be

acceptable as *part* of religious education in a pluralist society, but it cannot qualify as the whole of religious education because it fails to equip pupils with the necessary “tools” to deal with the information they have acquired. It is in the sixth interpretation that the future of religious teaching must lie in today’s pluralist society.

When attempting to formulate an adequate and educational religious education it may be useful to distinguish between the “*foundations*” of religion or “philosophies of life” and the *structures* which have developed in response to these “foundations”. If pupils do not understand, appreciate or at least become aware of these “foundations” then it is unlikely that they will be able to understand the existence or significance of any religious or non-religious response to the human situation. Education in the “foundations” of religion will include both intellectual and emotional factors.

(A) INTELLECTUAL FACTORS

The pupils will be introduced to the basic facts concerning the extent of human knowledge about the universe and thus will become aware of the kinds of questions that remain unanswered through the use of reason and empirical observation. Thus, for example, pupils may realize that although science may explain how the universe came to exist many people believe that questions of the meaning of life lie outside its scope.

(B) EMOTIONAL FACTORS

The pupils will be made aware of the distinctive kinds of emotions related to these “foundations”. For example, feelings of awe and wonder inspired by the beauty of the world, feelings of insufficiency and a desire for meaning initiated by the recognition that man cannot completely control his environment, the course of history or

necessarily provide the teacher with firm grounds for supporting one position rather than another. The teacher will no doubt have some conception of the sort of reasons that can be intelligibly offered to support the validity of some religious claims rather than others but what he does will not be sufficient to establish conclusively the truth of one position in relation to another, as he will only be able to defend and criticize judgements from the standpoint of conflicting "truth" conditions.

The religious educator is contriving situations in order to develop pupils' capacities to think about, understand and evaluate matters in the field of religion. He is not concerned with forcing them to make particular choices but rather with providing the *grounds* for choice. Obviously this will include the transmission of information to a certain degree, such as the fact of what certain people believe. In transmitting this information he must be careful to distinguish between facts and beliefs. For example, that Jesus died is a fact of history, that he died to save men is a belief. The teacher may personally regard the latter as a "fact" too, but he must be capable of recognizing that the beliefs he regards as "facts" are no more than beliefs to the unbeliever. If a teacher's religious beliefs are held in such a way to make this impossible for him then he cannot fulfil his role as a religious educator. It is perhaps sensible, even necessary, for the good religious educator to clarify his own beliefs so that he is quite clear, at least in his own mind, of the beliefs he holds which are universally accepted as justified and the beliefs which would be better described as "personal commitments".

In order to avoid charges of indoctrination arising, the term "procedural neutrality" has recently been introduced to describe the teacher's role when dealing with controversial matters. Unfortunately this and similar phrases have led to a certain amount of confusion regarding the role of a teacher's religious convictions. Obviously the teacher must be committed to the view that an understanding of this area of human concern is vital and, as a "thinking" and aware person, he no doubt has certain personal convictions as to the "truth" of the various claims in the realm of religion. The crucial question is how far these personal religious convictions will help or hinder him in realizing his aims as a religious educator. Ulti-

mately it is unwise and virtually impossible to make hard and fast rules of procedure for every occasion applicable to all teachers with any group of children, but an examination of the *educational* purposes of some of the activities undertaken in a religiously educating situation may indicate the possible place of a teacher's personal religious convictions.

Religious education inevitably involves the transmission of information. However this is only the groundwork or necessary prerequisite to developing capacities to think about, sympathize with and evaluate the concerns and claims of religions. In order to develop these capacities the teacher may contrive a "discussion" situation. It is vital to realize that what the pupils think they are doing in this discussion may not, and perhaps should not, be the same as the teacher's conceptualization of the situation. Hopefully the pupils will be very concerned about the subject they are discussing whereas the teacher may be more concerned that the discussion will contribute to the development of certain capacities in the pupils. Thus the teacher will probably have arranged this situation precisely because he feels it will be beneficial to the development of critical thought. In order to think critically about something one has to be able to imagine objections that might be raised and the evidence that might be relevantly adduced by others. It would seem plausible to suppose that these capacities might be developed by the experience of actually hearing and raising objections, presenting and being presented with evidence and considerations, and thus be led to the realization that attempted objections can only count as valid if they satisfy certain rules and procedures. The teacher therefore has an *educative* responsibility towards the pupils and consequently his reasons for being engaged in this sort of discussion will differ from those imagined by the pupils or indeed from those imagined by a great majority of the public.

If the teacher and others concerned about religious education in a multi-faith society viewed the situation in this way the question of the teacher forcing or manipulating pupils into accepting his own religious beliefs as "true" would not arise. Thus one can see the crucial importance of seeing the teacher's attitudes and activities in relation to his educational task, rather than always seeing them

even his everyday personal life and perhaps feelings aroused by the sheer amazement at the self-regulating nature of the natural world.

The true nature and significance of religious and non-religious belief systems can only be perceived if pupils are aware of the intellectual and emotional features of this level of human experience. However, no attempt will be made to inculcate a particular interpretation of these responses. The educator can only draw the pupil's intellectual and emotional attention to the *ground* upon which interpretations are made. Thus the importance of subjective elements hopefully will be recognized without infringing upon the pupil's right to make up his own mind, to make his own response to the human situation.

It is important to remember that these are only the "foundations" on which any interpretation of the meaning and purpose of life are made and any adequate religious education must transcend an examination of the "foundation" to include a study of the more structured interpretations of man's response to them. Immediately one is faced with the difficult problem of selection. Out of the vast number of possibilities, which religious and non-religious belief systems should be chosen? What criteria should determine the selection? Representative criteria of all religions or of different religions? Interest criteria? Practical criteria such as the religions which are adhered to in the locality? Arguments could no doubt be formulated to support each of these criteria.

It was previously mentioned that education today is more concerned with equipping pupils with the "tools" for dealing with subject matter than it is with the subject matter itself. It would seem to logically follow from this that the choice of subject matter will be largely determined by the extent it contributes to this development. Thus the adequacy of a programme of religious education would be measured not by the "ground covered" but by its ability to equip pupils with the essential "tools" for dealing with religious questions and understanding religious phenomena. These "tools" consist of various kinds of skills, the understanding of certain concepts and the development of certain attitudes. Many of these skills may be acquired through other areas of the curriculum, such as the ability to pursue a line of enquiry logically or the ability to discern

whether a given passage is meant to be taken literally or poetically. The same is true of many of the concepts which a religiously educated person needs to understand and the attitudes he needs to develop, while others will be the more exclusive concern of the religious educator. The point is that educational criteria demand the development of certain capacities rather than the accumulation of a body of information, a demand which is consistent with the demands of a multi-faith society in which there is no general agreement on religious beliefs.

This shift of emphasis away from the subject matter itself in favour of equipping pupils to deal with and understand religious questions and phenomena may clarify to some extent the role of a teacher's personal beliefs (religious or otherwise) in fulfilling his task as an educator. This is extremely important as much of the controversy which surrounds the whole problem of religious education in a pluralist society is based on fears that there is a "battle" going on for "the minds of the young". Education, if nothing else, is concerned with increasing knowledge, understanding and rationality and the educator must be committed to doing this. This task will involve him in related commitments which will affect any position he may adopt in the classroom. These are mainly conditions laid down by the concept of teaching itself and restrictions imposed by the concepts of truth and rationality. In the first place, as a teacher, he must be committed to bringing about learning. Any position he adopts in the classroom will probably be a result of and coloured by this overriding intention. He is heavily committed to this and it will lead him into a teaching-learning relationship with the pupils. The educator also seems obliged to express commitment to reason itself. He will have an idea of the kind of reasons and evidence which are relevant to questions of truth and falsehood and consequently of the standards which lay down procedures for establishing justified beliefs. This is perhaps the crux of the religious education teacher's problem because he is dealing with an area of understanding in which it is difficult to establish *agreed* standards of relevance in ascertaining the truth, rationality or even reasonableness of certain claims. It is not that concepts like truth and rationality are inapplicable but rather that their application does not

in relation to the subject matter. Obviously the educator's role will vary according to the stage of development of his pupils, and ultimately a teacher cannot help his pupils to develop critical and evaluative skills without at some time criticizing their arguments and thus their possible beliefs. However, any intervention must be determined by his educational commitments and not by his religious ones. It may be that a teacher who is also a religious believer has a greater insight and understanding into the nature of religious beliefs and the way they may be arrived at, a greater consciousness of the religious dimension of human experience and he may even be able to use himself as an example of someone who has reached certain conclusions with regard to these matters. However, if his religious opinions make him intolerant of other beliefs this may be a disqualification, preventing the fulfilment of his role as an educator.

Ultimately pupils must realize that equally intelligent and rational people do disagree about what is "true" and "false" in the realm of religion. However, to put the emphasis on the actual beliefs which the teacher cannot pronounce on with authority is perhaps to miss the point that part, if not the main part, of the educator's task is not just the provision of information about certain beliefs, but rather how one might approach and examine them and why it is that in some areas of understanding it is more difficult to arrive at universally accepted "truths" than it is in others. To a certain extent therefore the religious educator is teaching the appropriateness, the scope and limitations of certain ways of arguing and using evidence and the realization that personal decisions may ultimately transcend these. This is not to argue that the teacher cannot intervene with *any* authority on these matters; if it was it would be to question the point of any teaching other than the passing on of purely factual information. Rather it is to point out that to overemphasize the withholding of a teacher's religious beliefs in order to avoid indoctrination in a pluralist society, is perhaps to overemphasize the beliefs instead of the ways one might approach and think about these beliefs in an educated manner, appropriate to the multi-faith society in which we live.

II W. H. BURNS

In an age when many parish churches are declared redundant and dozens of Non-conformist chapels become warehouses or workshops, a feeling of uneasiness has crept over thousands of church-goers. The loss of an imperfectly remembered past—no wonder, as it does not seem to have existed—only adds to the bewilderment already present for many actual or imagined reasons. Add to this the mingling of the Ganges and Indus with the waters of the Thames and the bewilderment assumes the proportions of Nessie.

The difficulty in this situation is to discover the right questions to ask about religious education. Are we to assume, as it has been assumed by most people since 1944, that Christian teaching is to be served up, with, of course, some “kosher” tit-bits from the Old Testament as background knowledge? Or are we to put curries and biryanis on the menu and mix our diet? Or . . . what?

There is no doubt that many Christians in the U.K. think that the answer to the first question is a definite “Yes”. The R.E. adviser to any L.E.A. can testify to the shocked reaction of some members of any church to whom he talks when even the mildest reform of the content or approach in R.E. is mentioned. The “truth” of the Christian revelation is taken to be absolute and any “watering down” is a betrayal. By hook or by crook the full weight of orthodox Christian tradition must be lowered, more or less gently, upon the young. Even the “personal” or “social” problem approach favoured in the not too distant past had this purpose, on the assumption that this was the only way to make the Christian faith relevant in a neo-pagan society. It was taken for granted that there was enough residual belief in the country to make this a bridge to active faith.

Recently, there has been an increase of confusion owing to the gap between educational and ecclesiastical thinking. The Free Church Federal Council has put its imprimatur on a report which states a relatively conservative position (though one which, even so, does not represent the attitude of most Free Church people) on

the place of Christian teaching in schools. This almost certainly reflects the average non-conformist's feeling (I speak from the inside, especially if his non-conformity has been gradually metamorphosed and he out-herods Herod in his desire to get rid of what has barely come to birth. On the other hand, we may feel that the educational establishment has not helped by forgetting the old proverb, "Make haste slowly". The speed with which "other religions" have been commended as suitable study in schools has taken many people by surprise, not only in areas where Asian immigrants are rarely seen.

Is the answer to be a religious menu to suit all tastes and beliefs? The obviously pluralist nature of society in many places has forced us to notice the need for change. The presence of Hindus, Muslims and Sikhs with their children in dozens of schools promotes the change and raises ethical problems of some nicety. The tenacity with which many of them hold and practise their faiths deserves a Vergilian "mirabile visu". Yet, with the birth of second- or third-generation immigrants we already have the Cockney Hindu and Mancunian Sikh. It will perhaps be only a matter of time before television gives us a comic Muslim family mouthing a script which is neither English nor Pakistani. But we do not expect them to be excluded from the cultural influences of Britain and remain as doggedly Oriental as a District Collector remained doggedly British in the days of the Raj. Nor do they seem to fear "going native" in some respects and this is more remarkable than we sometimes care to notice. They are not, and do not seem to want to become, a ruling or missionary minority and this makes a difference to our mutual attitude.

In the context of R.E. there is a *prima facie* case for putting everything in the cooking pot. The Moguls of the SHAP working parties have taken the sacred cow by the horns, spread the prayer mat and brandished the kirpan. "Let us advance on all fronts." is the battle cry. "Onward Christian (not forgetting Hindu, Sikh and Muslim) soldiers . . . with the cross of Jesus (the mandala, the turban, the Quran) going on before." But would this not fall between all the stools we might be invited to sit on? It seems an admirable initiative at first sight, but is likely to promote confusion. We cannot assume that the result would be any different from Harold Loukes'

findings in “Teenage Religion” about the (mis)understanding of Christian faith and practice.

We need to start with the general situation before we can think about its educational implications. In a poem written in 1845 James Lowell wrote these words:

New occasions teach new duties,
Time makes ancient good uncouth,
They must upward still and onward
Who would keep abreast of truth.

There is no doubt that we are all faced with a “new occasion”. The danger is to see only the threatening facet, whether we are Christian, Hindu or whatever. No matter what our professed religion may happen to be the traditional side of our character will worry about the “watering down”. Nor should Christians think that there are no Bultmanns or Bonhoeffers in Islamic, Hindu and Sikh cupboards. All faiths feel some “fightings without and fears within” and it does little good for any of us to bemoan the loss of “simple faith”. After all both Jesus and Nanak challenged tradition as have other men with insight.

What is our “new duty”? It would seem, as we have already noticed, that some widening of the R. E. syllabus in schools is necessary. Then we must ask how and by whom these faiths are to be presented. The ideal would be perhaps to have each one dealt with by a believing and practising devotee, but that would be impossible now or in the foreseeable future. Anyway, as an ideal it leaves a lot to be desired, as “believers” often expound badly and are emotionally involved. “Keen” R.E. teachers demonstrate this all too well. And so we are left with that poor harrassed creature, the classroom teacher, specialist and non-specialist. He (or she) is very often already on the horns of a dilemma about whether he can or should teach from within his own religious tradition. To impale himself on Nandi, the bull which the god Siva rides, is, he may think, asking too much, especially as some of the attributes of the latter offend the puritan hiding inside every Englishman.

A Hindu, Sikh or Muslim teacher in our schools could be in a similar position. What of the apparent Christian penchant for creat-

ing wars and the misdirected (sometimes) missionary zeal which has treated him and his fellows with a lack of sensitivity and cultural rapport? The amazing thing is that it seems to be largely the result of this same zeal and the genuine desire to do good which it displayed that has brought thousands of trusting immigrants to Britain. One of God's little surprises, we may well conclude.

Should teachers feel free to give and take criticism of religious traditions where there is a real or apparent conflict? There is bound to be implied criticism, since objectivity in such matters is a will o' the wisp believed in only by those who are so humane that they have forgotten how to be human. Let the reader tread on one or two of his own credal corns or recall the heresy hunting in his own tradition before he opens the gates to a flood of half-understood criticism, whether this comes from pupil or teacher. The crux of the matter is that it is all but impossible to gain enough knowledge and insight into another religion to present it properly to children or adults, most of whom will inevitably reshape it in their minds. I have lived in India for five years and shudder to think what a multitude of misunderstandings I have passed on about Hinduism after personal experience of it and a fair amount of book knowledge about it. After hearing, as has sometimes happened, College of Education lecturers whose personal experience of the East is nil, or at best, a quick trip in the long vac., and who consistently mispronounce the names of Hindu gods—that is the least, because the most obvious, of their sins—I wonder what Sally Smith in 3X of the local comprehensive is going to make of it all.

But, it will be objected, there is no need for us to be pessimistic. Counsels of perfection are for us to aim at and as long as we aim straight we can go ahead. Other subjects do not engage in such convoluted self searching. However, in my view, modern education forgets Pope's dictum about "a little learning" quite enough already, and for us to offer small servings of "other religions" as part of the diet will only increase the alarming confusion in knowledge and understanding that appears to prevail; that is, of course, an opinion, but one shared by many who are all the more aware of the quicksands of their own ignorance.

If the reader has had the patience to get this far, let me assure

him that I do not advocate maintaining the status quo or retreating to a monastery (ashram, etc.). The "new occasion" must be tackled by a new sense of duty. The solution offered is not new or dramatic. It is, I believe, a necessary stage for us all to pass through until another new occasion calls for another new duty. It is simply to remove the legal compulsion from the study of religion in schools and let the truth as it is in Jesus, Krishna, Mohammed and Guru Nanak (not forgetting the Buddha) stand on its own. The onus must be on the church, temple, mosque and gurdwara to provide teaching for their flocks, with the schools providing such limited support as can be given to the appreciation of religion in a secular educational system

Voluntary courses leading to an examination could provide this; an examination, such as is already offered by several boards, because they define content and if we are to have a "little learning" then it should be as definite as we can make it.

There will be objections to the removal of the legal conditions, but, if I may speak as a Tillich-tinted Christian, there is much more genuine Christian charity in such an approach than in the strident calls for a barely disguised religious imperialism. We are all grounded in the same Being and if we want our country with its vaunted tolerance of others to be really tolerant, this is the only way. Let each faith stand in its own right. Let the believers promote their faiths, or not, as seems best to them. I believe this is a stage which must be passed through before any advance can be made in the presentation of religion in schools. Westerners have a lot to learn about the practice of spirituality from the East and it will take several generations for us to absorb all that is good from religions other than Christianity. Religious people are, however, inclined to want to fight for the truth as they see it, instead of believing that it can stand in its own power. Perhaps it can't; but I think we should let it try so that our faith has room to breathe whatever its historical origin.

In a B.C.C. report a few years ago schools wrote of their practice of and approach to R.E. One school said among other things that "a school was not a church". Nor (may we add?) is it a temple, a mosque or a gurdwara.

Review

Sufi Studies: East and West

edited by Professor L. F. Rushbrook Williams

E. P. Dutton (New York), \$10, hardback; Jonathan Cape with Octagon (London), £2, paperback.

Twenty-four scholarly contributors, desirous of marking the seven hundredth anniversary of the death of the major Sufi poet and teacher Jalaluddin Rumi, take as their keynote in this collective work the contribution of the Sayed Idries Shah to the development and understanding of the Sufic tradition. As with all the best scholarly productions, the symposium is highly readable. The authors range from the Vice-Chancellor of Karachi University in the East, to the Director of the Institute of Advanced Religious Studies and Professor of Oriental Languages at the University of Notre Dame. Fittingly, since Rumi and many other classical Sufi authorities wrote in Persian, three of the academics are prominent Iranians; and several more are Persicologists. All have studied widely in the Sufi heritage. The British edition carries a comprehensive index, and is to be preferred for that reason, though bound in limp covers.

Idries Shah, as already noted in *Theoria to Theory* (by Andrew Topsfield, April 1969, 101-102) is by descent, background and attainment the supreme contemporary arbiter on Sufi matters, and the *Festschrift* abundantly attests to this in numerous striking passages. Some of the writers have the generosity to say that, although students of many years' standing of Sufi thought, Shah's writings had opened their eyes to fundamental characteristics and aspects of the teaching which had escaped both them and a substantial number of other workers in the East and West for centuries. Shah's first books in English were published in 1957. By 1966, twenty universities, including Oxford and Yale, had used or recommended

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his works, giving him an adequate acceptance in the world of learning. The explosion of interest in and usage of the Shah corpus, however, came in the following decade: by 1975 his work was recommended in books and the subject of studies in over three hundred higher education courses, from San Francisco to Cairo. Hindu, Jewish and Christian scholars, in addition to many Muslims, had written analyses and encomia on his researches; African, Chinese, Turkish and Afghan specialists joined those from Britain, Hungary and Latin America who had introduced his writings to the fields of Oriental Studies, psychology, science, anthropology and sociology where they rapidly took root.

It would have been a relatively easy task for Idries Shah to remain within the Eastern and devotional context of the traditional Islamic Sufi teaching role, surrounded by eager disciples and welding together the system's rich heritage, in much the same way that Jalaluddin Rumi himself did in his own time. He preferred to concentrate upon the publication, first, of typical materials in his field so that the world academic and the informed lay public, in whatever discipline, could be made conversant with the relationship between ancient Sufi thought and the pressing concerns of today. In the event, his writings have spread from the West to the East through this same conduit, with the consequence that all but the most cultish pedants and backward Eastern religious excitationists have welcomed and made use of his contribution. In the religious field it is noteworthy that Shah's writings have been widely admired and enthusiastically reviewed both by journals devoted to Christian thought and those sponsored by Islamic authorities. Referring to him, representatives of both persuasions have, interestingly enough, quoted the ancient Eastern saying: "Give what is in your pocket and something will inevitably come to you from the Unseen".

In a long and closely reasoned contribution to the *International Philosophical Quarterly*, Professor Leonard Lewin, a scientist with a deep and wide-ranging interest in psychological and religious thought, has elucidated the catalytic role of the Shah materials, which now encompass some twenty volumes. He judges the keynote of Sufi literature, rooted in direct experience, as to "let those who know tell those who do not". Sufi understanding, he concludes, is learnt by practice but defies systematic analysis—it must therefore

operate by means of impact, which explains the role for the teacher to fulfil. The selective study of the subject by many academic scholars, rooted in their following only what interests them most, deprives the study of life and effect in the mystical sense, while capable of producing intellectually satisfying constructs whose apparent coherence gives the outward student the sensation that he understands Sufism. The Sufi insistence upon the need for a purposeful evolution within humankind's aspirations is also seen as a major factor often disregarded. Sufi teaching-stories, something of a specialization of Idries Shah's, as well as narration-teaching, have more than evocative force. Professor Lewin rightly emphasizes that these literary forms have a truly instrumental, not a moralistic, function. Equally striking in Lewin's assessment is his emphasis upon the need to discard outworn teaching forms. Whereas for most devout practitioners of spiritual studies the outward form is often respected in direct ratio to its chronological age (the doctrine of "the older the better") Shah has relentlessly cited the equally venerable tradition that what matters is the objective, not the vehicle, the content, not the container. It is perhaps worth noting in passing that this concept has so grasped the attention of the internationally celebrated authority on brain function, Professor Robert Ornstein, that he has titled his new book *The Content, not the Container*. In addition to his pioneering work on the relative functions of the two hemispheres of the brain, Ornstein has published, in his *The Psychology of Consciousness*, data on the synchronicity of Sufi word-artefacts and concepts published by Shah with the latest discoveries in the working of the human brain. Among the methods of human development employed by Shah, derived from Sufi literary and devotional classics, there is a strong stress placed upon non-sequential, non-linear mental operation. That this (together with a knowledge of the holistic capacity of human perception) should have been known to the Sufis many centuries before the scientific instrumentation to measure it existed, is one of the most exciting revelations, certainly for the psychologist and scientist, in Shah's books of Sufi lore. This material is particularly stressed in his *Thinkers of the East: Studies in Experientialism* (Jonathan Cape, 1971).

One of the most interesting aspects of Idries Shah's unfolding of

Sufi teachings in books intended for general reading is the frequent confusion which they create among would-be students who approach them from conventional standpoints. Literary people, delightedly reviewing these works in the intellectual journals, again and again praise Shah's surpassing use of words, his choice of materials, his uncanny touch which they generally feel puts him in the forefront of creative writers. With the serious student, however, the problem is more difficult. If, he will ask, Sufi understanding can come only through experience and not from books (as many of the texts say) what is the purpose of the books? If, on the other hand, it can in fact be acquired from books, what is the role of the Sufi teacher, who figures so largely in so many of the stories? This intellectual difficulty is surprisingly easily resolved. Careful reading of *all* the materials, not just those which appeal most strongly, clearly shows that the literary form is instructional and informative: it provides the ground in which the experiences are manifested and interpreted. Some scholars, while taking note of this contention, have immediately raised another question. If, they say, Sufi thought in some way depends for its development and authenticity upon literature, how can it be a manifestation of a far higher, a cosmic or universal, knowledge? But this argument, too, on reflection may be seen to depend upon a cultural bias. Idries Shah perhaps answers it best. Sufism, according to its oldest Persian treatise (*the Revelation of the Veiled*, by Hujwiri) was in the most ancient times transmitted without words, and could be communicated through symbols. In a culture which is word-bound, Sufi preparatory teaching takes place through word-artefacts. To expect to be taught without words when one is a product of a word-culture is as logical as to expect to be taught in a language which one has forgotten. One of the great Sufis said, on this subject: "Show me that you can learn without words, and I will teach you without words". To clinch the matter, of course, is the inescapable fact that since the classical Sufis taught with words, to deny the validity of words at some stage is to deny the authority of those teachers. If this authority is to be denied, why should one be trying to study the subject anyway? Those who have begun as students and progressed to the stage of acknowledged Sufi authorities over the centuries bear witness to

the importance of the written and spoken word: although generally with the emphasis on the assertion that the Sufi makes a special use of words—rehashed materials just will not do. A confusion is possible here. Because so much Sufi material is in words, many thousands of people in recent years have come to imagine that anyone can work effectively with Sufism simply by working with words and by a suitably devoted attitude. The function, then, of the Sufi literature is firstly (and least importantly) to inform; secondly to illuminate what has been understood—then to prepare for understanding which is to come. It is in the third area that the Sufi school and teaching by the master are needed. Most people thirst after the third stage when they are still not in a position to profit from it. It is in the making available of the materials for all three stages that Shah excels. And it is important to note that no manner of effort will unlock the third realm for those who wish, in the currently fashionable emphasis, to teach themselves or, even less, to teach others just because they have some published materials in their hands. This is why the Sufis say: “The Secret protects Itself”, and why contemporary self-appointed teachers of Sufism who want to teach before they have understood will revolve, like their unregenerate predecessors even in the East, in endless mystification, pedantry or confusion. It is not without reason that, completely unlike the attitude in vogue elsewhere, in Sufi circles those who feel a compulsion to teach are not permitted to do so until they have got this ambition out of their systems.

ADIL ASKARI

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Sentences

"Friday, 10th November 1972" by Colin Hannaford

*I knelt at the foot of the bed, clasped my hands, bent my head, And
said aloud, angrily,*

"I need some help."

*There was an immediate cessation of all the perceptions of kneeling
in the room. There was a tremendous sensation of forcible displacement,
of acceleration to a velocity.*

*Before there was time to realize more I knew that I was passing out
of the region of solar space. I knew this quite distinctly. It seemed
to me that I was already at a great height above the solar plane, and
travelling outwards at a terrific speed.*

*The speed did not diminish. It seemed to increase so that I was
passing through the galaxies which were like streamers of mist, radiating
a faint heat. I knew the energies involved, and yet I knew they
were inconsiderable.*

*And then I stopped. It was dark. I knew that behind me also there
was nothing. It was as if I had reached a boundary.*

*I had time enough to realize that I was alone. This loneliness was
perfect. I was poised in emptiness, waiting.*

*But then I knew I was not alone. I felt an inexpressible relief at
this. But at first there was no consciousness of a presence. Instead
it was a consciousness of having entered the dominion of a presence.*

I began to comprehend its character.

*Whereas the displacement had been so swift, this appeared slow.
And yet it seemed to increase exactly matching my ability to comprehend.
The difficulty of describing it is due to the fact that
simultaneously it was expanding from a centre which was discrete
and distant, and yet it was also all around.*

It had a vastness and a centrality.

*I also knew two things at once. It was familiar; there was no
strangeness about it. It was a person and of the same kind as I was.*

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Perhaps it is wrong to say it was gigantic. The scale itself defeated comprehension. It was as if I had been brought across the whole extent of the universe, or the picture we have of the universe, and at such a speed, simply to understand that this was greater. It was greater because its scale included all that I had seen as the world includes its grains of sand.

I then received two signals: a salutation and an enquiry.

The salutation was both an acknowledgement and a greeting. It contained much that it will be difficult to describe.

It was an acknowledgement as of kind to kind.

It affirmed possession. This was as a statement, unarguable, undeniable, complete and absolute. It was as if to say, You need no more protection but this.

Yet with it came a blaze, a force of love, of pride, delight, of comradeship—with such a shock that I might have laughed aloud with the joy of it.

It was of the kind of love that, perhaps, men always dream of, and yet which is always beyond them to contain or even to express.

I think that nearest to it is that kind of love that men in battle feel for each other; and even for an enemy whose courage is a shared thing.

Therefore it was no soft love. It was hard as the blow of a fist, as strong as the grip in darkness, seizing, gripping to the bone. A grasp of comradeship; a blow of love.

It was a caress, and its strength was its tenderness. What could have destroyed, smashed back into oblivion, stretched out, touched, steadied, held.

Here was a strength to do anything, perhaps which did everything. But here it was in check. Its very power was balance. It included everything—and yet it was outside everything. All the principles, all polarities lose their meaning. Human affairs are nothing. Good and evil are human affairs. An absolute is the absolute, which is everything.

The enquiry was then simple.

I was asked what did I want. I could not yet have drawn three breaths.

My presence was my question. I wanted to know what to do.

I heard the answer: as clearly and distinctly as a strong voice speaking into my ear. It seemed to me that a voice did speak to me; as if a man stood close beside me at my shoulder, to the right.

"Be honest."

And then I was back in the room and I opened my eyes.

Nothing had changed.

But I had changed. For me a world had changed.

First there were other matters to decide. I said, aloud again, "That was God".

It sounds foolish. It was pronounced, in delight and with astonishment, but for a purpose. In these few moments ten years' of unbelief, and increasing certainty, had been swept away. I had learnt to trust my own judgement; now what did my judgement make of this. The centuries of scepticism and rejection that I had learnt and made my own, all this had gone.

I wanted to hear my own voice. There was a difference.

I got into bed and lay there. The reconstruction would have to wait. I wanted to leap up and to find someone to tell them. That would have to wait.

First of all to consider the answer I had been given.

The more I considered it the more empty it seemed. How had honesty ever helped? How would it help me now?

I scrambled out and knelt again. Now, consciously, I was breaking all my rules. Never ask for help. And now I expected a response.

I wanted to know what did it mean. How, be honest?

This time there was no shift. I was conscious of the presence, but only as if at a great distance.

But once again the answer came from outside. This time however it seemed to form in my mind as if I was having to read the words with great difficulty. Be of good cheer, for no harm can come to an honest man.

I knew without doubt that I understood correctly. Still it made no sense. Worse, it was plainly false. Honest men were harmed daily. It seemed that there was nothing which so attracted violence as honesty.

After I had lain again for some time debating this in my mind, with increasing dismay, I knelt and prayed a third time.

The third time there was nothing at all. I was alone in the room and the room enclosed me in quietness. But then I did understand what it meant. It was something that I could understand by my own intelligence—and that therefore I should discover by my own intelligence. At the same time, while I attempted to hold it back, to deal only, in these moments, with the matters of immediate concern, realization of what I had learnt, and a beginning of an appreciation of the gift that had been made to me—this pressed in and would not be ignored.

I realized that only an honest man may know God. The quality that God acknowledges is honesty.

And to know God, by honesty, or even to acknowledge God unknowingly, by honesty, is to be put beyond the powers of man to harm—for nothing is so important.

That night I slept soundly.

* * * * *

That is my story. But for one thing.

Three days later, when I had a moment to myself, I began to question my recollection of the events. I needed to know if there was anything that I could remember which could not have come from my imagination—because it was beyond me to imagine it. This was a test I had to apply.

I realized that, while I had distinct and vivid recollections of the mainly visual impressions accompanying the displacement, there was no trace of any for the final interval.

This seemed to me to be curious. But slowly I realized that my memory did contain a definite impression. I think now that it had been there continually; but it was so strange and uninformative that I had not noticed it.

I could make no sense of it now as I examined it. I rejected it; and sought again for something that would make sense. The image persisted clearly and without addition—as I can see it now if I recollect it.

I had an image which will make no sense—as it made no sense to me—if I describe it as a visual image. And yet that is what it is; there is no doubt.

I saw a black sphere, intensely black, neither radiating nor reflect-

ing light; not completely free, but as if a third enclosed from the base in the darker background. It was the source of what I had experienced.

* * * * *

The field of human knowledge already contains the knowledge which I have described—and which is, I have no doubt, expressed in a form peculiarly informative to me.

The general expression of this knowledge is contained in the practice of religions which count as the highest aspiration of the intellect and a direct apprehension of a possessing intelligence and power, a being of like kind to man, of incomparable majesty.

The practice of these religions is remarkable in calling for a love of fellow men, and a proper valuation of all life. Love is the character of the power that is apprehended.

It is hard to see how the ambition to realize this apprehension, which is a matter of self-interest, can result in respect for fellow men.

First, the apprehension itself is only possible when all other ambitions, except this, and all preconceptions of what it is, have been cleared away.

What then is required is that balance of confidence and contained energy which is best called dignity. It is then for God to acknowledge man. Man does not supply the moment.

But to assert the dignity of the self it is inevitable that it shall be asserted without exception universally.

To assert the dignity of all men, without exception and universally, is what is called love.

To value all life is proper, because life is part of man.

* * * * *

Postscript.

The method of honesty.

This is the simplest of rules; it is also the hardest.

In your heart accept no authority. Doubt; doubt; doubt.

Never be satisfied.

Notes on contributors

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Edited by **KENNETH G. JOHNSON**, *Department of Journalism, University of Wisconsin*

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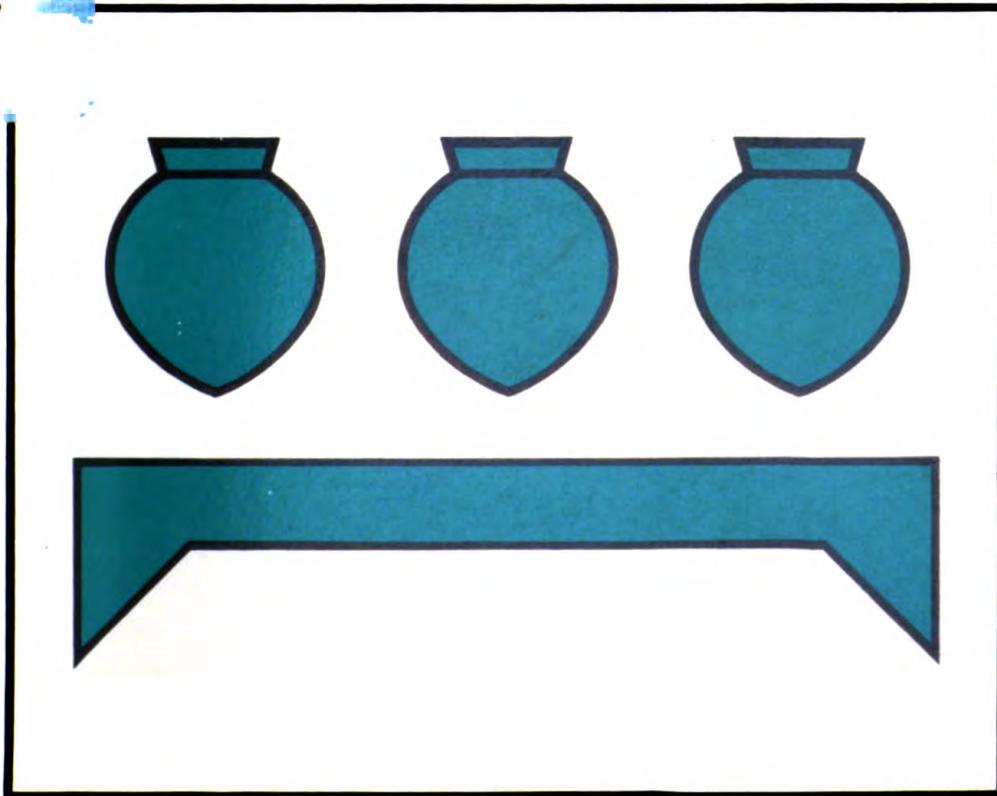
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An International Journal of Science, Philosophy and
Contemplative Religion

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THEORIA to theory

An International Journal of Science, Philosophy and Contemplative Religion

Editors

DOROTHY EMMET, *Fellow Emeritus of Lucy Cavendish College, Cambridge, England
and sometime Professor of Philosophy, the University of Manchester*

ANTHONY APPIAH, *University of Ghana, Africa*

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Explorations in the sciences and technology that affect our understanding of religious and philosophical questions—these are the basis of this quarterly journal. *Theoria to Theory* holds that traditional religion has been primarily, and at best, concerned with mystical and contemplative experience; therefore it is important to a widened science in providing a source of insight. *Theoria* was the old Greek name for this insight; *Theory* here stands for an enlarged and revised scientific understanding. The journal represents an effort to keep the two terms with each other.

The journal was started in 1966, when this approach was outside current theological, philosophical and religious fashion, but times have changed, and the interests of *Theoria to Theory* have become those of an influential avant-garde. However, implementing this approach is not so easy. Real understanding proceeds at its own rate, and demands precisely the "waiting on God" that contemplatives should but do not always manage. Any other approach leads, on the one hand, to occultism, and, on the other, away from the spirit of adventure within science.

Editorial correspondence, submitted articles, and books for review should be addressed to The Editor, *Theoria to Theory*, 20 Millington Road, Cambridge, CB3 9HP.

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Editorial

In this issue we have the first part of a discussion which follows up some of the ideas in the discussion on Myth in *Theoria to Theory*, Vol. 10, No. 2. A kind of discussion serial is developing. We think that the transcript communicates some of the excitement of the discussion. The central issue is the question of "altered states of consciousness", but the problem is approached from a multitude of directions. A certain amount is presupposed by the various speakers and, in this editorial, we want to try to expose some of these presuppositions.

Margaret Masterman refers at an early stage to Owen Barfield's notions as to the origins of language, as set out in his book *Poetic Diction* (Faber and Gwyer, 1928) especially in the chapters on meaning and myth. What Barfield suggested all those years ago is, Margaret Masterman thinks, what is now suggested independently by workers in *Information Science*: that, far from its being the case that the older languages were rich in concepts referring to highly particular concrete things (as in what Ryle used to call "Fido-Fido theories of meaning"), they had concepts of great abstraction and generality, corresponding to what are now termed names for whole semantic areas (or, in *Information Science*, "markers" or "thesaurus heads"). Each "concept" listed in Roget's Thesaurus contains within itself a whole range of more specific semantic possibilities, which can only be produced by deliberately desynonymizing (in Coleridge's term) its whole spread, both of meaning and of reference. Knowledge of the full role of a general concept in specific contexts is thus gained by progressively paring its meaning down, intersecting its spread of meaning, that is, with that of another such general concept, by combining the two concepts to form a single, more specific expression: "Homer's generation"

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didn't invent metaphor, they caught the language at a point where there was, as yet, no contrast between the literal and the metaphorical to be drawn.

What Owen Barfield suggested, and Margaret Masterman proposes is that the further back in the history of a language one gets, the more difficult it is to suppose that speakers had separate ideas corresponding to our more concrete and later concepts (i.e. the "desynonymized" concepts which we have now), and the more plausible it is, as a result, to suppose, to take a case, that when they spoke of trees with a word that also "meant" tree-gods, they really were "seeing" the tree as something imbued with spirit. Barfield goes further than Masterman: he thinks that the evolution of words in language shows such an evolution of human consciousness, Masterman only thinks that it suggests it. Benjamin Lee Whorf, a philosopher-linguist whose work continues to attract attention, would have joined these two in asserting that there are underlying metaphysical discoveries to be made by the detailed scientific study of language, stressing the idea that "nature and consciousness are inwardly akin" and claiming that "the greatest light upon (thinking) that we have is thrown by the study of language" ("Language, Mind and Reality", in Ornstein (ed.) *The Nature of Human Consciousness*, pp. 327-336). This idea that our language-using predecessors of necessity perceived the world differently because they conceived of it differently is related to another of the central concerns of the discussion. This is: how do we need to change our language and thought to cope with the areas where talk of changes of consciousness seems apt? Here Davy, who is a biologist by training, and Barfield take over the discussion from Masterman.

Both of them propose that we should take it as a datum that change of consciousness is possible. But Davy seems to think that this is a matter of changing what we are conscious of—the *objects* of perception—while Barfield seems more interested in changes in the way we perceive things—the *modalities* of perception.

Davy suggests, for example, we might train ourselves to become aware of "etheric bodies". But what does this mean? And even if we think we perceive etheric bodies—luminous intangible bodies

floating in the air, say—what reason could there be to think of these as *real*? The answer seems to us to be simply that other people can learn to report what is “seen” independently of us, and that when they *have* learnt, their results concur. But do their results concur? There seems reason to doubt this—and unless this condition is satisfied, it is hard to see what ground we can have for ascribing to etheric bodies an independent existence. Of course, nobody who does not have these experiences will know what we are talking about: but that fact alone does not end discussion of the matter. For if we can train anybody who comes along, or perhaps a special class of “sensitives”, to report independently on the same things, and their results *do* concur, then even those who don’t have the experience can judge that something is really going on. We think that too hard a line is taken by those who want to rule out this possibility *a priori*. The analogy with the case of the “seers” in the country of the blind finally persuading their unseeing compatriots that they do have an extra sense is indeed misleading here: the blind can trust our vision because we can use it to warn them in the ordinary normal world of perfectly tangible consequences of walking into visible objects. But if there is a “separate reality”, nothing those who cannot perceive it will ever come across will be affected by what the “seers”—the “sensitives”—“see”.

Barfield’s suggestion seems less radical. It amounts to proposing that we can learn how to perceive features of ordinary (living) things—namely their underlying systems, their etheric bodies—which will give us information that can be partially checked by the other “normal” senses. Thus Barfield’s proposal does bring to bear the country of the blind analogy, because it gives us a point of contact with the ordinary world, offering a way that we can tie up the consequences of our extended perception with “normal experience”. Once I have “got hold of its etheric body”, by whatever means, I can make the plant grow better, perhaps, or predict, long before the biochemist, when it is going to die.

Even this distinction between two ways of conceiving of change of consciousness is still, however, too simple. For Barfield’s way will change our *conception* of the thing, and so, perhaps, how we

see it, even in the ordinary case. This, on any showing, is an important question.

The distinction between changes in objects of consciousness and changes in its modalities is related to the difference between two types of example raised in the discussion. There are cases where there is indirect, but still *exoteric*, evidence—the semantic area hypothesis evidenced by the history of language, the hypothesis about the etheric bodies of plants evidenced by gardener’s “green fingers”, the hypothesis that Imagination, in Coleridge’s sense, plays a role in healing evidenced by people getting better—and there are cases where the evidence, though direct, is *esoteric*—available to sensitives but to no one else. Exoteric hypotheses correspond to the kind of change of consciousness which we have suggested that Barfield wants; connecting up our new conceptions with those of the ordinary scientific view, extending, but not radically altering, our experience of the ordinary world. Purely esoteric hypotheses, of the type Davy *may* want, raise problems of verification. It is difficult to see why anyone who does not have these esoteric experiences should take them seriously; why not treat them as imagination or, perhaps, hallucination? We have already suggested that you cannot rule out *a priori* the possibility of a separate reality, but there is no reason for those who do not share these experiences to suppose they are experiences *of* something, something independent of the “sensitive” mind, unless we are offered evidence that the judgements of sensitives confirm each other in the kind of way that our judgements about ordinary physical objects do. If this mutual confirmation of sensitives were observed, we might come to believe that the esoteric experiences were experiences of something, even if those of us who had not developed this faculty could know nothing about this “something—I know not what”.

The motivation for much of what Barfield and Davy say comes from Rudolf Steiner and anthroposophy, the philosophy he developed. Steiner was editor of Goethe’s scientific work and his thought is in the tradition of Goethe’s *Naturphilosophie*. The book to which Dorothy Emmet refers—“The Riddles of Philosophy”—shows Steiner’s background in later post-Kantian German Idealism.

One way of seeing Steiner's programme (or, at least, some of it) is as a consequence of his following the proposal that we should extend science by developing an empirically based metaphysics, which did not presuppose a single, unalterable state of consciousness and which therefore attempted to develop an understanding of the different ways in which conception and perception are related in what we might call "clairvoyant" consciousness as well as in "normal" consciousness. This purely philosophical suggestion, which has, oddly a flavour of some of the (very) early Russell is one which is still well worth examining. But, and again like some of Russell's very early thought, the programme, as initially conceived by Steiner, has proved too difficult. Instead, the anthroposophists have achieved the right to enlarge their universe by taking a header into "thick metaphysics",† albeit one founded on some of Steiner's writings. The philosophical significance of Steiner's ideas as to the relationship between perception and conception, and the effect of changes of consciousness on that relationship, will be discussed in the next issue. We shall try to analyse Steiner's views on these questions and draw some of the contrasts between a more developed philosophy derived from Steiner and the "thick metaphysics" of contemporary anthroposophists. These questions are raised acutely by the second part of the discussion. But the issues are also central to much of the contemporary metaphysical discussion with which professional philosophers are still too little concerned.

* * * * *

In our last number we spoke of the death of Jacques Monod and recalled our discussion with him "in the fog at London airport". We also published a critical article on his work by Alfred Glucksman. Since then his colleagues at the Pasteur Institute have sent us a copy of one of the last lectures he gave; we are publishing a translation of this by Alfred Glucksman, in Monod's memory.

† "Thick" and "thin" were terms used by William James to distinguish kinds of philosophy. Margaret Masterman has adapted them to describe brands of metaphysics.

Discussion

Changes of consciousness or changes of world ? I.

OWEN BARFIELD, JOHN DAVY, CLARA GOUGH, MARGARET MASTERMAN, RICHARD BRAITHWAITE, DOROTHY EMMET, JOAN MILLER and ANTHONY APPIAH.

D.E. We had a discussion in the spring, in which John Davy and others took part, and in which John in particular was talking about how altered states of consciousness might enable one to see the world differently and become aware of realities which we don't perceive in our ordinary consciousness. He was also telling us that Rudolf Steiner had methods of training people to have this new consciousness. John Davy is back here today, and also Owen Barfield who has given a great deal of thought to the philosophy of anthroposophy and is well known as an interpreter of Coleridge.

We also have Clara Gough, a practising psychiatrist, Richard Braithwaite who is, shall we say, the astringent philosopher, and various members of the *Theoria to Theory* group, including Margaret Masterman, who comes here as a research specialist on the foundations of language and who took part in the earlier discussion.

To start us off, I want to ask why should we talk of "altered consciousness", rather than of a heightening of what we can become aware of through our same consciousness. In dreaming, indeed, or under drugs, one might indeed talk of being conscious, or partly conscious, in a different way, but you want, I think, to say that one can be fully awake and not under drugs, yet acquire these new perceptions. Then, if so, how do you tell that they are veridical ways of becoming aware of other realities, rather than symbolic ways of experiencing something in our own minds?

M.M. One might get indirect corroborative evidence. For

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instance, the attraction of Owen Barfield's book *Poetic Diction* is that, right back in 1928, it put a view for which evidence is now also becoming available from information scientists studying the semantic foundations of language, that what we know of the evolution of language can only make sense if you presuppose that *primaeval* people saw things differently at its beginning. This view, if correct, would provide an indirect verification of the general hypothesis of the human race having had an evolution of consciousness. It wouldn't tell you what the older consciousness was like but such a line of thinking makes it possible to speculate that in 30 or 40 years time, say, it may well be standard science that, semantically speaking, language evolved from archetypal *cide* ("images"), the spreads of meanings which covered whole semantic areas†. This shows, or might show, how a very down to earth science is having to presuppose a very anti-commonsensical hypothesis. So I naturally want to ask are there other such sciences into the foundations of which you can get no sense unless you presuppose that, in the course of human evolution, consciousness itself has changed? And philosophically also, I want to ask what does perception and conception look like if we are presupposing changeableness of consciousness and not steadiness of consciousness?

A.A. Surely the key area we should consider in all this is depth psychology?

O.B. I don't know if you count psychoanalysis as a science. Freud's early essay on dreams where the same symbol means two different and even opposite things might be an example. He himself compared them in that respect to the meanings of words at an early stage in their history.

C.G. Freud does say that a word in its associations can come to mean the opposite of the conscious meaning. Words acquire new meaning through our experience, but the dream can go back to the old meaning.

M.M. I am unhappy about dreams. Even if there is dream symbolism in which one thing symbolizes something else, how can we use it to find out anything about changes of consciousness?

† For further comment on this see the Editorial.

D.E. But if we are going to talk about different kinds of consciousness, dreams might be said to be one of these. Or do we only want to talk about changes of consciousness in a waking state? And, even if so, can one completely draw the line between waking and dreaming?

C.G. Dreams aren't consciousness; they are another kind of mental activity, unconscious activity.

M.M. But suppose someone denies that? How would you settle the matter?

A.A. Would the point of calling dreams a state of consciousness be to say that there is another world that is perceived in dreams?

M.M. My scepticism about the existence of other kinds of perceptions indicating the existence of other kinds of realities comes from having been a comic novelist. In writing a novel, at a certain stage, the people in it "come alive" and dictate to you what they are going to do and you can indeed see what sort of future incident is going to come out at the end of the book. But not only is none of this veridical; also the literary quality of the writing produced by blindly following such "dictates" is likely to be very dubious. So that the fact that a "world" which started by being created by you by conscious will power and with great imaginative sweat suddenly "becomes infused" and "takes you over" — this shows nothing. The imagination then indeed appears to have produced something that has an objective existence independent of the person who imagined it. But of course this is not really the case. You yourself created this "world". Similarly according to Alexandra David-Neel, the Tibetans spoke of how things originally imagined could become, in the hands of a trained "imager", objects both which he and she could see and touch, and which other people could also. What "comes alive", both for the novelist and the Tibetan meditator, is something he himself has invented: and it might be so too in the dream case, only in a dream, as opposed to a meditation, the mode of invention has changed and of course there may be other elements also present in dreams. But after this you will not be surprised to hear me say that a lot of Rudolf Steiner's esoteric work reads to me like a sort of science fiction, where something which started by being produced by the imagina-

tion then comes to have a separate existence. The fact of this faculty of imagination objectivizing throws a great deal of light on our ordinary process of concept making but we don't even allow for it in the ordinary cases, only in the extreme ones. People then always say they are perceiving another world; as Joan Grant does in her book *Winged Pharoah* where she saw herself not only as high priestess but a Pharoah as well. But if you look at the catalogue of the first Tutankhamen Exhibition, almost every concrete detail mentioned in the book was there. It is impossible not to think it likely that she first read the catalogue, and then her infused power of imagination, which was very strong, took over to the point when she was genuinely thinking she was penetrating a world of ancient Egypt. I don't say that there is no such thing as genuine "seership". I do say that it is not normally attained by dreamers, meditators and novelists.

C.G. In analysis you lie on the couch, relax, and start verbalizing whatever comes into your mind—sense, nonsense, obscenity, or whatever; free association leads from one memory to another. That is the royal road to the unconscious. After an hour or so the memories are coming out thick and fast and take over the whole thing. It comes out of the unconscious.

M.M. Yes, but does the "unconscious" when so reached constitute a new consciousness?

There are other cases, of course, of infusion perception where there is a genuine element of *discovery*. There is the famous case of Boole when he saw the analogy between algebra and logic and so, according to Russell, founded modern mathematics. He cried out "Thy Word, O Lord, is established for ever", and there seems reason to think he actually heard a word and saw a vision of light. But the point is that he knew how to interpret the vision and this word as the analogy of logic and algebra. There was an element of discovery, but also one of invention; and a third element of interpretation.

A.A. Are you saying Boole, when he had the vision, was in a special kind of consciousness?

M.M. At the moment when he had the vision, yes.

D.E. There was the accompaniment possibly of vision, possibly

of voice, and there was the actual discovery of the analogy of algebra and logic, and that was not the sound of a trumpet, or what have you. So there is the question of how extraneous or how integral the surrounding imagery is to the actual discovery.

O.B. There surely is a difference between that sort of thing and the case of the novelist whose characters come alive and take over. There is the question of the relation between what people can know or discover in their changed state of consciousness and what they can know and discover in their ordinary state of consciousness. In the case of Joan Grant, it could have been that the infused things she “saw” and put in her novel threw light on unsolved problems in Egyptology.

M.M. If they did then indeed you make your point—though it was impossible for me to feel the same about that particular book of Joan Grant’s (though she is undoubtedly a psychic) after I had read that catalogue.

The argument over all this can surely fork two ways. One is, what is consciousness if it can change its state and make you aware of things you previously weren’t aware of. The other and more philosophic problem which I mentioned just now, is if our concept making apparatus as opposed to our percept-making apparatus can do so much to change our world in these extreme cases, then what is our ordinary perceptual process really like? Hasn’t it got a lot more concept making, and especially of subliminal concept making, in it that we are normally aware of? What interested me in Rudolf Steiner’s two philosophic books was that he was, I think, looking at normal perception in a new way. People tend to take normal perception for granted and worry only about abnormal perception, but he presupposed a single faculty which can have differing states, normal and abnormal, and he then explained the normal states in terms of the queer ones.

D.E. The difficulty I have when one tries to check or experiment from abnormal perception is that the experiments and reports of these are done in terms of ordinary perception. I also have recently been reading Steiner’s “The Riddles of Philosophy”, and through most of it, Steiner is giving an account of German post-Kantian philosophy, and arguing that perception is active inter-

pretation, relating this last to the way natural science was developing concurrently. But in the last chapter which he calls the anthroposophical one, he says that natural science must be left behind, because it is wedded to tests interpreted by commonsense perception. Yes, indeed it still is; but if you reject this, aren't you in a quandary? The perceptions which he says you have in abnormal states are either tested in ways which connect them to commonsense perceptions, or you can't claim to verify them scientifically. So does commonsense perception have a privileged status in the end? Or do paranormal experiments have to be made with some special paranormal perceptions, and put in the same universe of discourse as the paranormal experiences so that what is produced is not a theory but a myth? In either case, you seem to be caught in a circle.

O.B. Isn't there a distinction between immediate verification of a particular phenomenon and general verification over a wide area? For instance, Steiner speaks of the etheric body. It would be impossible or silly to try and see if there was a way of proving the existence of this in terms of current scientific theory—though I believe people try to photograph auras.

M.M. Kirlian photography tries to do just that.†

O.B. What I am interested in isn't that, but whether using this notion of the etheric body throws light on areas like medicine, and agriculture.

A.A. You must distinguish between the standard verification or confirmation of facts and the verification of theoretical entities. This latter has to be indirect, and consists in showing that the theory in which they play a part gives an explanation and prediction of things you can perceive.

Then there is the distinction between theories that can be confirmed by ordinary types of experience and those that can't because they aren't about ordinary types of experience.

M.M. I don't think Owen Barfield wants to cry down Kirlian photography; he just doesn't want to wait for this to be perfected

† For Kirlian photography, see the Review, p. 335 below.

in order to use the hypothesis of etheric bodies. And look how the anthroposophists, in straightforwardly using it as they claim, in the field of education have indeed revolutionized everyone's conception of the potentialities of mongols and spastics.

J.D. There is also the question of how to explore this notion of etheric bodies. I would put the question like this. Supposing you are prepared to grant there are other forms of consciousness, a great deal depends on whether perceptions produced by these penetrate into what you call your normal consciousness, perhaps in a very delicate way.

M.M. But the suspicion that this indeed may happen doesn't require presupposing the dormant existence within us of a whole other consciousness.

J.D. I think it does. You listen to Rudolf Steiner speaking about Imagination with a big "I" as an experience which he compares to waking up within a dream world, becoming more awake in this world than in ordinary wakefulness, leading to a mode of awareness as unlike our ordinary consciousness as waking is from dreaming. You may imagine such a form of consciousness even if you haven't shared it. But to me the more interesting question is how this is related to what I call imagination with a small "i". So then I start exploring this. Now in terms of verification, I think one clear example of the need for a new way of thinking is presented by the problem of organization in biology. How do you experience organization in the living world? Could you imagine the possibility of entering into this much more deeply?

A.A. Michael Ash claimed that he has healed wounds† by feeling regular pulsations which he believed had to do with something like the notion of an etheric body.

I think this healing case is very important because it gives you some testable consequences of theories of the etheric body. Healers like Ash and Agnes Sanford say that what they are doing is forming an image of the damaged organ as healthy—and we might hypothesize that this image triggers off a more purely physiological

† See his book, *Health, Radiation and Healing*.

image (call it an imago) which then acts as a kind of template for the healthy growth of the organ, rather in the way that the interactive patterned chemical fields of damaged cells in scar tissue are supposed to guide the redevelopment of a healthy organ. There would thus be a precise sense in Coleridge's claim that Imagination and growth are forms of the same process. Because the imagining-of-the-organ-as-healthy would be theoretically interpreted as the reformation of the distorted etheric body of the damaged organ into a shape that formed a template—an organizing field, if you like—from which healthy growth could occur. Healers speak of “channelling energy” into the damaged organ. This could be regarded as a causal interaction between two etheric bodies, the healer's etheric body acting on that of the man to be healed by whatever process is involved in envisioning the patient as healthy.

Now one very good reason always for trying out a new theory is that very different kinds of experience can be connected up by it. Well, in the present case, the phenomena of Kirlian photography suggest we might be able to “photograph” the distorted fields of damaged tissue—though it remains to be shown that healers *can* restructure these Kirlian fields. And again, the business of seeing a person's aura—a case of non-standard consciousness, if you like—might be connected up with this etheric body theory. I think we have to be satisfied at this stage with working with terms that are tremendously flexible, which we hope will get fixed as we learn more about the phenomena. Because one of the consequences of working with these flexible terms may be that we can gradually come to have new experiences.

D.E. What John seems to me to be saying and also the healers you, Anthony, are talking about, is that there may be an analogy between what we call imagination and what may be going on in these physiological processes of growth. This is something Coleridge was always going on about, and Owen Barfield interprets him. The processes of growth in Nature were a bringing together—John's word “organization”, which Coleridge also used—of elements into a new unity which wasn't just an aggregate. The intellectual energy of Imagination produced a new image, not just one produced by association which he called Fancy, and

Coleridge was intensely interested in the question of whether these could be a link between man and nature, if this and biological growth were forms of the same process, only in our imagination this process has come to consciousness. We are aware of what we are doing.

O.B. We have to watch our language rather carefully on this subject. You began by speaking of an *analogy* between imagination and growth process. And that is what most people mean when they talk about “organicism”. But that’s just what Coleridge *didn’t* mean. That way of putting it presupposes, as John put it, that the body is one thing and the imaginings are things it produces. What he did mean was the way you put it yourself later, when you spoke of Imagination and biological growth being *forms of the same process*. There incidentally you have the beginning and end, so to speak, of Goethe’s scientific method, and his greatness lay in the way he applied it. Coleridge’s approach was rather different. His Theory of Life is based on an immaterial principle of dynamic polarity underlying both inorganic nature at one end of the scale and consciousness at the other. So it is also a theory of consciousness. Human consciousness, that is self-consciousness, that is a subject experiencing objects, is simply the culmination of the same polarity operating at all stages of evolution, and bringing it about; operating therefore both in biological growth and in the act of imagination. Self, as he once put it, is “life in the form of mind”.

J.D. Yes; the question is whether we are talking *analogies*, or whether an aspect of actual Nature can be directly “participated” by my mind, by Imagination with a big “I”. In this case our consciousness must transcend subject and object.

A.A. Why? To talk of subject and object is in effect to demand that what you say should have a reference to something beyond you. So if you talk for instance, of radiant forms, the question is whether there is anything to which this expression refers.

M.M. Pink rats used to be the philosophical example. We can invent as much ontological solidity for such things as we like, but I don’t see how this affects the nature of consciousness: i.e. of what we see when we see them, and how.

D.E. Then we come back to the difficulty about verification which I drew attention to. If you try to verify radiant forms in any normal way, then normal perception has a privileged status. But if you say you must verify the existence of radiant forms only by using the kind of perception which claims to see radiant forms, you are also in a circle. And what would this verification be like?

M.M. Is it so very different from verification in normal science? In normal science you use very indirect non-commonsense imagination and connect it with very down-to-earth perceptions—as in tracing the paths of electrons in cloud chambers.

D.E. But then you still have the reporting of the normal perception of the squiggles you see.

J.D. That is because you have set up the experiment with apparatus in the commonsense world.

D.E. Then tell us how else you would experiment in a non-commonsense world.

J.D. Have we got to talk about the nature of experiment?

M.M. I think we have. You people tell us that we have to presuppose both a new view of language and a new kind of perception for reaching a new view of the world. We may hope you are right, but we aren't going to let you loose to presuppose all this newness, if anything less can be done to account for the facts. There are experiments with things whose properties are not at all ordinary: experiments, for instance, at conditions at absolute zero temperature, where the universe conveyed to you is very far from that of common sense. The quantum world, for instance, leaves the world of radiant forms standing for non-commonsensicality; but even in the quantum world it is still the case that there is a link between the pieces of apparatus which convey the indirect evidence and our ordinary perception.

C.G. I feel that we are not ready yet to attempt the production of paranormal phenomena artificially. We need to observe longer and record more the things that happen in our ordinary experience.

M.M. But are ordinary observations and experimental investigations alternatives? This argument is not between you and me. The argument divides people who want to see how you might create new sciences—but still sciences—and those like John and Owen

who say your whole view of the world has got to change. Clara Gough, John and Owen, are saying that we have a third possibility, a natural history stage of considering people's reports of their own experiences. This doesn't, at any rate to begin with, involve turning the universe upside down.

J.M. The problem of even getting to that next stage is getting factual information of what this other state of consciousness is like, how you get it, and how it operates. Otherwise you can't talk about it.

D.E. Could John and Owen give us examples of what they would call these altered states of consciousness, which aren't either dreams or due to drugs?

J.D. I don't see that one can unless one has had them oneself.

D.E. If they penetrate our ordinary consciousness as you said earlier, how do they do this?

M.M. And is there one such altered state of consciousness, or many?

A.A. Can't sighted people give blind people some notion of how they correlate their visual experience with other forms of experience open to the blind? So though blind people can't have visual experiences, they could have theories about the visual properties, which for us could be observational.

O.B. Let me have a shot at answering this flood of questions which you have put to John and me. I am not very happy about talk of "paranormal" consciousness. The kind of consciousness I am interested in, and I think Steiner developed, is more a development from normal consciousness. You say, can one give any examples? There is the conception of the life body, or life process, experienced directly. If you do exercises in concentration and then form the habit of meditating, say, on the growth of a plant, and if you let the plant form itself in your imagination, you get a startling experience of the growth of the plant actually happening.

M.M. That's like the characters in my book.

J.M. But Steiner says it is another kind of consciousness.

O.B. He also says it is a developed form of ordinary human consciousness.

M.M. Rupert Sheldrake, one of our friends now in India, who

is a plant physiologist, sometimes contends you can't do plant physiology unless in some quite strong sense you become the plant. So I suppose he would back you up.

D.E. I don't think he is anthropomorphizing the plants, thinking "If I were a plant, I would behave like this . . ." but he is—what would be the word?—"phytomorphizing" himself, and he finds this can enlarge his scientific understanding.

A.A. This is a matter of changing *conceptions!* not of changing consciousness.

D.E. I think, also, of modes of feeling.

M.M. But also it is an aspect of basic scientific curiosity. What would you say about all this, Richard?

R.B.B. People say to those of us who doubt the value of talking in terms of changes of consciousness, "But you haven't had these changes". It is said that there are changes of consciousness in creative activities. I am not a painter or a musical composer, but I have created—invented, I should more naturally say—small systems of logic and this activity involved a sort of discovery. On one occasion I seem to have discovered a step in the argument while I was asleep, for I wrote it out semi-automatically when I woke up. So I don't think it would be right to say that I have no experience of creative activity. In my opinion there is no hard and fast boundary to creative activity. The language of changes of consciousness seems to me quite inappropriate.

M.M. What about what happens to you under nitrous oxide when you go out of your body?

R.B.B. I very much enjoyed having nitrous oxide at the dentist's. When I came round from it my senses came back separately one by one. And I have also had the experience under it of floating about and seeing my body in an open coffin below me. Whether or not you call this an "out of the body experience", I shouldn't call it a change of consciousness. I have also had a peculiar experience on two or three occasions when (some time ago) I was given shots of heroin before or after an operation. The experience was a state of extreme elation—of being on top of the world where nothing disagreeable could affect you and nothing need be done. The best account of it I know is in Aldous Huxley

(*Point Counterpoint*, I think) where the heroin addict lies exultant on her bed in a garret in the midst of her own filth. This exactly corresponds to what I felt. But I should not describe the effect of heroin as a change of consciousness. It is only the limiting case of what is experienced by many people under alcohol, where fortunately the change of mood is much more controllable.

I have also had experiences which I should class as “mystical” because they go along with some of those described in the literature. The most memorable one was when I was running a high temperature with pneumonia in Addenbrooke’s Hospital. The ward was high up and with windows allowing a wide view over Cambridge roofs. Looking out from my bed I felt I loved the whole world—all the people in it, that is, since mine was not a pantheistic experience. It was analogous to that recorded by John Woolman when he forgot his own name and identified himself with mankind. But my experience didn’t appear to me as a change of consciousness, but as a change of attention—a change in what was attended to.

I haven’t taken L.S.D. which is said to produce changes in the brightness of colours seen. (A friend of mine who took it once experimentally said he could never have conceived the hell it put him into.) But the changes can hardly be called changes of consciousness, since they occur to a small extent in our ordinary daily life (and this extent need not be small for painters like Van Gogh). All this of course relates to the question of how to distinguish what is sensed from what is imagined. Once sixty years ago when I was driving west out of London on a foggy day there uniformly appeared to me at cross roads a flash of red followed by a shorter flash of green. For ten minutes or so I was horrified at the waste of public money involved in producing two flashes of different colours when a red flash alone would suffice, before I realised that what was happening was that I was regularly having a green after image after each red sensation. When I taught philosophy I used to give this mistake of mine as a counter-example to naïve realism.

M.M. Clearly when Fellows of King’s have changes of consciousness, they no longer count as changes of consciousness,

because *they* settle what is to count, just as who were to be Saints in the Cambridge University Diary was once settled by R. B. Braithwaite, i.e. by a Fellow of King's. But take the case of the ex-Anglican nun Frances Banks, who was walking in South Africa with a friend in a dangerous place in the dark and suddenly there was someone beside them and there was a light and they saw they were just about to fall down an 8 ft. drop. The light and presence of the companion lasted till they reached their house; and then both faded. Information which saved them was made available. I would have called this a change of consciousness.

R.R.B. A Balaam's Ass phenomenon?

M.M. Yes. You could just say, I suppose, that you were perceiving something no one else perceived, but I think it is natural to want to call it a change of consciousness.

C.G. How much was her experience as it was because she had been a nun and had Christian expectations that in danger the Lord would guide one?

M.M. She was a most sceptical trained psychologist who had expressly left the convent to investigate this sort of thing.

C.G. I am always sceptical when it is said that other people see things having sat through a performance of Ruth Draper, who could people the stage for you, when there was nothing there but Ruth Draper in a little brown shawl.

M.M. Yes, and the telepathic conjurer Kreskin can make a whole theatre full of people see Flying Objects, if there is one telepathic subject there. This is the same infused imagination I have kept talking about. But the problem here is how this imagination gets turned off and on.

A.A. I repeat, this is just a problem about perception. In the cases we have discussed the observations aren't of reality.

M.M. And I repeat that, on the contrary, I was saying that in Frances Banks's case something was observed that conveyed immediate factual information. I don't think it was just infused imagination, not even a form of infused imagination quite different which you can turn off and on, but something normally called clairvoyance. Rudolf Steiner is said to have had this faculty continuously all his life. Clairvoyance, if you believe in it, is like a new sense being

turned on. Imagination is not: it is the faculty we use where we are creating something, not a state in which something new and general is “Revealed” to us as it was to Boole. But clairvoyance, where a person gets to know of a particular thing in front of them like a cliff edge, is more like an alternative sense of vision.

C.G. I agree clairvoyance does happen. I know someone whose grandfather, when she was a child, wanted a Gaelic brooch. She said “I know where there is one” and took him up the hillside, and said “Dig”; and there was a Gaelic brooch.

A.A. Are we only talking about things like dowsing which is an extra (and quicker) way of finding something which we could find by other means? That brooch might have been found by getting the whole of the local police force out to dig up the hillside for years. Or don’t we want to talk about objects, such as etheric bodies, which you could only identify in some new way?

J.D. I’m meaning the latter. I see the problem of how to think about organization in biology as a case of this.

J.M. This isn’t like clairvoyance. It isn’t that you must have a new kind of perception, but that you need to develop new concepts.

From a model of science to a science of models

RENÉ THOM (Translated by Gladys Keable)

Taking the two concepts of science and of Model, one might think that the second is strictly subordinate to the first; is modelling anything other than the supporting ancillary algorithm which science makes use of to build its theories? In fact, it is probably the other way round. Whereas science is only a recent activity in man's history, the use of models seems to reach back to the most remote prehistory, to appear at the very source of all mental life, to plunge its roots through to the bedrock of biological organisation itself.

1. A MODEL (PHYLOGENETIC) OF SCIENCE

If indeed one is willing to admit that the distinction: Subject-Object is realized in a more primitive way in the biological opposition Predator-Prey, one sees at once what the essential difference between Subject and Object consists of, the subject is able to simulate the object, to recognize its exterior form, and to foresee its behaviour, while the object is usually incapable of inner 'simulation' of the subject. Because the subject possesses an inner model of the form and behaviour of the object, a struggle between subject and object can hardly avoid ending with the subject's victory; the prey ends in capture by the predator. This capture sequence takes place according to an innate pattern within the subject himself, though its external realization may be affected

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by defence reactions of the prey, to whom is left a measure of initiative. (Think of a cat who “plays” with a mouse.) Here, it seems, we touch on the very source of subjectivity; consciousness is only born as consciousness of something, the manifestation of a plan of a subject with regard to an object. Now, the carrying out of this plan demands a measure of stability in external conditions, it demands that certain prior conditions, present at the beginning of the action, allow of its fulfilment. If these conditions are not present, or only partially so, there will follow for the subject a state of uneasiness; the business of maintaining the persistence of his self in the absence of an object, or again in the presence of a plurality of possible objects between which he must choose (like Buridan’s ass equidistant from his two bundles of hay). In such ambiguous situations, when the mind feels there is something which should be done, but does not know what it is, it is a comfort to have the hesitation removed, even by an artificial method, since it marks the passage from a consciousness which is dim and fragmented, to one which is full and complete, entirely taken up with the accomplishment of the act. The mind’s intrinsic repugnance to thinking of chance, indetermination, finds its quantitative expression in the utility function of Von Neumann–Morgenstern: if somebody gives you a choice between two alternatives: either to get a million francs at once, or to have tomorrow a fifty-fifty chance of getting two millions and a fifty-fifty chance of getting nothing, who would not choose to accept the first sum straight away?

But one mustn’t be deceived, these ambiguous situations are relatively rare. Like every animal, man has a stock of genetic “programmes” which help him to act efficiently in his environment. He has only had recourse to an artificial “modelling” when the natural modelling supplied by his biological birthright failed him. It is these biologically “non-programmed” happenings for which above all an explanation needs to be found.

Among these, sickness and death take pride of place. Shattered by the illness or death of someone near to us, we shall go to consult a diviner—shaman, healer or magician—who will suggest an explanation. Very often the diviner uses a natural “simulator” of the client’s problems. (Thus the Dogon diviner, who according to M. Griaule,

uses the nocturnal trail of a jackal on a square of sandy beach.) The proposed explanations are the only ones which the general ideas of the time permit; sickness or death are the result of a spell cast either by a member of the community or by a supernatural being (ghost or demon). It is the very structure of language (basically causative) which forces this interpretation. Then the act of divination can pinpoint the source of the evil influence. The magic action itself, such as casting a spell, often has recourse to a simulacrum of the bewitched. To act on the simulacrum is also, by sympathy, to act on the person. The “model” of which use is made is in some respects consubstantial with the being who is modelled.

Such a way of thinking (and acting) can catch our “modern” mentality unawares. Without wishing here to go into a fascinating problem, let us say at once that the criterion of effectiveness will not by itself show straight away the stupidity of such procedures. Indeed, in a very fluid situation, it often happens that the choice by chance is the best strategy open to a player. But the mind shrinks (we saw it before) from taking a totally arbitrary decision, and always prefers, to this arbitrary choice, submission to a model, however weak the reasons for using it may seem. Thus a lottery player, having to choose a number from a bundle of tickets, will prefer to select the number by a throw of dice. The more so since this choice frees the mind from the burden of hesitation by offering it a well-defined task. To validate such a choice by the socially recognized apparatus of a diviner (or in modern times, the scientific competence of a specialist) is—psychologically—a source of confidence past arguing with, which may have most happy results in the bearing (and the success) with which the individual faces the trial.

We instanced language just now; in a social group, language acts like a sense relay; through speech, individual *A* can describe to individual *B* what he, *A*, can see, and that *B* cannot see. By creating, in the mental make-up of *A* and *B*, semantic worlds perceptibly similar in form, language makes possible an extended simulation of physical and social phenomena. But, to be verbally described, these phenomena need to flow in the already prepared mould of syntactic structures. Now it happens that these syntactic structures are particularly adapted to the most common interactions

both between beings whether animate or inanimate. Among these grammatical categories established in natural languages, the distinction Noun (Substantive)—Verb seems one of the most universal. Now it is striking that the concept of “model” (in its modern usage) seems to by-pass this distinction: one can model a being, as one can model an action. Perhaps it is not unreasonable to think that the same semantic ambiguity sheds its influence over those supernatural beings with which primitive man peoples his world, and to whom he attributes responsibility for phenomena. An ambiguity which is found even in the Pantheon of classical ambiguity: Jupiter thundering. The same dichotomy: Substantive-Verb, is found again in the opposition Object-Instrument. From the object, as exemplified in the prey, one expects a certain independence, even a “consciousness” analogous to that of the subject (cf. the models under 1) where subject and object are identified); from the instrument, on the other hand, one only expects complete passivity, a total inertia, which makes of it nothing but a blind and efficient slave in the progress of a pre-established organic action (see under 2). As with every machine, any initiative from the instrument itself can only be a check or hindrance; it could not therefore be allowed. So the manufacture of a tool is the first example of a mental process of modelling in which the instrument, the material result, is a solid body whose form has been dictated by dynamical requirements, those of the tool’s action on its object. From this point of view, the tool is nothing but a solidified verb. Face to face with these supernatural God-Demons, half noun, half verb, the mind has tried to act on them by modelling them, just as the predator has a model of his prey; but this modelling is done in two opposite directions, either towards the object (then the subject), or on the other hand, towards the verb (the tool). The first kind of modelling has led to religious thinking: man has behaved to his Gods as he would have behaved to a more powerful member of his social group; he turns his back on violence, and tries to deflect God by prayer, gift and sacrifices. In the second type of modelling, man reduces supernatural beings to mere tools, he makes them “pure actions” which he will know how to bring about through the analogical power of simulacra, or

of verbal formulae. The magical view of the world is that of a universe of virtual powers, which have no function except by becoming actual. For this it is enough to free them by pronouncing the appropriate formula, while by an analogical rite creating an embryonic form which will localize the power evoked at the chosen place, on the desired object. In this respect, magic, by the mental attitude it engenders in man—which defies the Gods—*Vim facture deis* (Lucian)—is in truth the ancestor of modern science (particularly of physics, which has managed to make itself master of the more manageable forms of energy). In so far as actions have typical (I would rather say, archetypal) “forms”, this view is not without foundation; its only fault is to lay stress on the likeness of forms while forgetting the unlikeness of the substrates on which these forms are structured. For it is indeed much easier to model forms by analogy (form is dynamically contagious) than the substrates which support them; the most all-embracing substrate, space-time, was only correctly modelled in its entirety after the appearance of geometry and dynamics. Moreover, up to a point does not modelling a system involve forgetting its substrate, that is to say its spatio-temporal localization? If one refused to ignore this restriction, no one could have any model but himself (in accordance with Leibniz’s principle of “indiscernibles”), and all modelling would become impossible.

However, it is probable that science has not grown directly out of man’s masterful will to dominate phenomena. Biological organogenesis, and then, with *Homo Faber*, toolmaking, rested on an implicit modelling which had no reason to give place to clear consciousness. More probably, science was born from the technique of divination. A speculative attitude, which science needs, demands in fact a certain detachment when confronted with the will to act; oracle questioning is, typically, a trial interpretation of a morphology based on a random process. Now one can never completely simulate chance (this indeed springs from the only possible definition of chance; a strictly random happening is a chain of events of which the course cannot be simulated by any mechanism). In every natural system adapted to divinatory ends, there is therefore an element of determinism which it is necessary to recognize; either

to offset its effect in the final interpretation, or on the other hand in the case of a trickster, to exploit this element in order to present the client with a wished for solution. So in the case of the movement of heavenly bodies, astrology has given birth to astronomy; a conversation has cleared the way to laws. It is typical that, to arrive at an explicit understanding of the movement of solid bodies, of which Homo Faber had a very refined implicit knowledge, it was necessary to go round by way of the movement of celestial bodies. No doubt in the first place questioning had to stimulate action. Later the growth of Galilean and Newtonian mechanics only served to bring to consciousness the unconscious mechanisms of a biological simulation necessary for the motor control of our movements.

To recapitulate, three verbs sum up man's attitudes to the unknown which surrounds him, to implore, to question, to command. The first word is the mark of the religious attitude, which from this angle, is really in contradiction to the magic attitude, as well as to the scientific. It presupposes in the first place that there is no knowing the Gods, and that it is only in beseeching them, making up to them by gift or prayer, that one can win them over to one's plans. Still, it is only fair to admit that in religion there have been myths which have expressed man's imperialist dreams towards the universe (the struggle with the angel, Prometheus etc. . . .) as well as oracles, up till quite recent times, which answered human questioning. As to magic, it made use at the same time of two techniques, questions and action. So science springs from the need to perfect the questioning method, which in the end, with the discovery of the great laws of physics, has led to a considerable expansion of our possible activities. As we have seen further back, for questioning one "models" the situation by a suitable material set-up (or later, a conceptual one). It is striking to verify that the two great types of model met with in present-day science—qualitative models and quantitative models—correspond broadly speaking to the two basic categories of question and of action. Equally, from this standpoint, one could find in magic the forebear of the quantitative point of view in modern science, and in this, not only by the use of abstract concepts like mana, oracle

. . . etc. in which Durkheim chose to see the beginnings of the modern notions of force or of energy, but also by the fact that a magical action is never thought of as endowed with an inevitable result, like that of a law of physics. One can counter one magic influence with another in a struggle of uncertain outcome, and the only model comparable with this kind of conflict is that of two peoples who fight bodily, it is the stronger who is victor in the quantitative sense. To this is added the more hidden reason that to give an idea of a “model”, a “copy”, it is necessary to have a geometry of spatial transformations which makes it possible to compare the image and its model; where can this combination be found if not in the group of Euclidian displacements, whose quantitative and continuous nature (a Lie group) contains implicitly the whole of mechanics and classical physics? The analogical character of magical action rests therefore essentially on the existence of this group considered globally, though the effect of a magical action can lead to a global deformation of space (or at least, to being understood this way, particularly in acts of “participation” in Lévy-Bruhl’s sense).

2. TOWARDS A SCIENCE OF MODELS

Science is distinguished from magic by one essential feature; magic attempts to resolve individual problems (or at least local ones, as with a rain-maker), while science responds to questions of universal interest in time and space. From the moment when the seer has examined his simulacrum in an effort to discern the underlying determining factors, he has replaced proper oracle questioning (which ought to answer a client’s personal question) by something independent of the client, by scientific questioning, if one dare put forward such an anticipation in a case of this kind.

This did not become possible except by the replacement of a material modelling system by one which is properly mental, conceptual (what is usually called intelligibility). It then becomes possible to fashion a bridge between this conceptual simulation and the implicit kind underlying one’s sensory-motor activities. In this way were born the great quantitative models linked with

physical laws; as to qualitative models (essentially those of Chemistry, Linguistics, structural Anthropology), they are apparently later; but one must take account of the fact that scientific discourse always includes some part written in natural language, and therefore all the modelling which is implicit in the use of language (the structure of the semantic world) cannot be separated from the content of a science. Now a modelling of this kind, which does not rely on any calculus, but on deduction of a logical nature (in a vague way) is basically qualitative. So that the known examples of qualitative models in science are those which cannot be directly put into words (especially linguistic ones, which are trying to break out of the closed circle of the semantic world). For want of having seen this point, most scientists (and even epistemologists) restrict the concept of model to quantitative models. This is the point we are going to discuss.

2.1. Quantitative models

We have said that quantitative models are tightly linked to pragmatic use. In practice, they appear in the following situation; they refer to a verbally well-defined objective (for example: hit a certain prey with a certain projectile), but which can easily fail by a series of small inexactitudes in preparing the action. In such a case, the success (or failure) depends on the rightness of certain quantitative parameters (for example, speed and direction of the projectile) in relation to certain thresholds which need to be made precise. Such models can only be set up thanks to the use of precise physical laws (like the laws of Mechanics, in the example given above). In this sense, physical laws are not models, they are generators of models.

Side by side with these models, which are deductively sound because the nature of their constituent phenomena is transparent, there are a number of other situations where quantitative modelling is necessary because of the measurable nature of the parameters characterizing the state of the system being studied. The sum total of the experiments done on the system, which consists in the measuring of q characteristic parameters, will give a point of Euclidian space R^q in q dimensions. Repeating these experiments,

while varying the initial conditions, one will obtain a cloud of points within this space R^q ; but this time our system is a “black box”, of which the internal mechanisms are little known or are unknown. In many cases, the cloud of points is clustered round a sub-variety of the space defined by a system of equation of the form $y_i = f_i(X_j)$. In such circumstances, one can try to give explicit expressions for the functions f_i . The standard approximation theorems, like that of Weierstrass, allow for giving forth f_i the polynomials $P_i(x) = \sum a_w x_w$, containing, besides the variables x_i the indeterminate co-efficients a_w . A better correspondence with the experimental data can be obtained by taking polynomials of a higher degree, containing more a_w coefficients to be determined. It is clear that this procedure is without intrinsic interest; at most it allows of an interpolation (and a limited extrapolation) from the empirical data; but it teaches us nothing about the underlying mechanisms within the system; only a hypothesis on the nature of these mechanisms implying explicit physical laws, will lead to an expression of the functions f_i which has only a few parameters to be determined, can be compared with the experiment, and if they match well, might give some indications of the nature of these mechanisms. The great pragmatic success which physical laws have led to should not, however, disguise from us the limits of their applicability. In the end, they are always tied to rules of invariance which govern the geometry of space-time, and only apply to ideal objects (material point, electric charge . . . etc) rarely met with in pure form in concrete systems. As soon as one deals with non-homogeneous systems containing a large number of particles, one comes up against difficulties which the statistical approach cannot always remove (for example the theory of phase changes is still in its infancy). One of the great vices of scientific output in recent times has been the routine application of classical quantitative methods (in particular, the use of statistical algorithms) in situations which did not allow for their meaningful use. Indeed one point must be grasped: where the existing theory does not unquestionably allow the use of physical laws to describe the total structure of the process under scrutiny, the use of qualitative considerations (like those used in divination, a “hermeneutic” enquiry) is indispensable.

A "generalized statistic" might be determined through a study of the following problems: given a cloud of points in a Euclidean space R^q , what is the most likely and conceptually simplest dynamic mechanism which could bring this about? One might indeed consider that every random process could be thought of as the projection of a determinist system obtained by introducing, besides the space of observables R^q , a product fibre-space $R^q \times F$ where F is the fibre-space of the "hidden" parameters. To solve such a problem, a broad qualitative study of the *form* of the cloud of points to be interpreted is an essential preliminary. Now, if the dimension q of the space of the observables is greater than 2 or 3, if the experimental data are supplied (for example, by tabulation) in the form of arrays of numbers, it will be very difficult to visualize the cloud, and some of its formal characteristics, clear to geometrical vision, could completely evade blind statistical manipulation.

Since scientists of a positivist bent give pride of place to quantitative models, going so far as to make the use of a numerical calculus the criterion of "scientific", it is to be feared that they have never taken note of these difficulties. They take their stand from the outset in that "imperialist" position where man wholly dominates the system to be studied: a material point is defined entirely by its mass and speed of movement, measurements which are respectively "scalar" and "vector" with finite dimension. The only initiative left to matter is its inertia. It is the triumph of a purely instrumental view of the universe. Since our knowledge of the system studied is not complete, we must necessarily make room for the unknown and the uncontrollable. But this situation can then be always interpreted from the standpoint of theory of games; our ignorance can be supposed to be due to the action of a malevolent demon, whose habits and limitations must be seen through and overcome. Classical statistical algorithms, based on the standard techniques of measurement (those of Gauss, Poisson, etc.), correspond to demons of rudimentary intelligence, relatively easy to control. The introduction of a space F of hidden parameters is also a way of making room for the demon, but this time, we allow him a more extended "vision" and "purpose". The classification of types of "demons" therefore needs qualitative considerations. That is to say that a theory of

quantitative models, from the moment one steps beyond systems which can be completely known and are simple enough to be calculated, leads inevitably to the use of qualitative models. Among these “hermeneutic” theories, catastrophe theory is the one which *a priori* offers the widest field for interpretation. In its elementary form, it seeks to explain a morphology by the action of “local demons” endowed with a simple purpose (which is expressed mathematically by an optimization principle). In principle, such a theory does not attach importance to quantitative agreement; however, there are annoying occasions when the qualitative model can conflict with the local metric properties. Such is the case in the theory of the critical point in the transition from liquid to gas: the obvious qualitative model, that of Van der Waals, leads to a critical isotherm of which the local equation is $p - p_c = A(T - T_c)^3$ while experiment yields an equation of the form $p - p_c = B(T - T_c)^{4-5}$. This puzzle has not to my knowledge been resolved.

In conclusion, let us hold in mind from this paragraph the fact that, even for quantitative models, the situation is far from being as clear as the champions of positivist empiricism are pleased to imagine. For instance the agreement of a quantitative model with experience. Such agreement has in the long run less importance and meaning than its ontological content, what the model lets us conclude about the mechanisms underlying the phenomena, from which it is deduced. In such a case, it is the formal economy of the expression and its applicability to the results (the “fit” as the professionals say) which gives ultimate authority. If then, qualitative considerations are indispensable, it remains to clarify what qualitative models are and what is their function.

2.2. Qualitative models

During the course of this century the history of the sciences seems to show that the paradigm of physical laws, universally valid and extremely exact, has not made any headway since the great nineteenth century laws of classical physics (Maxwell). Rather does Quantum Mechanics demonstrate the intrinsic regularity with which the conceptual framework of space-time disappears in the infinitely small. If this gloomy judgement is correct, we are led to think that

our era might well see a renewal of scientific activity in problems either of an individual character, or local ones, on the pattern of the magic thought of "primitives". From this angle, one is struck by the fragmentary "bricolage" character of the techniques seeking to specify a decision in a conflict situation; operational research, theory of games, differential games, so many branches of mathematics, which show a very pronounced state of immaturity. Perhaps in these too, the need for action has not left us time to question. In all these cases the problem can never be completely attacked in mathematical terms; there is always an irreducible residue expressed in ordinary language—which reflects a subjectivity, an anthropocentrism belonging to the question itself. And this situation often shows itself by a break in strategy, a "morphology" limited to the problem and showing itself in the answers. So it would be of interest to look at these problems from a "divinatory" standpoint just as those thrown up by the interpretation of an experimental morphology. Modern science, it is well known, suffers from a plethora of experiments. Nothing is easier than to pile up facts, as soon as one possesses the appropriate tools and techniques of observation. But then comes the problem—even sharper—of detecting in this mass of facts the surprising or meaningful phenomenon. Here again, science will have a local and fragmentary problem to tackle, about which, it will have to give an answer of a divinatory character. From this point of view, the idea of a qualitative model could well play an essential role.

In the main, we could say that to give a qualitative model an experimental content is to match it with a "Gestalt", a global geometric or algebraic configuration. We must turn then, obviously, to clarify the interpretation in empirical morphology of the various elements of the abstract model which has been associated with it. Two kinds of model can be distinguished:

- a) "Self-contained models": associated with a Gestalt given once for all, these models cannot be extended.
- b) "Generative" models: here the "Gestalten" used give rise to a combinatorial system, an algebra, which allows the "generation" of new forms starting from a finite system of forms treated as axi-

matic. This is the case with formal logic, and with generative grammar.

It is clear that the scientific worth of a qualitative model depends most of all on the mathematical nature of the Gestalt used. If this is very complex, without a generative principle, the scheme can be given a certain classificatory value, but no more. (Perhaps Linnaean or post Linnaean botanical taxonomy are in this position.) From this angle, the theory of qualitative models has still to be worked out, for the Gestalt theory, springing from theories of perception, is not a deductive theory, and has never been able to state clearly the provenance of the "growing point" of a form. There is scarcely anything except the theory of elementary catastrophes which has been able to sort out the forms springing from local conflicts in Euclidian space. Doing this, they provide nothing but self-contained forms, not a generative theory. Moreover, this theory is too recent for us to be able at present to assess its empirical correctness.

If they lack an assured theoretical basis, have qualitative models at least a pragmatic usefulness, a predictive power? If so, it can only be understood in two different ways:

- a) An empty case of the scheme is found to be filled by an extension of the experimental body of knowledge. For instance, this happened with the transuranian elements in Mendeleev's classification of chemical elements.
- b) In the case of generative models, a new form arising from the given forms by algebra is recognized experimentally. Thus in generative grammar, correct sentences likely to be met with in a body of material can be "fabricated".
- c) If we are talking of a Gestalt extended through time, G , it may happen that at a given instant t , the observed spatio-temporal form can be identified at a certain temporal break G_1 of G . It can then be foreseen that the global Gestalt G will be realized in a lapse of time subsequent to $t \rightarrow t_1$.

A strictly positivist (or Popperian) attitude would lead to qualitative models being considered scientific only when they have predictive power (or are capable of being "falsified"). That would be, in

my judgement, to restrict the applicability of these models considerably:

a) Even if the proposed scheme contains empty cells, there can be no certainty that experiment can fill all of them (nor even that elements will be formed to falsify the scheme, by refusing to occupy any of the cells.)

b) In generative models, it often happens that the generative power is stronger than the empirical data (cf. the “performance” which limits the “competence” in Chomskyist language). This is not a reason for rejecting the scheme.

c) In Gestalten extending in time, a complete working out may not be unique because of the many Gestalten that are possible. Often only guesses can be put forward, not certainties. For example, after a form of gift, symbolized by the graph \sqcup , one might expect to have the form of “exchange” $\sqcup \sqcup$ where the recipient answers with a gift in exchange for the one first offered to him. But one could have also the morphology of “double gift”, repetition of the gift $\sqcup \sqcup$. But this second form is much rarer than an exchange, it presupposes a greater disparity between giver and receiver.

d) Lastly, very often, a self-contained form admits of no prediction. Certainly there is agreement with the experiment, but this is not surprising, since the model was built *ad hoc*. Would one conclude that all there was here was an academic game with no scientific bearing? It would be wrong, I think, to go as far as that.

In reality, qualitative models have an essential role in scientific explanation. If we admit, as I have suggested, that scientific explanation is a reduction of the arbitrary element in the description of an empirical datum, then a qualitative model, if it is intrinsically, that is to say, mathematically grounded, will exactly fill this need. A theory of models (such as in catastrophe theory) will generate qualitative models, just as a law of physics generates quantitative models. In the present state of things, a theory of qualitative models has little interest for the actual discipline it applies to (above all from a pragmatic and experimental point of view. Such applications are on the other hand very important for the theory of models, of “Gestalten”, since they offer us examples, which, from Chemistry to

Anthropology, through Linguistics, are not yet very numerous. There is no doubt that a general theory of this sort, of "Gestalten", a "General Morphology" would be of basic epistemological interest. We have objected to a definition of scientific explanation as the reduction from the arbitrary of its subjective character, since the notion of what is "arbitrary" cannot be intrinsically defined; mystical or magical explanations have a certain explanatory power, even though they are not scientific. This objection certainly holds, but it holds equally against the use of ordinary language, of conceptual thought, in the sciences. The answer, it seems to me, is this; scientific theorizing, in so far as it reduces what is arbitrary in the description of forms, always does so by means of a canonically defined combinatorial system which is in principle formalizable. In other words, the advance of scientific theorizing, to have demonstrative force, is unavoidably a local advance, which can be analysed in separate situations, each of which has the strength of necessity. To obtain a consensus, scientific demonstration must lower its sights in a way that can convince the slowest brains. Conceptual theorizing met with in disciplines which are reckoned to be exact (like Biology) on the contrary appeal to concepts such as: order, disorder, life, chance, structure, information, sense, message . . . etc. of which the essence is that they are non-local "transspatial" (according to R. Ruyer's terminology); all these concepts presuppose constraints at a long distance from the morphology to which they are applied. In this sense, they have a function analogous to that of "divine will" in mystical explanation. That is to say, in my view scientific theorizing, in all disciplines, necessarily moves forward through the elimination of concepts, and their replacement by combinatorial constructions of forms. It is the extension to the natural sciences of the Hilbertian programme of eliminating intuition in the axiomatization of Geometry.

To fulfil such a programme, a theory of "Gestalten" is necessary, and it has to be supple enough to take account formally of the deductive potentialities of ordinary language. It should therefore simulate, provide a model for, the semantic world of our languages. Here we are brought back to Leibniz's dream of a Universal Characteristic (with this reservation, that the calculus of forms could be a

more supple operation than a simple algebraic calculus). Catastrophe theory, in so far as it provides a theory of analogy, is doubtless a first step in this direction. It is no chance that this theory is based mathematically on the notion of singularity, a singularity in fact, concentrates a global structure at a single point, in such a way that this notion is the perfect tool for the extension of the local to the global. It is by this very natural bias that algebra is introduced into theorising, algebra comes in equally another way and that is by the creative power of its operations, the indefinite repetition of a calculation. In this last way of looking at things, there is a revival of the vitalist idea of a subject able to repeat indefinitely the same act without being affected by doing so. This, the appeal to a calculus, which is supposed to eliminate all anthropomorphism, in fact conceals a subtle reference to the permanence of an acting subject to which there corresponds *a priori* no equivalent in natural dynamics. In plastering on the world in this way mathematical infinity, does not man give evidence of the same unconscious presumption as the primitive magician who gave orders to the Gods?

In such a perspective of scientific explanation, there would exist only mathematical theorizing, the concepts used in each description, not being able to command unanimous agreement for their use (for example, consider the concept in Biology of information), should be progressively dropped when their heuristic function is fulfilled. In this view of science, only the mathematician, who knows how to describe and to generate long range stable forms, has the right to use concepts (mathematics); he alone, in the last resort, has the right to be intelligent.

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L'évolution microscopique

JACQUES MONOD (Translated by Alfred Glucksmann)

This is the title of the fourth Hartmann-Müller Memorial Lecture delivered on 14/2/75 in the University of Zürich by the French Nobel Laureate *Jaques Monod*, Director of the Institut Pasteur. The talk was devoted to a presentation in depth of some of Monod's theses on modern biology first published in his book *Le Hasard et la Nécessité* and translated into 15 languages. His lecture is reproduced in a slightly shortened and edited version. It first appeared in German in the *Neue Zürcher Zeitung*, 19/2/75, and we gratefully acknowledge their permission to publish this translation.

THE UNIQUE POSITION OF THE THEORY OF EVOLUTION

The theory of evolution has a unique role in science: no other theory has evoked equally strong emotional reactions and had such fundamental philosophical, ideological, religious and even political repercussions. When Darwin's book *The Origin of Species by Means of Natural Selection* was published in 1859, the possibility of evolution of a species as such was resented. In the meantime the situation has altered: the fact of evolution is no longer in doubt and is accepted even by the Catholic Church. The mechanism of evolution postulated by Darwin is less well known generally and rejected by many people, philosophers and reputable scientists alike. This is not really surprising since the theory of evolution is quite unique and differs in its epistemological structure fundamentally from other great scientific theories such as that of relativity and quantum mechanics. Evidence of evolution has been provided by anatomical, physiological and palaeontological observations. Nevertheless it has to be admitted that the differentiation of a new species has never been observed and is unlikely to be observ-

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able unless evolutionary processes can be speeded up enormously under laboratory conditions. Furthermore the mechanism of evolution is a *metatheory*, i.e. a theory of a theory. Take for example the evolution of terrestrial tetrapods from marine animals: palaeontology has accumulated many indications as to the probable ways and means of this development, but has to postulate the existence of many as yet unknown transitional forms. Only speculations are possible about the ecology of the species at the relevant periods and about the selective pressures which gradually forced some species to leave the sea and enabled them to live on land. These hypotheses *have* to be made since they are essential for a coherent universal theory, though epistemologically they are weak and can neither be proved or disproved. Any scientific theory that cannot be disproved is suspect and the theory of evolution may thus be thought to have a very tenuous basis. This is not so; the theory is solid and convincing because of the *indirect evidence* which is closely connected with modern concepts of physics and biology of which Darwin could not have had an inkling.

THE "REFUTATION" OF DARWIN'S THESES

After the publication of his book Darwin was attacked ferociously not only by theologians, but also by the greatest contemporary physicists such as Lord Kelvin, the founder of thermodynamics. Darwin had to assume a period of at least a few hundreds of million years for the process of development of the very large and manifold biosphere with its approximately 2 million species of animals. Kelvin succeeded in "proving" scientifically that the whole solar system and with it our globe could not be older than at most 25 million years and that its total duration might be limited to no more than 50 million years. His argumentation is characteristic of the industrialized England of the 19th century with coal as the most concentrated and important source of energy. According to Kelvin the sun is a mass of coal of about 2×10^{27} tons and his calculation of how long such a structure could emit 6.3 kW/cm^2 resulted in merely some dozens of million years, a period quite insufficient

for the evolution of the biosphere. Today we know that the earth is about 5,000 million years old and that life began at least 4,000 million years ago. Darwin assumed implicitly a great age for the earth as well as a very efficient mechanism for the production of energy which was subsequently discovered in the fusion of hydrogen with helium. Thus the theory of evolution contained as potentiality the *theory of relativity and the equivalence of mass and energy*.

Darwin overlooked another consequence of his theory of selective evolution which was pointed out in 1872 by Jenkins, an Edinburgh engineer. He proved mathematically that an evolution of species is impossible in view of the then generally accepted theory of the so-called "blending inheritance" which states that the genetic material derived from the parents is "mixed" in the offspring. Should mutations occur by chance, their effect would be diluted by a factor of 2 in each generation and thus disappear completely within a few generations; they could thus not act as a selective force. This argument was so convincing that without admitting it openly, Darwin abandoned the theory of natural selection in the later editions of *The Origin of Species* and resumed the Lamarckian concepts of environmental influences.

Today we know from *Mendelian Genetics* that Jenkins's argument is not valid since inheritance is not a continuous, but a *discrete and discontinuous process* based on stable chemical carriers of the genetic information. These are affected only by the relatively rare occurrence of *mutations*, but as a rule are handed on unaltered from one generation to the next one. Darwin's theory of selection thus contains very precise statements about the mechanics of heredity which, without his knowledge, were proved within his lifetime by Mendel.

THE SYNTHETIC THEORY OF HEREDITY

The results of palaeontology, comparative anatomy, biochemistry, physiology and even ecology are combined in the so-called synthetic *theory of heredity*. This theory describes the development of a population with multiple competing forms (*alleles*) of a gene. The concept

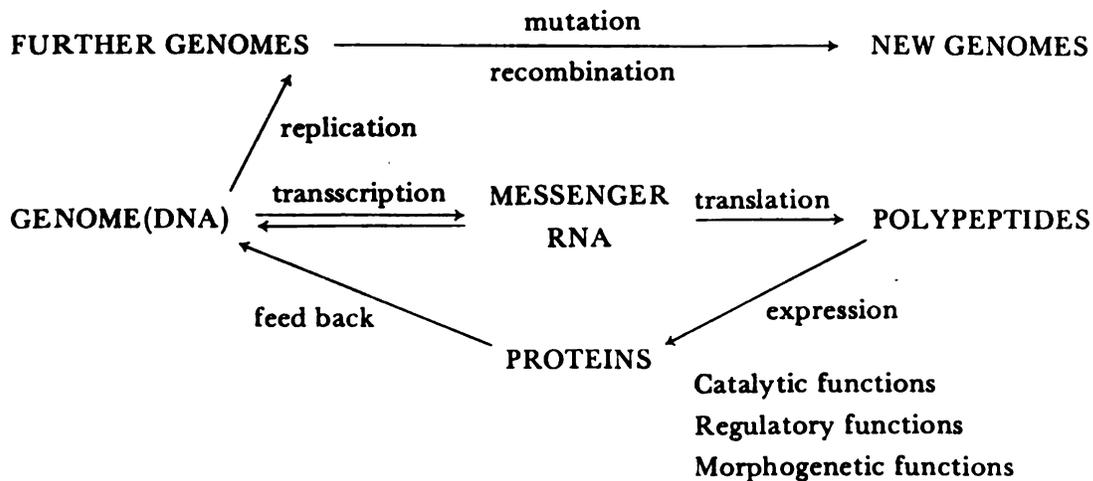
is summarized in a greatly simplified form in the following four statements:

- 1) the unit of inheritance is the *gene* which by mutation acts also as the agent of microscopic innovation;
- 2) the unit of selection is the *individual* which expresses in its phenotype the complex interactions of the genetic material;
- 3) *the evolutionary pressure* is expressed as selection on the individual level solely by the influence on the probability that an individual can transmit his hereditary material to succeeding generations,
- 4) the entity of evolution is neither the gene nor the individual, but the *species*, the “Mendelian Population” in which the sum of the individual genomes is continuously exchanged in sexual reproduction and recombined. Evolution is concerned with the specific complex of genes which gradually improve the characteristic attributes of a species.

Though formulated long before the advent of molecular biology, the synthetic theory contains many explicit and implicit assumptions almost all of which were confirmed by observations in molecular biology. The statement that a mutation is a discontinuous, discrete and spontaneous event which occurs by chance only, has been verified most impressively by the chemical structure of *desoxyribonucleic acid* (DNA). We know today that a mutation is a *stochastic process on the molecular level* by which a pair of nucleotides is substituted for another one. This process is subject to the principle of uncertainty of quantum mechanics; as individual event it can be neither directed nor predicted and is subject solely to the rules of statistics. Implicit in the synthetic theory is the concept that the properties, structure, functions, physiology, morphology and embryological development of a species are fully pre-programmed. Though such a mechanism has been postulated by geneticists a long time ago, it has been rejected by many biologists as recently as 20 years ago. The recognition of the chemical structure of the genetic material as *polynucleotide* and of the rules and manner of the expression of its store of information according to the *genetic*

code, i.e. its translation into a strictly defined sequence of amino acids, provided the indisputable proof for the hypothesis.

It is remarkable that the protagonists of the synthetic theory of inheritance maintained for a long time that a species is not composed of separate individuals independent of one another, but that close interactions exist within the genome. This thesis too has been verified by molecular biology. The diagram illustrates the modern ideas about heredity and evolution.



The information stored in the DNA is translated via the messenger RNA into polypeptides and expressed in the form of proteins. The proteins are the basis of all physiological functions, acting as catalysts, regulators of enzymatic processes and as morphogenetic factors. These fundamental observations open up new fields for the advance in morphology and embryology, since the morphogenesis of cells and organisms as well as all interactions between cells can indubitably be reduced to interactions between proteins and polypeptides. Of the greatest significance is the recognition that *complicated regulatory, cybernetic cycles* exist in even the most primitive cells.

Some of these regulatory cycles influence the intrinsic activity of genes: they are proteins whose intrinsic structure is programmed by other genes. This finding confirms a theory formulated some 40

years ago according to which the genome is a closely integrated system and the expression of the information stored in one gene nearly always depends on the action of other genes.

CHANCE AND NECESSITY

These theses are verified in minutest detail and enforce the conclusion that the whole evolution including that of man, rests on only two factors: the *chance* of mutation and of recombination of bases and the *necessity* of the selection and survival based on the constancy enshrined in the genetic code. This conclusion conflicts with intuitions and concepts current for some thousands of years and even with *ordinary common sense*. Since the beginning of this century, however, almost all modern theories of the natural sciences (quantum theory, theory of relativity) have been incompatible with common sense. This fact was not disturbing since these theories deal with atomic or galactic dimensions beyond our *direct perception and comprehension*: It is different with a scientific theory *addressed directly ad hominem* which touches on his imaginary dignity and vanity. Molecular biology tells us today that we were merely lucky, that we are only one of about 2 million species of animals and that each species represents a *unique event*. Such singular happenings are within the framework of objectivity: they can be comprehended both qualitatively and quantitatively within the laws of the natural sciences. Such events are not *inevitable*, they need not have happened and their probability was extremely, though not infinitely low. The essence of all mythologies, philosophies, theologies and even of Marxism is summed up in Hegel's concept that all that exists has evolved of *necessity*, the development was strictly predestined from the onset. This concept is found in Greek philosophy with the possible exception of some pre-Socratic thinkers, it was formulated anew by Hegel and adopted by his successors and in particular by Engels whose dialectical materialism envisages an *inevitable evolution*. Towards the end of the 19th century the influential philosopher Spencer explained the whole evolution and even the history of mankind by a mysterious, unknown and unknowable force.

We face today the peculiar situation that the doctrine of dialectical materialism is imposed on hundreds of millions of people as the sole "true" philosophy, though this system and its variations have lost all significance because of the pretence to all-embracing *universality*. The Western World is not immune either from similarly erroneous concepts: even in the nineteen sixties a great deal of attention was paid to the second-rate anthropologist, Father Teilhard de Chardin, whose ideology claimed to explain and arrange everything. It placed MAN into the centre of a universal, divine design which at the so-called *Point Omega* undergoes a transcendental transfiguration. All these philosophies are ultimately variants of the concepts of *animism* which try to explain the diversity of the universe and of human potentialities by tracing them back to the atom which is quasi-pregnant with them. The animists react most vehemently to the deduction from the findings of the natural sciences that it would not matter at all if the human species had not evolved, that it evolved by mere chance in a universe indifferent to it, that all the spiritual impulses and creations rest ultimately on *molecular mechanisms*. That the biosphere and mankind are not part of a creative project, that equally well they might not have evolved at all, is a concept unintelligible by and unacceptable for many people. Amongst these are found not only ideological politicians, philosophers and theologians, but also reputable natural scientists like Prigogine and Manfred Eigen who try to show by thermodynamic calculations that chance alone is not sufficient to account for selection in the evolutionary progress, that consequently evolution was inevitable and had to result of necessity in that of mankind. In spite of the elegant formalism of these theories, they have not contributed anything to the theory of evolution and are unlikely to do so in future.

THE IRREVERSIBILITY OF HISTORY

There is still another reason why many people cannot accept the modern theory of evolution and in particular the role of chance, of irreversibility and the absence of a directing design. The history of

civilization viewed in the light of their philosophy, of their religions and their mythologies shows that all people have avoided the concept of an *irreversible evolution*. For primitive cultures history does not exist: for thousands of years nothing changed for them and they continued in the belief that the structure of their society, their laws and technology had been given to them aeons ago by some gods or heroes. Because of the accelerated progress of some societies, the phenomenon of historical development had to be recognized since the life style of the people obviously differed from that of their ancestors. Nevertheless an attempt was made to avoid the unwelcome concept of an irreversible evolution by introducing the idea of the *eternal recurrence*. This mythos is found in the Far East, in India and also in Europe. It was accepted by Plato and later by Nietzsche and many modern thinkers. The fundamental idea is very ancient and rooted in us: one wished it were true in spite of its incompatibility with modern natural science.

The prophets of Israel were the first to recognize the irreversible aspects of history and to integrate them into their religion: Christianity and Islam adapted this concept of history as *theophany*, as the visible manifestation of a god. Yet this irreversible and often sorrowful history is wedged between two *stationary conditions*: the Garden of Eden and the General Resurrection. Interestingly enough the historical materialism has an analogous formal structure; though hardly concerned with the origins, it maintains that the *social conflict* is the driving power of history. When the perfect structure of society is achieved, a period devoid of history will start. Thus Marxism fulfils one of the oldest ambitions of mankind: it always desired to do away with history, which so often has brought pain and sorrow.

AN EXISTENTIALIST ETHIC

Modern natural science forces on us the conclusion that we have evolved merely by chance and necessity. This realization has to be accepted not only as objective scientific truth; it also imposes on us an "existentialist" attitude to life and society. This existentialist

position could save us from catastrophes engineered by ourselves. It is also an *ethic of knowledge* which negates the need for explanation, security and deliverance, but in which man can find the freedom and dignity he desires by *searching without compromise for objective truth*.

Conditions for a philosophic future

DEREK A. KELLY

One of the most widely discussed questions today is: Has philosophy a future?¹ Any reply to this question must, of course, be the end-product of a circuitous and complex inquiry. There are at least four kinds of questions which are involved in such an inquiry, and the view of philosophy's future will depend on appropriate answers to questions such as: (1) What is philosophy? How is it to be conceived? (2) Is the view of philosophy broad enough to encompass the significant areas of human concern, and capable of providing humankind with a "Way of Life"? (3) What is the relation of philosophy, however conceived, to the dynamics of history? And (4) What is the relation of philosophic doctrine to the philosophizing self? It is clear that any question about philosophy's future is immediately confronted by two sorts of problems: problems having to do with the conception of the nature and scope of philosophy, and problems having to do with the relation of philosophy to life, history, and temporalities of dynamic existence. The purpose of this essay is to consider several alternative kinds of responses that may be given to the four above-mentioned questions, and to argue in support of a view which embraces a variety of different views into one complex whole.²

I. FOUR VIEWS OF PHILOSOPHY

We may begin this inquiry by noting four interpretations of the nature and scope of philosophy which seem to prevail in contemporary culture. (I am here considering metaphysical, and not

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purely analytic or linguistic types of philosophy.) Since these views appear to be one-sided, we will then move to a consideration of a wider view of the nature of philosophy and of philosophical inquiry; this latter view will then form the foundation for subsequent arguments to be presented in the essay.

For some thinkers, philosophy is merely futile rationalization. Any philosophical inquiry, so it is held, involves an illegitimate distortion of the real which is singular, atomic, and sensuously pluralistic in nature. The abstractions of philosophy have no relation to the concrete processes of life; those abstractions are thus unreal, and cannot be legitimately superimposed onto the immediate data of sensation. If there is to be a philosophy which is true to and of reality, that philosophy must remain true to the concrete realities, and must thus move away from the use and reliance upon abstractions. Life, reality, is made up of discontinuous and dynamic moments; abstract philosophy and its search for universals is thus false.³

Other thinkers say that philosophy is an inhibitor, an ideological defense of existing states of affairs and of a form of life. Philosophy, so it is said, acts to congeal the life-processes, and to rigidify partial views of the development of nature. If philosophy is to be true to life, true of reality, it must cease in its attempt to discover and to proclaim general truths which are not founded in the actual laws of the development of nature and of history. True philosophy must become a dialectical science of actualities of nature, not a contemplative or abstract witness of abstractions. What is real is what exists over time, what is found potentially and then actually in the workings of nature.⁴

These two views share in common the notion that what is real is natural. They differ over the extension or range of nature. Whereas the first holds that the real is singular and atomic, the second holds that reality is found in societies of particulars, in organisms, in laws, which operate in and on nature. For the first, we have a Heraclitean philosophy less the *logos* which is dissolved into the flux; in the second, the *logos* is internal to nature and is law-like in character.

Yet another position holds that the task of philosophy is the articulation of trans-empirical ideals and laws. The real is not spatial or natural, but temporal and ideal in character. The task of philosophy is to discover those ideals and laws whose architecture governs the play of natural realities. For this view, philosophy must disengage itself from nature, and must rise above empirical realities. The data of philosophy are not to be found in sensuous reality, atomistic or organized, but in the subjective phenomena of metaphysically free noumenal selves.⁵

Finally, we have a Platonic view of philosophy. Dissatisfied with the claim that the real is sensuous particularity known by opinion, and also with the view that the real is natural law knowable by generalization from sense-experience, and finally, dissatisfied with the view that the real is ideal in nature and may be known by internal cognition, some thinkers advance the view that the real and its method of being known can only be found in "noesis" (rational insight). True philosophy for such thinkers is in part a method of moving through various subsidiary levels of knowing and being until at last we arrive at noetic insight into the pure Ideas.⁶

These four views may not exhaust the province of philosophy, but they do represent a major portion of that province. Whether exemplified by Nietzsche, Aristotle, Kant and Plato, or by Hume, Marx, Popper and Findlay, these four positions each provide us with a conception of philosophy that may be used to answer the initial question of the essay. We could decide, either because of temperament or cultural context, to take the position of any one of these views and discuss in its terms the guiding query of this inquiry. My view, and my intention here, is to affirm the claim that these four philosophical types are perennial in that they each affirm some necessary view or value whose elimination in philosophy and in human life would not be acceptable. An adequate view of philosophy must encompass those views of its nature which affirm the priority or reality of process, tradition, ideality, and noetic insight. We are thus in need of a philosophy which can include within its scope these four divergent views. To the adumbration of such a view we may now turn.

II. NATURE AND TASKS OF PHILOSOPHY

Philosophy has two main tasks, and two main defining characteristics: schematization and argument. These may be considered as two modes in which philosophical theses may be expressed; taken alone, each could only lead to one-sidedness.

The schematic task of philosophy is directed to the construction and articulation of a map of reality. I use the term "map" intentionally. To construct a map is not to construct a world view; the term "view" implies that for any one view there are alternative views, so that any one world-view is but one portrayal of the world among others. A map, on the other hand, is a neutral and comprehensive integrating schema or set of schemata which display the ways in which the world may be articulated in assertive form. From Plato's works we gather that of the range of schemata that may be used to articulate a view of the world, no one will do. For instance, in Plato's dialogues we find a consideration of the role, place and evidence for the use of schemata such as dualisms, triadisms, and quaternities. No one schema is taken by Plato as the prototypical schema.⁷ This is contrary to Hegel who, for instance, adopted one version of a triadic schema and applied it *pari passu* throughout reality.⁸

The schematic task of philosophy must initially utilize a principle of parity. That is, it must refuse to ascribe greater or lesser reality or explanatory force to any item in the universe, or to any schema that may be used to explain it. The plethora of schemata that may be used as explanatory matrices of organization testifies to the fact that there are many realities, and many kinds of reality, and none may be taken as of greater reality than any other.⁹ For instance, we may divide the world up into, say, four basic areas: primary qualities (space, time, matter), secondary qualities (sensations), tertiary qualities (values, feelings, ideals), and ternary qualities (intuitions, visions, mystic oneness). In our day, there are many thinkers who would argue that the primary qualities are "really real" and that the other three qualities must be explained in terms of the first. Yet historically as well as logically, there are alternative views. Dante, for one, saw the tertiary qualities as

primary; in our day, Whitehead, in his notion of “prehension” seems to do this also.¹⁰ Secondary qualities seem basic for phenomenologists; while tertiary qualities seem to be basic in Bergson and others.¹¹ The task of schematization in philosophy must be to consider and articulate these different ways of dividing the world without making a prior assumption about the primacy of one or another quality.

The second primary task of philosophy is that of argumentation. It is within the scope of this task for thinkers to try to explain the relations that obtain between the different qualities, spheres, modes of being, that obtain. This task may involve the choosing of one schema over another taken as the schema of reality and defended as such. For example, we find some thinkers arguing that reality is at bottom really only *one* kind of thing, operating in terms of one basic law, one basic principle, one basic kind of being. Others argue that reality is best explained in terms of dichotomous pairs of terms; still others that two terms are not enough, that we need three terms. And there are yet others who would defend a four-pronged approach to the world. Hegel may be considered as prototypical of those thinkers who attempt to erect one basic explanatory schema in philosophy; Plato, on the other hand, is prototypical of those who would defend the use of multiple schemata arguing in support of this that there can be no one way of schematizing the world.¹² Whereas those who follow Hegel may be considered as advocates of “closed” systems, those who follow Plato prefer to defend “open” systems. As pointed out, this article will defend an open system.¹³

To reason (a verb) is to show that a claim or system of claims have meaning, are possible objects of consciousness. To say that X is a reason for something, or is reasonable, is to say that it makes sense, that it is a possible way of appropriating and articulating the meaning of reality. Reason taken as a noun, on the other hand, is a power resident in human beings enabling them to make *discriminations* concerning reality. Thus to reason is to connect statements, feelings, intuitions and other acts of discrimination together. Since different kinds of realities may be discriminated in different ways by different powers, it follows that there are

different ways in which we might reason (verb) and different extensions of the power of reason (noun). The scope of reason may thus be narrow or wide. It follows that the discriminations we make determine the reasons that we may give, and the kinds of reasoning we may engage in in philosophy. We can illustrate these claims by considering the nature of reason in each of the four philosophical types referred to earlier.¹⁴

Adventurism is the name of a philosophical type, otherwise known as Aesthetic Protagoreanism, which holds that the real is what is here and now; the real is the sensuous particular. The only real and true discriminations we can make are those which have sensuous particulars as their direct referents. To reason is thus to discriminate the individual thing in its *hic et nunc* purity. Since relations and other universals are not real, we cannot make relational discriminations; and if we do, we are only speaking of unreal abstractions.

Completionism is the name for a philosophy whose typical illustration is Aristotle. The real for this position is not what is here and now only, but what endures over time and may thus be the subject of predications. To reason is to detach the essence or universal from its habitation in the particular: universals are not constructions, but discoveries, for in the actual is contained the universal as *telos*, as aim. Reason is thus a power of discriminating the essence of actualities in actuality. What we discriminate for this philosophical type is not the particular so much as the essential relations of particulars. And we can articulate the discriminations we make in terms of concepts and generalizations from immediate experience.

Contextualism is the name for yet a third philosophical type where Kant may be taken as an example. We discriminate truly when we are able to distinguish the development of nature from the architectonic structure of that development; that is, when we are able to discern that it is structure and form, not content that determines the character of nature. Thus reason is the power of discriminating the noumenal laws which govern phenomenal actualities: the real objects of reason's powers are thus considered as being discontinuous from nature. Concepts are mental and not natural in nature; we discover these concepts not by generalizing

from experience, but by investigating the general structural laws of mental being, that is, the transcendental conditions for experiencing and understanding the world.

Finally, Perfectionism is the Platonic view according to which our true discriminations, and thus the true object of the power of reason, are not natural particulars, nor natural laws, nor are they transcendental laws, but are rather the ultimate forms or Ideas in whose terms the world of nature and of selves have any meaning and existence whatsoever.

From this survey it is clear that the power and scope of philosophy and of reason may be conceived differently. This fact complicates the argumentative task of philosophy. For we must at each step in our arguments identify that form of discrimination or reason being used for a purpose. For example, if one bases a philosophy on the Aristotelian conception of reason, it follows that in terms of that conception, noetic insight will be regarded as a false conception. It does not follow that noetic insight is ontologically impossible: all that follows is that an Aristotelian cannot give legitimacy to the notion. If we are to avoid the fallacy of misplaced rationality, we must avoid both the reduction of reason to one of its forms as well as the tendency to limit the scope of reality to what any one principle of reason would uphold. Rather, we must proceed on the assumption that no one view of reason can furnish us with an adequate and all-embracing view of the world. We can illustrate these claims by considering the nature of philosophical controversy.

III. PHILOSOPHICAL CONTROVERSY

For beginning students as well as for old hands alike, one of the most striking of the data of the philosophical life is the persistence of controversy and conflict between philosophies which when viewed objectively appear as conflicts between obviously one-sided views. At each turn in our study of philosophy, we encounter conflict, irreconcilable differences, refusals to discuss, quibbles, begged questions and so forth. To be sure, those who inhabit the pluralistic culture of democratic nations often regard this situation

as just another sign of the presence of tolerance for opposing views. This “solution” is, however, at best a half-hearted one, and at worst a refusal to come to grips with the problem of controversy as a philosophical problem. One thesis that needs to be stated here is that while controversy may exist as a result of different interpretations of reality, the acceptance of the fact of controversy and conflict (rather than say, harmony and interdependence) is a philosophical acceptance made on philosophical grounds. Where irreconcilable conflict is taken as the acceptable status quo in philosophy there we may expect to find the presence of an underlying view of reality as a plurality of particulars in strife. To urge that we accept a different way of relating philosophies other than in terms of conflict is to promote the acceptance of a discriminable trait of reality as a guiding hypothesis of inquiry. Rather than promote either the acceptance of one and only one philosophy as being true (monism), or the acceptance of all philosophies being “true” (pluralistic relativism), we need to promote the acceptance of unity-in-plurality as a working maxim of philosophical inquiry. And in order to help render this maxim intelligible, we need to find a model of unity-in-plurality which can serve as a touchstone for the resolution of controversy. Such a model we find in the human self.

Plato’s philosophy is often portrayed (as it has been here—up to this point) as one which is based on the ultimate reality of Ideas which are the ontological and logical conditions for all other realities. This view is the result of an idealistic interpretation of Plato. Attention to the Platonic texts themselves (the “things themselves” of Husserlian phenomenology) shows that in reality Plato has quite a different view. It is that there are different ways of knowing and of being, and that it is only on the level of the Ideas that we can find a way of harmonizing these different ways in one human self.¹⁵ Central to Plato’s views is the notion that the human self is central to philosophical principles. That is, the different philosophical types are the result of the self’s occupation of different perspectives on reality. Thus different views may be true of different selves at the same time, and of the same self at different times. An all-embracing philosophy must thus examine the nature of the human self.¹⁶

IV. THE INWARD TURN

According to Husserl, reason (and thus philosophy) is in a “*constant movement of self-elucidation*”.¹⁷ That is, reason is a power which is innate to human beings; it lies concealed within us. Philosophy develops as reason begins to emerge from its concealment and to come out into the open. Our initial experience of the world, Husserl has shown, is within the “natural standpoint”.¹⁸ Initially, we have no awareness of ourselves as selves. We find ourselves participants in a world which we take as ready-made and as filled with particular, individual objects of all kinds. In this state of experiencing, we are active, practical beings engaging things in terms of sense-experience and appropriating the world as a sum of particularities. We naïvely accept the reality of “things” and see no relation between our grasp of things and the way things are: we make no distinction between the subject and the object. At this point, then, the world appears to us as the Adventurist articulates it as being. If our powers of generalization and induction are sufficiently developed, we may be able to arrive at a point where we are able to distinguish the particular from the general: this distinction enables us to distinguish between concrete individuals and the laws which govern their behavior. This way of appropriating reality is the way of the Completionist. For both of these views, the self is an active, doing self. Reality is not found in contemplation but in the experiences of resistance, change, effort. Reality is thus found in the outwardly directed activities of dealing with physical realities.¹⁹ It follows, too, that the “self” may well be taken either as a “bundle of sensations” (Hume) or as a social relation only. Marx, for instance, seems to claim that there is no self, there are only social relations. These social relations determine what a self may think, do, feel—in short, what it is. Self-knowledge, if seen as anything more than simply an understanding of one’s socio-economic position, is a useless fiction.²⁰ Similarly, Wittgenstein denied that our articulations of reality can be anything more than the articulation of what a society or a “form of life” holds to be the case.²¹ In both of these cases, the self is merely a social relation, a form of behavior, a mode of life. If we accept these two allied views as the ultimate

forms of reason and of philosophy, it is clear that we can never really either develop an all-embracing philosophy or resolve the problems of controversy. For if reality is what the individual takes it to be (as Adventurism holds) then we can never escape conflicts that will arise between different individuals. Similarly, if we accept the view that reality is socially-determined, there too we cannot escape conflict, for obviously different cultural systems will have different views of reality, and thus the present possibility of conflict remains. Some people have argued that scientific inquiry can get us out of this impasse, for the generalizations of science, so some hold, are not culture-specific, but are universal. This claim, however, has not been supported by the facts. For while it may be true that the generalizations of science extend beyond cultures, it is equally true that scientific culture has not produced reconciliation, but only increased conflict. We know, too, that science is not as objective and neutral as it was once made out to be: not only is the self an ingredient in the process of scientific inquiry, but also, such inquiry is guided by paradigms,²² or by metaphysical systems²³ which are themselves in conflict with each other.

If we are able to find a matrix for the resolution of conflicts between philosophies, we must follow Husserl's lead inward and turn to a consideration of what we may discover by taking the "reflective turn".²⁴ Attention to the "subjective" side of experience reveals to us the presence of two levels or stages of consciousness analogous to the outward modes of Adventurism and Completionism. Just as Adventurism may be said to be a philosophy of the engagement with "outer" physical realities in their multiplicity, and Completionism may be regarded as a philosophy of outer universals (generalizations), so we find that when we make a reflective turn and pay attention to the processes of consciousness that there are two levels of experience: the experience of the multiplicity of "inward" particulars, and the experience of "inner" universal. These latter two types of experience come to us only when we have ceased to act, ceased to be drawn outwards. Reverie is one such state of experience. The necessary conditions for this experience are rest and tranquility. Reverie is entirely opposed to activity. Unlike the hustle and bustle of outward

activity, reverie requires that we be in a state of rest, peace and quiet.²⁵ Under such conditions, we find initially the same sorts of experiences as we found in our outward-directed Adventurist state: we find a play of multiple possibilities not sensuous in nature, but imaginary, fanciful, free.²⁶ In reverie I find myself in a world as rich and as variegated as any one could discover in years of wandering from place to physical place. By playing with these imaginary possibilities, one comes to realize that there is at least one world as rich in content as the world articulated by Adventurist and Completionistic philosophies. One comes to realize how dependent upon the human self are the realities with which we engage ourselves in the naturalistic standpoint. And if we attend to the activity of being aware of the imaginary possibilities, we may come upon the experience of a “hidden” and “inner” universal, the container in which all experience of things seem to go on. This is the discovery of what Kant termed the transcendental unity of apperception, and of what Husserl called the Transcendental Ego.²⁷ This Transcendental Self is not itself an object and cannot be made into an object: it is the always-subjective condition for the experience of all objectivities. We find that no matter what changes we may undergo in our empirical selves, this “Self” remains always the same. I would suggest that the Kantian Contextualism is found in the experience of imaginary particulars for in that type of experience, one comes to realize that the forms, the modes of relating particulars, is a function of the self who is experiencing, and this is what underlies the claims that the real is to be found not in empirical nature but in the “forms” of experience created by the thinking self. Similarly, the Platonic “noesis” is ingredient to the experience of a Transcendental Self, for the noesis is necessary if we are to grasp the subject which is never an object: noesis is the means whereby a subject “knows” itself as a subject. If these claims are correct, then it appears that different philosophical types are simply the discursive articulation of kinds of experiences which we human beings may have. I am the “same” self that plays with sensuous particulars and which may articulate an Adventurist philosophy: I am the “same” self that may engage the world in terms of natural regularities and

may articulate a Completionist philosophy. Similarly, I am the same self that may advocate a Contextual philosophy as a result of my experiences of the first level of the inward turn, or who may articulate a Perfectionist philosophy in an attempt to give discursive substance to the experience of the Transcendental Ego. It would thus appear that different philosophical types are but aspects of the experience of one and the same self. There are different ways in which any one self may intend and appropriate the world. Thus the different philosophical types we have considered here may be regarded as possible articulations of possible experiences of possible selves. If these arguments are sound, then the four philosophical types find their common being in the conscious experiences of human subjects.²⁸

To say that, however, is not to say anything about how these different kinds of experience and their philosophical articulations may co-exist. Whereas different philosophies may engage in conflict, so different experiences of the self, or different ways in which a self may engage the world may issue in conflict. For example, ingredient to our culture are various dichotomies which divide the world, the experiences of selves, and the philosophies consequent to them, into two: idealism and realism, speculative and practical, mental and physical, and so on. These distinctions are distinctions between philosophical types, but if our arguments above are sound, then they in fact point to distinctions within selves. And if someone were to claim that idealism, speculation and the mental must be distinguished from the real, the practical and the physical, then any individual who might be able to engage in different kinds of experiences would perhaps come to feel a conflict between these two types of experiences. This is why some thinkers have argued that it is necessary to insert a third, mediating term between the terms of dichotomies thus serving to reconcile the oppositions. While this trichotomous approach has its worth, it is nevertheless an inadequate method of reconciliation since it often results either in the erection of the third term to highest reality,²⁹ or else it results in the absorption of the two opposing types into a third which abolishes their integrity.³⁰ If we are to resolve the problem of conflict between philosophies, neither the logic of dualities nor the logic of synthesis seems to be adequate.

What we need is a logic which can both respect the integrity of the different aspects of the self that we have found, and which also is able to respect the integrity of the individual philosophies that may be consequent to a kind of experience. Such a logic must respect and preserve the integrity of these views while at the same time integrating them into a larger whole. A logic suitable to this task is one which is found mainly in Eastern or Oriental philosophies; it is the logic of inclusive disjunction.³¹ The basis of this logic is that the different philosophies are legitimate within the context of their applicability; and that while they may be transcended they cannot be negated. To put this another way, the basis for the resolution of philosophical conflicts lies in the principle of the compatibility of different aspects and powers of the self. The fall of philosophy into conflict is the result of the neglect of one or more powers of the self, or else the result of making one or another power the sole power of a self. The view being advocated here may be regarded as a "Henosophy" that is, as a view that there may be different absolutes (philosophies) which may be true at different times, for different selves. Philosophies may be regarded as reifications and articulations of various experiences of the self consequent upon the use of one or another of its basic powers. By adopting the principle of the compatibility of these different powers we are in effect urging the adoption of a principle of the temporal and spatial localization of philosophies, and are in addition suggesting that while it may appear that individuals remain the same over time, in concrete experience they are in constant change. And just as in concrete experience we find that selves are able to mature beyond the abrasive conflicts of adolescence, so the abstract reifications of the experiences of selves may be able to mature beyond adolescent strife and conflict. The future of philosophy thus depends in part on the ability of philosophers and philosophies to simply grow up.

V. THE FUTURE OF PHILOSOPHY

The future of philosophy depends, first of all, on the development of a comprehensive philosophy of philosophy which recognizes

the role and place of all the possible states of consciousness and their abstract philosophic articulations in an adequate view.³²

It depends, secondly, on the development of an all-embracing, non-reductionistic orientation which avoids both absolutism and pluralism, both monism and relativism, and adopts instead a henosophism.

It depends, thirdly, on the realization that the future of philosophy is really the future of selves; the philosophies are statements about the abstract possibilities of self-development; and thus that the "future" is not simply an abstraction, but a concrete way of the possible being or becoming of selves.

Finally, the future of philosophy depends on an acknowledgement of the fact that the world may support a multiplicity of realities, of selves, and of philosophies, and thus that any one view of the evolution and growth of selves cannot be taken as the sole paradigm of reality as a whole. There is no final view in philosophy just as there is no final view of the self and its possibilities. Only an open and not a closed system can embrace such views with gladness.

NOTES

1. Cf. E. G. Ballard, *Philosophy at the Crossroads*, Baton Rouge, La.: Louisiana State University, 1971.
2. Edwin A. Burt, "The Philosophy of Man as All-Embracing Philosophy," *The Philosophical Forum*, II, 2, Winter, 1970-71, p. 159: "The greatest challenge to philosophers today . . . is the challenge to recover an inclusive view of life and the universe—an all-embracing orientation." This could be taken to mean that we should try to effect a scientific synthesis, or that any synthetic philosophy must be based on scientific findings, or that we need a synthesis of the variety of powers and attitudes human beings may bring to bear on the world, without downgrading or elevating any one power (e.g. science). This latter interpretation is the one I intend here.
3. See F. Nietzsche, "Twilight of the Idols," in Walter Kaufmann, Ed., *Nietzsche*, N.Y.: Viking, 1963, p. 480: "Reason," Nietzsche tells us, "is the cause of our falsification of the senses. Insofar as the senses show becoming, passing away and change, they do not lie. The 'apparent' world is the only real one. The 'true' world is merely added by a lie."

4. This is the view of Aristotelians, and of pragmatists such as Dewey. It is also part of the basis for Marxism.
5. This view is one I attribute to Kant, Husserl, and others. Cf. "Reason and Political Authority," in *Journal of Value Inquiry*, VII, 4, Winter, 1973, 261-274, for a development of these types.
6. For a kindred view of Plato, see R. S. Brumbaugh, "The Divided Line as Direction of Inquiry," *The Philosophical Forum*, II, 2, Winter, 1970-71, 172-199.
7. This claim is defended by Brumbaugh, *Ibid.*, and by G. K. Plochmann in his article on Plato for the *Encyclopedia of Ultimate Reality and Meaning*, 1975 (private circulation).
8. This view of the conflict between Plato and Hegel is based on the distinction between the presence of a termination of development in the Absolute whose content Hegel claims may be completely articulated discursively, and Plato's view that a complete articulation of reality in discursive form is not possible. Whereas Hegel seems to hold that the universe may be exhausted discursively, Plato does not think so.
9. Cf. Justus Buchler, *The Metaphysics of Natural Complexes*, N.Y.: Columbia, 1966, p 32ff, and Karl Popper, *Objective Knowledge*, Oxford, 1972, p. 37 *et passim*.
10. Cf. A. N. Whitehead, *Process and Reality*, N.Y.: Harper, 1957, Ch. 2.
11. This whole problem has to do with the choice of the prototypical reality in terms of which explanation is to be sought. Many philosophers seem to adopt uncritically the scientific maxim of simplicity. It would seem better to adopt a principle of complexity.
12. For discussions of different thought-tools and of how they shape inquiry, see my articles, (1) "Popper's Ontology: An Exposition and Critique," *Southern Journal of Philosophy*, XIII, 1, Spring, 1975, 71-82; (2) "Arithmos" in *Philosophic Research and Analysis*, Spring, 1976; and (3) "C. G. Jung and the Medicine-Wheel," *Philosophy Today* (Forthcoming).
13. For a development of these and related points, see my "Architecture as a Philosophical Paradigm," *Metaphilosophy* (Forthcoming).
14. The notion of reason has been the focus of several articles: (1) "Reason and Political Authority," see Note 5 *supra*; (2) "The Unity of Reason," *Darshana International*, 1975; (3) "Varieties of Philosophical Reason," *Philosophical Studies* (Ireland), 1976.
15. Cf. Brumbaugh, *Op. Cit.*
16. Cf. E. A. Burt, *Op. Cit.*
17. Edmund Husserl, *The Crisis of European Science and Transcendental Phenomenology*, Trans. David Carr, Evanston: Northwestern Univ. Press, 1970, p. 338.
18. Cf. Edmund Husserl, *Ideas*, any edition, paragraphs 1-7.
19. *Ibid.*
20. Thus both Marxism and Linguistic Analysis direct inquiries on "objective" factors: social relations for the one, and ordinary language for the other.
21. Cf. L. Wittgenstein, *Philosophical Investigations*, N.Y.: Macmillan, 1953 p. 226.

22. The classic work on paradigms of science is T. S. Kuhn, *The Structure of Scientific Revolutions* (1962).
23. The role of metaphysics in science has become a central focus for study in the philosophy of science in recent years, spurred on perhaps by Popper's work, and also by the work of Hanson, Agassi, Wartofsky, Feyerabend, Lakatos, and Watkins. For a recent work bringing together discussions of the issues, see, I. Lakatos and A. Musgrave, Eds., *Criticism and the Growth of Knowledge*, Cambridge University Press, 1970.
24. By the "reflective turn," I refer mainly to the notion of the "Epoche" which is the key methodological principle in phenomenology.
25. Cf. Gaston Bachelard, *The Poetics of Reverie*, Trans. David Russell, N.Y.: Orion Press, 1969, pp. 3-25 *et passim*.
26. *Ibid.*, pp. 173-75.
27. For example, see Edmund Husserl, *Cartesian Meditations*, Ch. V.
28. This, I would argue, is part and parcel of a phenomenological approach to philosophical types. See Merleau-Ponty's triadic schema in *Phenomenology of Perception*, where he advances his argument in favor of phenomenology by showing that it mediates two other philosophical types: Idealism (Intellectualism), and Positivism.
29. For example, Popper in *Objective Knowledge* advances a doctrine of "three worlds" one of which, the third world of intelligibles, seems to be the highest and most important world.
30. Thus, for example, Hegel's absolute absorbs the other two terms of the triadic matrix: the Absolute is the whole in which the other two terms are unified and transcended (*aufgehoben*).
31. The basic point of a logic of inclusive disjunction is that whereas in a logic of two truth-values either one or the other of two alternatives is true and one must be false, the logic of inclusive disjunction would hold that incompatible alternatives may be accepted alternately.
32. A start on the way to a philosophy of philosophy has been made by W. H. Sheldon in his books, for example, *God and Polarity*, New Haven: Yale, 1954. While I like Sheldon's aim, I do not accept his claim that polarity is the basic structural matrix of the world. Other thinkers who have done original work in this field include George Kimball Plochmann, Robert S. Brumbaugh, and Stephen Pepper.

v

Towards a theory of tragedy

C.C.

The schematic argument which follows was used as a brief for a discussion on “theory of tragedy” by fifteen Cambridge Third Year English students from two colleges, and two Senior Members, at Trinity Hall in January 1976. A paper on Tragedy, with sections on the Greeks, Renaissance drama, and modern drama, is a compulsory part of the English Tripos Part II, and a distinctively Cambridge feature of the course. It offers the chief scope for English specialists to come to grips with religious and philosophic issues.

The debate was an animated one, in which everyone who was present took part, and we had hoped to print a transcript of it after the brief. But it was not tape-recorded, for fear of impeding undergraduate fluency, and the only note-taking was done by one of those responsible for leading the debate, so that the notes are least adequate at the moments when discussion became most animated. We (the senior members) decided reluctantly that any version which gave verbatim comments would read as too fragmentary to make good sense. We have therefore given in summary form a sample cross-section of points that were made.

We hope all the more that readers of *Theoria to Theory* will feel like taking up these issues, and provide the element of live debate that is missing.

THE BRIEF

(*Notes.* Since the Greek word “kosmos” means the Universe by way of meaning Order, System, the two column-headings are virtual polar opposites.

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The argument should be read across, not downwards, so that each point is answered by its opposite in the other column).

Kosmos theories

give a more or less religious answer to the “problem of evil”; the universe adds up to an ordered whole.

Some grounds for hope or consolation; evil is “contained” by the system, and not incapable of meaningful relationship to the good in it.

Hence Hegelian Reconciliation (in which conflict is resolved in a higher synthesis) is possible at the end of a tragedy.

Fate = Destiny, of mixed causation, in which the individual’s own choices both good and bad play a crucial part.

The hero as agent, however circumscribed by other people’s choices or a context biased towards evil (cf. theology of the Fall).

Chaos theories

give a nihilist answer; our experience of the universe does not add up. (Modifications: dualist, e.g. Humanism—only the area of the human adds up; absurdist—there is a pattern of sorts, but to our reasoning it is contradictory.)

No grounds for hope; “the blacker, the more tragic”. Christianity being a hopeful religion is untragic (George Steiner, *The Death of Tragedy*).

No reconciliation. Tragedy is “unversöhnlich” (literally “unconciliatory”), Goethe: it “ends badly” (George Steiner, *op. cit.*).

Fate = Chance, random external necessity; no room for effective free will. (But is pure accident tragic?)

The passive anti-hero. He may think his acts make a difference, but in fact they do not.

Conduct matters. Choice may be between two evils (or two conflicting rights, Hegel), but everyone is responsible (Greek "aitios") for the line he chooses, must pay for his priorities.

The choice between two evils is indifferent. What happens will not illustrate meaningful priorities.

There can be "disproportionate suffering", e.g. the better of two choices leading to the harder fate, so a punishment account of suffering will not do.

In the vacuum left by loss of a just Omnipotence, double bind situations and disproportionate suffering are not viewed in a new light, but as absurdist perversions of punishment.

Which leads to

a possibly helpful terminology
(but N.B. not one yet in general use!)

Tragedy as Sacrifice

Tragedy as Waste

or (a wider concept) as Price paid. "Take what you want, says God, take it and pay for it." Choice is crucial (a price is not a tax). Something in common with redemptive theory of suffering, but not masochistic; the price is paid not for the sake of paying, but for what it will buy. How better to understand the problem of evil than by studying it at the points where an evil is deliberately chosen?

There often seems no offset to human suffering or other evils, and the dramatist who holds a Chaos theory of tragedy will choose a plot of this type.

This brief was drawn up to reflect its author's open partisanship in favour of "kosmos" theories, and attack was therefore invited.

The main line of criticism was that sacrifice drama implies a stable society with a clear scale of values, some agreement between playwright and audience that there are some things worth a sacrifice, and what these are. (Examples: Greek high valuation of self-knowledge—Oedipus' suffering as a price paid for this—or of heroic dignity, the need to avoid loss of face, as in the plots of Sophocles' *Ajax* and *Philoctetes*.) This precondition was held to be absent in the case of modern drama, which accordingly often portrayed sacrifice only to show its futility. Plays discussed: Ibsen, *The Wild Duck*. The suicide of the girl is meant as a sacrifice, yet is really futile and neurotic. Arthur Miller, *Death of a Salesman*. Willy Loman's sacrifice by suicide may be futile in two ways; the insurance money may never be paid over, and in any case the son has insisted with true self-knowledge that he is not the sort of person who will benefit by a big capital investment, he is not the high-flyer that his father likes to think. On the other hand, the play leaves a conviction that Loman's act springs from genuine love, and this is a real value, which perhaps can validate even a mistaken sacrifice.

George Steiner's standpoint (in *The Death of Tragedy*) that Christian optimism is inconsistent with a tragic world-view was discussed. In Marlowe's *Faust*, Christian theology would hold that repentance was possible right up to the moment of Faust's death, and so there need have been no tragedy. But against this, it was said that Faust feels that the choice he made was final and he cannot go back on it; the finality of hell stands for this. Choice is real, for modern as for earlier drama, and if it is irreversible that can be tragic. All choice between two things can be viewed as sacrificial, the one of them which you decide not to have being the price paid. Certain aspects of the functioning of the universe which look like mere waste can be thought of as prices; e.g., accidents, as the price paid for the regularity of the laws of nature without which neither the good life nor any life would be possible—the price of the fact that these laws are not respecters of persons (if they were, witchcraft or any kind of malice could

bend them to suit one person and injure another). Those who live on an earthquake rift or drive a car can be said voluntarily to pay the price of the statistical risk they run. These are cases where an evil is the logical obverse facet of some good; and compare the case of all exclusive goods, where one man's gain is necessarily another's misfortune (e.g. if two are rivals for the same girl). This element of logic means that these evils are kosmic or orderly in character, and inseparable from the goodness of life, they are not chaotic.

It is often held nowadays that a nihilistic view of life is more courageous, because less wish-fulfilling, than a religious or kosmic one. But if the evils in life are meaningless and chaotic, we may simply shrug them off and evade them when we can, and that is sub-tragic. If they are the inescapable price of some good, then they must be faced and undergone for the sake of that good. Some of those present felt that, as against George Steiner, the essence of tragedy is to be found in the moment when Christ says that he could send for twelve legions of angels, and by that means avoid the suffering ahead of him, but because of what is at stake he must not do so. If the universe makes no sense, nothing is at stake, and our actions become petty in reality and arguably untragic on the stage.

Review

The Energies of Consciousness

Edited by Stanley Krippner and Daniel Rubin, the book, *Energies of Consciousness* is a collection of work by international scientists taken from the second Western Hemisphere Conference on Kirlian Photography, Acupuncture and the Human Aura. Almost two-thirds of the book deals with aspects of Kirlian and Electrophotography (discovered in 1939 by S. D. V. H. Kirlian, allegedly the photography of fields of radiation emitted by objects exposed in a high-frequency electric field over a photographic plate) and this leaves room only for a brief discussion of inconclusive investigations into acupuncture, massage and moxibustion, and a similarly brief account of recent work in the field of psychokinesis (the conscious movement of objects by paranormal means) and psychic healing in U.S.S.R.

The book will mainly appeal to those who have already convinced themselves of the relevance and value of Kirlian photography to the study of parapsychology and paranormal phenomena, for it provides, at great length and in great detail, technical instructions and descriptions for building and operating Kirlian apparatus. There are also many photographs of specimens and circuit diagrams.

It is not a book I would recommend to one setting out to form an unbiased and scientific opinion as to the place of Kirlian photography in Parapsychology. Crucial experimental data, vital if one is to form any opinion whatsoever of Kirlian Photography as a medium sensitive to or indicative of any psychic effects, is simply omitted. Such data ought to include, for example, the effects of temperature and humidity on the specimen and on the apparatus

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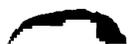
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and adequate measurement of the difference of pressure (in the case of photographs of the human fingertips) on photographic plates. Little or no experimental data are given to indicate the presence of any kind of paranormal effect and no consideration is made of the massive problem which arises out of the technique of Kirlian photography, namely that of the damage, destruction or alteration to living, dynamic systems by the passage through them of electrical currents such as those employed in the technique, and whether the resulting photograph may be considered to represent that system and its reactions prior to photography. The book deals with this vital issue in one sentence alone: "one should not pulse the system too severely and should let it relax and recuperate before repeated stimulation"; this is in my opinion a totally inadequate consideration.

I cannot stress strongly enough the importance and need for a deep scientific and philosophical study of the issues involved in a consideration of the values of Kirlian photography, and am left after reading the book feeling rather like a very elderly gentleman I observed being shown part of an ancient Roman wall on a guided tour of an ancient site; after listening to the archaeologist's dissertation on the beauty of the wall and the different techniques employed in building it, a dissertation which lasted a full half-hour, the old gentleman was heard to appeal to the guide: "Yes, sir, that's a very fine story, but can you tell me, please, was that wall there when you found it?"

SUZANNE PADFIELD



Sentences

From Samuel Taylor Coleridge

They and they only can acquire the philosophical imagination, the sacred power of self-intuition, who within themselves can interpret and understand the symbol, that the wings of the air-sylph are forming within the skin of the caterpillar; those only who feel in their own spirits the same instinct, which impells the chrysalis of the horned fly to leave room in its involucre for antennae yet to come. They know and feel, that the potential works in them, even as the actual works on them.

“Biographia Literaria,” I, 167

In the objects of nature are presented, as in a mirror, all the possible elements, steps, and processes of intellect antecedent to consciousness, and therefore to the full development of the intelligential act; and man’s mind is the very focus of all the rays of intellect which are scattered throughout the images of nature. Now so as to place these images, totalized and fitted to the limits of the human mind, as to elicit from, and to super-induce upon, the forms themselves the moral reflexions to which they approximate, to make the external internal, the internal external, to make nature thought, and thought nature,—this is the mystery of genius in the Fine Arts. Dare I add that the genius must act on the feeling, that body is but a striving to become mind,—that it is mind in its essence? In every work of art there is a reconciliation of the external with the internal; the conscious is so impressed on the unconscious as to appear in it.

“Biographia Literaria” II, 257 (On Poesy or Art)

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Saturday Night, April 14, 1805—In looking at objects of Nature while I am thinking, as at yonder moon dim-glimmering thro' the dewy window-pane, I seem rather to be seeking, as it were asking, a symbolical language for something within me that already and forever exists, than observing anything new. Even when the latter is the case, yet still I have always an obscure feeling as if that new phaenomenon were a dim awaking of a forgotten or hidden Truth on my inner Nature/It is still interesting as a Word, a Symbol! It is Logos, the Creator! (and the Evolver!).

“Notebooks” II, 2546

[On “Preventive Substitutes of occupation” for the “Busy Indolent”]

. . . the class, which has for its common distinctive character the charm of reconciling two contrary yet co-existent propensities of men, the Indulgence of Sloth with the Hatred of Vacancy; and which Class, besides Novels, contains in it, Gambling, swinging or Swaying on a Chair, Spitting over a Bridge, Smoking, Quarrels after dinner between Husband and Wife, when tête a tête, the reading word by word all the advertisements of a Daily Advertiser in a Public House on a rainy Day.

“Inquiring Spirit” 173

Let us consider what we do when we leap. We first resist the gravitating power by an act purely voluntary, and then by another act, voluntary in part, we yield to it in order to light on the spot, which we had previously proposed to ourselves. Now let a man watch his mind while he is composing; or, to take a still more common case, while he is trying to recollect a name; and he will find the process completely analogous. Most of my readers will have observed a small water insect on the surface of rivulets, which throws a cinque-spotted shadow fringed with prismatic colours in the sunny bottom of the brook; and will have noticed, how the little animal wins its way against the stream, by alternate pulses of active and passive motion, now resisting the current and now yielding to it in order to gather strength and a momentary fulcrum for a further propulsion. This is no unapt emblem of the mind's self-experience

in the act of thinking. There are evidently two powers at work, which relatively to each other are active and passive; and this is not possible without an intermediate faculty which is at once both active and passive. In philosophical language, we must denominate this intermediate faculty in all its degrees and denominations, the IMAGINATION.

“Biographia Literaria”, I, 85

In poems, equally as in philosophic disquisitions, genius produces the strongest impressions of novelty, while it rescues the most admitted truths from the impotence caused by the very circumstances of their universal admission. Truths of all others the most awful and mysterious, yet being at the same time of universal interest, are all too often considered as so true that they lose all the life and efficiency of truth, and lie bed-ridden in the dormitory of the soul, side by side with the most despised and exploded errors.

“The Friend”, No. 5

A poet is a transfigured philosopher with seraph wings on his shoulders.

“Notebooks” (entry for 1833)

Notes on contributors

OWEN BARFIELD read English at Oxford just after the first World War. For most of his life he has practised as a solicitor, but with a continuing interest in changes in the meanings of words as illuminating the evolution of consciousness. Among his books are *Poetic Diction*, *Saving the Appearances*, and *What Coleridge Thought*.

R. B. BRAITHWAITE was Knightbridge Professor of Moral Philosophy at Cambridge. Author of *Scientific Explanation* (1953) and *An Empiricist's View of the Nature of Religious Belief* (1955).

JOHN DAVY studied Zoology at Cambridge and Freiburg: was science correspondent of the *Observer* from 1953 to 1969, and has been Vice-Principal of Emerson College, Sussex since 1969.

C.C., who reported the discussion "Towards a Theory of Tragedy" is Clare Campbell, part of whose translation of Sophocles' *Philoctetes* was published in *Theoria to Theory*, Vol. 6, No. 3. She is a member and former research fellow of Lucy Cavendish College, Cambridge, and has a book forthcoming on Shakespeare's Sonnets.

CLARA GOUGH is a psychiatrist, who took a medical training in Liverpool University and spent 12 years in Australia and New Zealand. She practises with individual patients, and is a true British eccentric in not being bound to any one school.

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DEREK A. KELLY teaches philosophy at Denver, Colorado. He is interested in Phenomenology and Metaphysical Philosophy, in which he is the author of a number of papers.

JACQUES MONOD, the well-known molecular biologist, was a professor at the Collège de France and Director of the Pasteur Institute, which he created in 1954. In 1965 he received the Nobel Prize. His best-known book is *Le Hasard et la Nécessité* (Paris 1970). He died last May.

RENÉ THOM is a mathematical biologist, best known for his book *La Stabilité Structurelle et la Morphogenèse* (1972), in which he developed his theory of “catastrophes”, structural discontinuities in nature characterized mathematically.

Cover Design

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