THEORIA TO THEORY

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THEORIA TO THEORY

Volume 1 First Quarter October 1966

Editorial

Whitehead has a saying "Seek simplicity and distrust it". To our clerical friends we say: a defect in most current religious thinking has been a desire for simplicity, which will provide the easy answer to the not very penetrating question. In this journal we hope not to fall victim to the simpliste fallacy, whatever else we may fall victim to. We expect our readers to use their minds; in fact to work hard on matters to which they are not accustomed. There is no greater mistake than to think that what is true is what appeals to the masses.

To our monastic friends we say: Renew your vision and when you have renewed it, display it.

To our humanist friends we say: This journal is serious, and you know as well as we do that the questions it deals with are serious and cannot be laughed off. If the besetting fault of the clerical mind is superficiality, the besetting fault of the scientist is to assume that what he cannot deal with does not exist.

To the philosophers we say: Stop limiting philosophy and defining it in such way as to exclude a large number of important enquiries. Stop trying to be fashionable. Be curious! Everything else would follow if you would have some curiosity.

* * *

To those who would not classify themselves with any of these, but who still hope there may be something in Christianity or indeed in any other religion, we would simply say: Things aren't as hopeless as you might think. There are more things in heaven and earth than are dreamt of in any of the philosophies currently in use. *Nil illegitime carborundum,* which is hot dog Latin for, Don't let the bastards grind you down.

* * *

From the above it will be clear that this journal is attempting a fresh start. For its title we have taken the old word Theoria, because in its classical Greek, Greek Christian, and monastic uses it stood for contemplative insight as opposed to disputatiously dogmatic theology. The title also shows that we want to carry Theoria forward to Theory. We have a reason for this. We believe religious theory must in the end have the same characteristics as scientific

theory. That is to say, it must try to explain phenomena through a close-knit intelligible structure which provides a grasp of the underlying interconnexions. And you have to be able to imagine how the interconnexions work The theory must not be indefinitely elastic, that is, compatible with every possible state of affairs so that nothing can count as evidence against it, and it should be possible to draw consequences from it which allow experimental testing.

But how does one go from Theoria to Theory? This is the crucial question for which this journal exists. What the route is, or indeed whether there is any route, is controversial. What is clear is that pre-scientific Theoria could be genuine and also that a modern scientific theory can be genuine. How do you get from the genuineness of the one to the genuineness of the other?

The contributions to this first number illustrate some of the many aspects of this attempted transition. Those by Dorothy Emmet and George Every give something of the background of Theoria in Greek and early Christian philosophy and in early monasticism. The review discussion of Austin Farrer's *A Science of God?,* along with his reply, bring out the question as to whether there is any limit in principle to how far scientific thinking can penetrate, and whether there is a barrier over which one can only leap into silence or into another kind of thinking. John Good writes about the place of speculations in Science, with the underlying assumption that religious theories are just such speculations as he considers. It will come as a shock to the traditionally religious to see their accustomed forms of thought in such bizarre company. Seen however impartially, these forms are themselves bizarre, and the shock is part of the situation we should be prepared to accept. Margaret Masterman writes as someone who has been trained in arts, philosophy, and the computer sciences, so she has a chance of seeing new connections. Joan Miller's article explores the notion of the interdependence of people, and considers the significance of experimental telepathy in relation to this. The two articles on Science Fiction are particularly interesting because they show a mixture of Theoria and fantasy coming out from within Science. A special word is needed about the *Dialogue between Richard and Gregory.* We hope as a feature of the journal to have in every issue a dialogue which will bring out a real point of intellectual tension, the kind of tension over which people might easily quarrel. These dialogues will be prepared under conditions of personal contact, and the two participants will be referred to by their Christian names only. Thus a dialogue between the Archbishop of Canterbury and Professor Hoyle would appear as "Dialogue between Michael and Fred", and a

dialogue between the Reverend Mother Alice of Little Gidding and Dame Myrtle, Principal of Newton College, would be a "Dialogue between Alice and Myrtle".

* * *

We give notice that we are going to call members of monastic communities "monastics" and other contributors "philosophers", "scientists", or what have you. The use of the term "Religious", which can't be spoken with a capital letter, gives considerable offence because it harks back to the old notion of a double standard in Christian attainment, with the suggestion that only monastics can go in for spiritual honours degrees. It is also misleading from the point of view of the law of England, in which the Religious are now secular.

Another point. We shall only print signed articles. Monastics in particular must not remain enveloped in their habits. Contributions from "A Religious of Xbrook" will not be accepted. Authors alone have responsibility for the opinions expressed in their articles.

* * *

We have said that Theoria is both a philosophical and a monastic word. Over a considerable period the Epiphany Philosophers, the philosophic and scientific group who are publishing this journal, have found their natural allies from the religious side among monastics, not among the more conventionally pious. The Community which has specially collaborated with them in this number, as can be seen from the table of contents, is the Society of the Sacred Mission, Kelham. The prospectus of the journal has been criticized by the Bishop of Woolwich and others for sounding esoteric, and for being produced by an in-group. With regard to this first issue, it must be admitted that the criticism is largely correct. But the group in question is at any rate a very unusual in-group, in that it consists of an overlap of the Society of the Sacred Mission (i.e. of an Anglican men's community) and the Epiphany Philosophers and their friends (i.e. a group of philosophers and scientists). Thus it is itself a prototype on a small scale of the two strands of opinion which have got to meet in this journal if it is to come to any good. With regard to later issues, it can already be seen that the criticism will cease to apply. The central theme of the next issue will be Comparative Religion, and among its contributors will be Ninian Smart and Godfrey Lienhardt.

* * *

It must be evident that, in the context we are choosing, issues raised by Teilhard de Chardin are important. We had planned an article for this first number, but this proved unavailable. In addition the situation has been changed by the formation of the Pierre Teilhard de Chardin Association, which itself is publishing *The Teilhard Review* twice yearly. The general Teilhard material will thus become increasingly available. What must be of interest to a journal such as ours is therefore not so much Teilhard's presentation of the issues as the scientific and philosophical questions which it raises. These not only need to be further defined but also now need to be further discussed by scientists critical of Teilhard as well as scientists favourable to him. All this matter needs much more thought and preparation, and has therefore been deferred to a later issue.

* * *

We dedicate this first issue to the memory of Sister Hilary of the Sisters of St. Margaret, formerly at Neale House, Cambridge.

Letters in Comment

The Bishop of Woolwich comments:—

Thank you very much for sending me the draft of your Editorial, which I return.

I welcome this initiative. I hope that it will prove me wrong and not be so recherché as not also to be "commercial". I hope the opposite canon of truth is not to prevail, that because it is intelligible and popular it must therefore be false! Nothing could be better than if this enterprise created the kind of "community of intersection" for which Dr F. C. Happold pleads in his latest Penguin, *Religious Faith and Twentieth Century Man*. But please beware of being too rarified and precious to appeal to the ordinary mortals among us who are not "monastics", "philosophers" or "scientists"!

From Ian Stephens:—

Herewith 25/-, as my subscription to "Theoria to Theory". It is sent with my best wishes—and lively interest.

But with the interest are coupled reservations. Though I noted with mild pleasure the passing references to Zen and to yoga on p. 4 of the leaflet, pp. 1, 2 and 3 seemed almost to assume—I hope this won't be thought unfair—that no religion except Christianity exists. This, to an old infidel or agnostic with an ever-nagging religious sense, who has lived most of his life surrounded by people of the non-Christian Faiths, was a bit riling—especially, perhaps, the phrase eight lines from the bottom of p. 2. I should have thought that the achievements of Hindus, Buddhists, and the Muslim Sufi mystics as "contemplatives" were not to be sneezed at.

49 Hertford Street,
Cambridge.
May 10, 1966.

Poetry Theory & Poetry Theoria

(This is adapted by dom Sylvester Houédard from a letter he wrote to Margaret Masterman after they had appeared in the same number of the *Times Lit. Supp.* a year ago. These extracts are published here because they show the sort of questions that are being asked in monasteries by contemplatives and reflect the sort of contribution that contemplative monks have to make out of the practice of theoria to the world of theory now.)

. . . i should have written last year anyway—abt getting machines to write tolerable conceptual & semantic associations & language models &c—this certainly is one of the 4 things happened in the strawson/warnock lectures 10 years ago—1.1 therapeutic analysis (curing muddy ideas & statement) 1.2 systematic analysis (what is communication? including maxbense's theory of art) 2.1 explanatory imagination (if experience different then what new concept-apparatus?) 2.2 creative imaginative (if experience NOT different what would it look like thru a new conceptapparatus?)—poetry is happening at all these ?levels (i dont mean 'level' in hierarchic-strata sense)—as foto liberated painting from reporting & opend up abstract/concrete (maximum abstraction = pure concrete ie not representing either inner or outer worlds but being addition to cosmos—what i meant by 'imitatio "dei" ') so electronic media (as analysed by marshall mccluhan) have liberated poetry from description & reportage of (outerworld) sunsets or (innerworld) angst &&&c (using 'outer/inner' in loosest or anyway tantric-zen senses)

is it the case that poets MAKE & philosophers then ask WHAT IS IT that he has made? or do poets & philosophers identify (partially/wholly)?—the stuttgart hochschule aesthetic colloquium led to noigandres manifesto of semiotic poetry dec-64 (pbd 65) this was all being worked out 1963—our own contribution—here in the cotswolds (furnival loncraine cox myself) has been (rather independently to them—but not wholly) toward the possibility (via kinetic poetry) of machine semiotic poems in which NO lexical key is provided any more than when nice/nasty/white/&c cloud passes across ?yr sky (have the glostershire group ('gloop') poets here produced art? poems? or a language? . . . or is it that the poet constructs the MACHINE—ie the machine IS the poem?—cf pierre albertbirot on the POET as the poem machine in grabinoulor)

these preliminaries seem required since i dont know if this SORT of discourse/dialog goes on at cambridge—the atmosphere is i take it—now poetry is liberated where does it go?—a poetry of language

analysis? of language construction? of communication theory?—what information do the signs used in poetry communicate?—what aesthetic information can be communicated by the signs used in poetry?—is there a CERTAIN KIND of signs proper to poetry?—is there an infinite variety of concrete poetries?—is ALL autonomy in the arts impossible now?—in my intro to the cobbing-jandl disc i suggest that ALL LANGUAGES (3000 exist) are created BY poets —that ANY signs (visual/audial) can be poetry-signs & that translating these signs into one of the 3000 (plus 00 apriori) languages isnt essential—except that all signs in material cosmos (including 'mental' & "spiritual" signs) are grasped (in zen sense of mind as grasper grasping nonmind) & so translated into—what?—into our human 'selves' i suppose

real point of letter is to say it is suggested eg cavan mccarthy throw open pages of tlaloc to discussions at the SORT of levels we wld find useful—there are enough INTERESTED people (yeddi morgan : robertait : chascameron : lionelkearns : you & mikeweaver : &c) stepenbann reggadney philstedman & andrewrawlinson)—i suggested somewhere that concrete is the poetry of the communication age—it owes equally to wittgenstein & linguistics & cybernetics—is the poetry of postexistential or coexistential (audienceparticipation : happenings : theatretotale : &c)—& of zenlike grasp of the nonmind & nongod (my 'spirituality of materialism')

wh perhaps leads on to yr letter in 'search' (very much oldgeneration directed : cambridge 'slant' is much more adequate & aware)—do you beg some questions? eg IS there any 'christian thinking'?—i wld say there was only thinking that takes into account data that includes all thoughts by 'xns' 'buddhists" &c—there has been this generalisation from the limited horizons of a particular beduin tribe (the habiru probably) to universalistic concepts (even in OT)—to paul—to hellenising theology—to (now & since ricci : since even 8th cent chaldaean xns in china as eg text on monument at hsi-an-fu composed by xn monk chingching 871AD) orientalising theology—& more important to feel NOW that it isnt east or west but GLOBAL ie human—theology has always proceeded by employing concepts & developing methods of increasing generality—theologians like poets also work in the 4 divisions of analysis/imagination—only where some contact with 'the people' is demanded you get as in russia china & vatican politburos & curias central organisations essentially conservative & afraid of beyondness & the fringe & overlaps & initiative & invention—just like whitehall—philosophy has

managed to exist at a height & if shopkeepers dont understand sartre & ryle does it matter to philosophy?—the need is to secure discussion & investigation without the penalties of newspaperisation

but the concept of a humanist-xnity PROBLEM seems a block to useful thought expansion—if one STARTS by saying IF the situation were such that humanism & xnty were identical HOW wld things look—then you have a dual carriageway towards opening & shifting 'humanist' & 'xn' apparatus to get better definition & vision & measurement—trouble is the word 'xn' is a dirty word anyway & one is really i think obliged to use it in quotes—certainly the notion of xnty & humanism leading one to the other is to me anyway rather obscene (i dont know what obscene means—its a current smear word)—perhaps monks can be a bit more evolué in things than others—but some allowance must be made for the mental set that changes between eg an introvert & an extrovert—in china-japan was progress/enlargement due to insight of the few who reached satori or the efforts of the many who aim at it—but how KNOW what satori is if you only aim?—the view of my JE (metaphysical-subject or I-subject) as a neant is itself only a viewing of the empirical-ego or MOI or I-object—wittgenstein saw this (how well?) in the tractatus—the 'awareness' of the JE as the counterspace of the MOI (it isnt 'knowledge' certainly) is (?analogically) the same & only SORT of awareness one can have of the counterspace of the cosmos—(we cant KNOW what god is only what he isnt)—ie we can 'aware' that counterspace & call it god—from this zen-approach the nature of language as wittgenstein-&c see it is a natural advance i still wonder what w would have said abt aesthetics—i saw (an article? a book?) advertised that cyril barrett[1] was writing on w & aesthetics[2]—cb wld be quite an epiphany man (he begins with religion & compares it with xyz : i begin w/ xyz & (i think) & try to see what 'makes' them 'religious'—but i suppose 'reflective-selfconsciousness' is the one ?datum (how can it be a 'datum'?) ?awareness that i find myself using as a ?criterion in all judgements—but wittgenstein so far as i know never got to the point of seriously considering WHO made the signs & the rules for using the signs—i find all this area still unsatisfactorily mapped in british philosophy—i mean—if language is THERE to use ok—but the

[1] The two Cyril Barrett things are now published: *Lectures & Conversations on Aesthetics, Psychology & Religious Belief* by Ludwig Wittgenstein edited by Cyril Barrett. Blackwell. 12s. 6d.

[2] *Collected Papers on Aesthetics* edited by Cyril Barrett. Blackwell. 25s.

need for new words is w/ us all the time—they dont come by analysis—we can take the words & nonwords quark & antiquark & use them & make them mean things abt elementary properties—but i'm thinking abt a deeper problem (i think) abt the originating of language & communication signs—or does one just have to depend on the given & enlarge it?—the problem of authority seems to me to be bound up there : *a* as the poet ORIGINATING & *b* as the poet (if true anarchist & all poets shld be) refusing to dominate & be feudal abt 'his' insights—ie imposing them on society—yet society NEEDS the poet—& yet communication is only at the levels of equality—what the poet needs is a society of poets (is that an impossibility of humanist ideals?—is that a need for reviews?—why group therapy works?—value of seminars? &c?)

language words & ideas as MATTER—poets as authors-originators —humans as manipulators of matter & investigators of it—this surely IS the pneumatic—& the point of deep overlaps between many disciplines (theology contemplation zen poetry art linguistics psychology &ccc)

language-therapy : language-analysis : apparatus-shifts : (hypothetical) world-shifts—all these are poetry as it is—but new communicator systems—not just 'translation of old words into new signs—can we program a model communication system abstractedly?—leave computer to produce it? no—that seems unfruitful—what IS the thinnest bridge w/ the past & heritage & tradition?— like i said in that intro to the cobbing-jandl 'boxed in language its the concrete poet lifts the lid'—yes but how know where we are unless we define it *as* a 'bigger box w/ another lid'?—i'm appalled at these questions i ask myself—but i find the world so UNexplored—literary criticism of OUR world is going to need lots of fresh starts

Why Theoria?

Dorothy Emmet

Why "theoria"? Why use the word today? Is it simply our well-known word "theory", put into Greek dress so as to look more distinguished? Philologically it is of course the root word from which "theory" comes. It may also stand for a "root" in another sense, as something from which theories can grow. It has a history which goes back to a time before philosophy, theology and science had become separate subjects, and when people were experimentally learning about the inner conditions of intellectual vision out of which philosophical, theological and scientific theories might come.

I have said "vision" advisedly, since "theoria" is a "seeing" word, and in its origins not even metaphorically so. *Theorein* can mean straightforwardly "to see"; missions sent out by Greek cities to go and see a neighbouring city were called *theoriai.* Its connection with philosophy—itself originally not a subject but the activity of "lovers of wisdom", distinguished by the Pythagoreans from the "lovers of honour" and "lovers of gain"—seems to have come from the Orphic and Pythagorean mysteries. In this context, Francis Cornford has translated "theoria" "passionate sympathetic contemplation".[1] But what was "contemplated" was here something literally seen, a spectacle to which the initiate was admitted. With Plato, and perhaps the Pythagoreans, theoria becomes a word for an intellectual kind of vision, a metaphor we still keep when we speak of "seeing a point".

For Plato, the perception of an *eidos,* literally a visual shape, leads to the appreciation of an *eidos* as an abstraction (it is worth noting that the word can also be rendered as "idea"). In the Greek of Euclid's Elements of Geometry, when a mathematical proposition not itself self-evident is deduced from such, it is called a *theorema.*

So we have a word for seeing extended to a notion of "insight", something seen intellectually. For the Pythagoreans, this consisted in a mathematical way of seeing the world. Everyone knows that the Pythagoreans were pioneers in mathematics, and also that they had a taboo on eating beans. (Not quite everyone; some people get it the other way round and think that they lived on beans). Just why beans we do not know, and for our purpose it doesn't matter. . What

[1] Cornford, *From Religion to Philosophy,* p. 198.

does matter is that their pioneer work in mathematics was carried on in a community which had an ascetic discipline—the word *askesis,* the training of the athlete, being extended to training in intellectual athleticism in the setting of some kind of common life. Socrates may or may not have been connected with one of these Pythagorean brotherhoods. At any rate he seems to have been impressed by them, and himself to have founded a way of looking on philosophy as involving both a way of life and a readiness to call in question all possible opinions, though what his own actual opinions were we can only conjecture through what others made of them. Plato's dialogues are a series of compositions stemming from this inspiration, in which abstract thought is developed in a context where we are also made aware of the background of moral as well as intellectual training necessary to prepare the mind for the "theoria" of reality. In the *Phaedo* this is put as "a practice of dying"; in the *Republic* it is said to involve a "conversion" of the mind from sophistical arts; in the *Theaetetus* it is a renunciation of the world so as to enter on an "imitation of God in so far as is possible".

In Aristotle the philosophical life is expressly called the "theoretic" life. It is an activity (*energeia*) of the mind and person, directed towards the purest form of knowledge open to man. In later Greek philosophy, the Stoics in particular carry forward the notion of philosophy as an inner discipline of life, while some of them were also producing work of technical interest in Logic.[2] The inner discipline was directed to the achievement of *ataraxia,* freedom from the disturbance produced by worrying, and *apatheia,* steadiness and "unflappability" won through mastery of the passions. *Apatheia* does *not* mean "apathy" as absence of feelings, but freedom of spirit from the nervous excitability which can go with feeling. Nevertheless, it is probably true to say that the emphasis in *apatheia* was on the imperturbability of the wise man, rather than on his availability to love his neighbour.

Thus in classical Greek philosophy "theoria" did not mean what we call "theory" in the abstract sense. It meant something more like intellectual vision, associated with a way of life which was its preparation. Certainly the Greeks distingushed the theoretical and the practical as different kinds of life, and we have all been taught that they despised manual work and had slaves to do it for them. Yet we ought not to overdo this notion of the Greek philosophers as pure intellectuals. At any rate they had generally served in the

[2] Cf. W. C. and M. Kneale, *The Development of Logic,* Chapter III.

wars, if not also taken a hand in political revolutions. When Plato tries to produce a parable of divine activity, he describes God as a "Demiourgos", a craftsman, fashioning the world according to his vision of Ideas. Certainly "theoretic" activity was not only something cerebral. It took the powers of the whole person, and needed not only training of the emotions, but renunciation of the world. (Spinoza was later to describe something similar in his *Tractatus de Emendatione Intellectus.*)

When the "theoria" type of philosophy degenerates, it does not do so by turning into something "purely theoretical", but by turning into a set of edifying maxims. The intellectual and the moral impulse fall apart; the theory becomes stereotyped and the morality becomes cliché. This seems to have happened to a good deal of what went by the name of "philosophy" in the Graeco-Roman world; and then, as now, it needed the astringent influence of sceptical philosophy—or a fresh impetus to first hand intellectual effort.

The impact of Christianity on later Greek philosophy provided an impetus towards one kind of intellectual construction, and perhaps still more to a reconsideration of the way of life associated with it. The Greek Fathers of the early Christian church inherited the notion of the philosophic life as a "theoretic" life from Greek philosophy. They also had before them the Christian commandments of the love of God and of one's neighbour. Besides theoria as the *imitatio Dei,* there was the call to sacrificial love in the *imitatio Christi.* In Christian theoria, does the one integrally imply the other, or must it just be accepted that the Christian "theorist" had to find a way of combining the two commandments? I doubt whether the Greek Fathers saw this as a question; they assumed that the way of life directed towards perfecting the powers of contemplative insight must also be a life o*f agape,* of love of one's fellow man. Thereby they may have altered the intellectual emphasis of theoria; they certainly deepened the notion of *apatheia.* It was seen as steadiness, "freedom of spirit", which can be a condition both for active love of one's neighbour and for "theoretic" contemplative knowledge. The emphasis was now on theoria as aspiration towards the *visio Dei,* and the conditions for concentrating on its pursuit were looked for in the early experiments in monasticism. Indeed the word "philosopher" in some of this literature comes to mean a monastic. It is so used by St. Gregory of Nyssa (c. A.D. 335 - 395), the brother of St. Basil. St. Basil, after a brilliant university career in Athens and Byzantium, had visited and studied the early monastic groups which were growing up in the Egyptian desert, and went on

to work out rules for more settled communities. Gregory calls these communities a "chorus of philosophy". One of his books has the title "Concerning aspiration towards God and asceticism for the sake of truth", and some versions add "and an account of ascetics seeking insight concerning the goal of religion, and of how they ought to live with one another and co-operate in the effort".[3] He unites the Platonic language about the ascent to knowledge of "the Good" with St. Paul's language about the Christian as an athlete. His interpretation of theoria is given through Scriptural stories and imagery. It is easy to smile at these allegorizings of Scripture. But they can be looked on as attempts to interpret the narrative of the Biblical stories on a higher level of generality, so they can also be read as paradigms of stages to be mastered in growth towards theoria. An instance is Gregory's "Life of Moses", where he traces three stages: (1) illumination, illustrated by the story of the burning bush; (2) separation from the world, illustrated by passing through the cloud in traversing the desert; (3) entering the darkness on Sinai. (Note that "light" comes at the beginning; as the soul grows in theoria it learns to bear the darkness in which God is invisible.) These stages are repeated in a continual series of insights and fresh starts, in a pattern of losing one's life to find it which has to be worked out at every stage of achievement. Gregory uses the old Greek notion of *morphosis,* and indeed of metamorphosis, "transformation", as a process in which a person is remade in the divine likeness.[4] This gives him a clue to the meaning of the Sixth Beatitude. "Blessed are the pure in heart, for they shall see God". He points out[5] that this is a saying which may well make us feel confused, for we are also told that "No man has seen God at any time" and he accepts this. Then, very much in the manner of a linguistic philosopher looking at the uses of a word, he examines cases where "to see" does not mean the perception of an object or spectacle, but "to participate in", as "You shall *see* the prosperity of Jerusalem". "Seeing God" might therefore mean participating in God, through the formation of His image in us by "purity of heart". It is thus less like looking at an object[6] than like participating in a

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[3] See *Two Rediscovered Works of Ancient Christian Literature,* ed. by W. Jaeger (Leiden 1954). Jaeger has also written about this development in his *Early Christianity and Greek Paideia.*

[4] Jaeger, *Early Christianity and Greek Paideia,* pp. 97 - 98.

[5] In a Sermon translated in the series "Ancient Christian Writers" No. 18 (Longmans, 1954).

[6] The classical Greek notion of seeing a spectacle may have lingered on in Plato's view of knowledge as "seeing" the Forms as super-sensible objects.

life, where the energizing power is that of the God beyond images to which it points. If this is a power which illuminates and inspires, it can be a source of insight while not itself seen.

Thus the notion of theoria as a kind of *intellectual* insight need not collapse simply into a view of growth in moral perfection. For these writers the latter is seen as a state of mind out of which the former may come. Hence the way they see "Theology", not as a systematic study, but as a power of speaking about divine things associated with the poet rather than the professor. In the Greek Christian writers, "theologian" is a title accorded to a few inspired teachers; it was indeed sometimes said that there were only three "theologians" to whom the name was accorded by general consent: St. John the Evangelist, St. Gregory Nazianzos and St. Simeon the New Theologian.

Three is not very many; but that the name was accorded to even these shows that the hope of insight—supernatural insight—was not lost in the cultivation of moral perfection. "Supernatural" is of course a question-begging term.[7] I use it here not to make assumptions about "revealed truth" or "another world" behind this one, or indeed to deny these, but to point to the possibility of inspired insight not reached by ordinary methods of deductive and discursive thinking, and which seems to come as a gift. It may be grasped in "ecstatic" thought, in the sense of "ecstatic" used by writers like Gregory of Nyssa, where this is not so much a state of inner excitement (it may be this too—Gregory speaks of "sober drunkenness") as a state associated with inner quiet, *ataraxia*. It is a state of reaching out towards God and being carried beyond preoccupations with oneself, so that "theoric" vision is possible.

So much for some traditional meanings of "Theoria".[8] If we are adopting the word in our title, this is not because we are primarily interested in a move "back to Plato", or "back to the Greek Fathers", but because it stands for an approach to the creation of theories which is both intellectually open and rooted in an inner spiritual discipline. In our present dilemmas we may find that we can come closer to this approach than we can to that of scholastic philosophy or Reformation theology. If we look back to the traditional Theoria, it is not as an exercise in the history of

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[7] We hope that what it might mean will be one of the questions taken up in this journal.

[8] I have given a more detailed account of the Theoria tradition, in an article "Theoria and the Way of Life" in the *Journal of Theological Studies*, N.S., Vol. XV, Pt. I, April 1966.

philosophy, so much as in *recueiller pour mieux sauter;* we look back in order to re-appreciate an approach rather than to re-appropriate a particular metaphyiscs. Should anyone feel called to try to produce a new form of Christian Platonism, we should wish him well.[9] Most of us, however, who are philosophers or scientists today will find that the notion of the world as a *process* of development calling for experimental study is too deep-seated for us to be able to be metaphysical Platonists, using the process of nature simply as a jumping off ground to reach the real world of ideas. Our question is whether nevertheless there can be a contemporary or, more possibly, a future form of Theoria.

Here, as philosophers, we come up against the problem that this seems to depend on the possibility of there being what, since Kant, we have most of us been taught that we cannot have, namely, an intuitive understanding—that is to say, a direct appreciation of truth which is neither analytic nor derived by abstraction and reflection on sense experience. If there is such an intuitive state, it might be said that it gives us imaginative experience and not knowledge, since knowledge depends on deduction, evidence, the possibility of verification and falsification. I believe that since the rise of modern science we have learnt something here about the conditions of knowledge on which we cannot go back. If an intuitive state of mind can lead to *understanding,* this is not to say that intuition can be a substitute for systematic thinking and empirical testing. Yet these may not be the sufficient conditions of creative thinking, and here the tradition of Theoria has had something to say.

First, there is the "seeing" metaphor embodied in it. There are well-attested instances where an idea or the solution of a problem has been grasped in a picture form before it could be worked out rigorously. One of the best known of these is how Kekulé got his view of the hexagonal benzine ring from a mental picture of a chain of snakes eating each other's tails which is said to have come to him when he was riding on the top of a bus. Such intuitive "seeing" can be a leap over a hump; it is not infallible, and there will be a great deal to do if it is to be worked out in a strict form. There may be an analogy to this in the inspired kind of "seeing" which gets described in a religious image, though here the *shape* of the image may not be so much a clue to its interpretation as it sometimes may

[9] Since writing this article I have come across an attractive essay in this direction in a paper called "Platonism" by Hilary Armstrong in *Prospect for Metaphysics* (edited by I. T. Ramsey, London 1961).

be in the image seen by a scientist; how the theoric vision can be generalized in testable theory also is more problematic in regions where scientific method has not obtained a purchase.

Secondly, the "seeing" element in Theoria, as a visualizing power of imagery, can be left behind. The visualizing imagination can indeed be a step in creative thinking, though not a necessary one. It can be superseded by a receptive state in which the mind is carried beyond images. In the Greek Christian tradition the mind was led to this point through a way of prayer in which it united itself imaginatively with the life, death and resurrection of Christ as told in the Scriptural story. In traditions other than the Christian the terms in which the reacher after Theoria prays will be different, and the character and interpretation of his theoric experience will no doubt be affected accordingly. Nevertheless, there is an impressive confluence in the reports of those who reach the further non-visual stages of Theoria. In the Greek Christian tradition this state of mind carried its "theorists" not only beyond images, but also into the possibility of thinking beyond currently accepted ideas. They seem to have been reaching after a "theology" which was not an academic subject, but the outcome of a combination of activity and passivity in which prayer could fertilize thinking and thinking fertilize prayer.

Today we are faced with a split between the language of the Christian tradition in which most of us pray, in so far as we can pray, and the scientific and philosophical languages in which we think. No doubt there has always been a distinction. It is not likely that many people brought the technicalities of scholastic logic into their prayers. Nevertheless, there were intersections: the notions of the Divine *Aseitas* and of *Actus Purus* seem to have led St. Thomas Aquinas from study into worship. But for most of us the scholastic philosophy is neither a language in which we think nor in which we pray. We are left without an appropriate language in which to find intersections.

Here we can take another look at the aspect of Theoria which, rather than pointing to an intellectually and devotionally appropriate language, stood for a state of inner discipline and concentration. How far do the conditions for this, as the older writers on Theoria claimed, include *moral* conditions? I suspect that they must include at least those necessary for the freedom of spirit which makes concentration possible. Coleridge (himself most certainly a "Theoria" poet and thinker) was probably right when he said that the slightest touch of *envy* can stultify creative powers, since it is one of the things that "have forced a man in upon his little unthinking

contemptible self".[10] Moreover one reason for distraction in the kind of world in which most of us live and work nowadays is the pull towards what Coleridge called "Busy Indolence". He meant by this people's propensity to find forms of occupation without seriously rousing themselves to the effort needed to think.[11] There are all too many such occupational substitutes for thought (to adapt Coleridge's phrase quoted in the note below) and most of them seem so necessary and so good. They crowd in on us, whether we have jobs in public life, universities, schools, the Church, or even in monasteries, and they provide excellent excuses for evading concentration.

Such concentration need not, of course, be a religious state of mind in the more usual senses of "religious", though I believe it is likely to be a selfless state of mind. Today indeed the conditions of intense inner concentration leading to intellectual vision are most likely to be found among people doing high grade scientific work, perhaps especially in theoretical physics and cosmology.

Does the notion of Theoria come down, then, in the end to a name for a good state of mind in which theories, of whatever kind they may be, can be produced, and in which thought can be born whatever the thought may be about? If so, the study of it would turn into a chapter in the study of the psychology of intellectual creativity (which indeed is something well worth studying).

I think it can be more than this. In the religious context, Theoria as a state of mind involving moral conditions and Theoria as wisdom in speaking about divine things seem related more integrally than simply by the former providing psychological conditions for the latter. Religion may not be exclusively practical, exclusively a way of life, but whatever else it is, it is at least this. That religious practice may be a condition of religious knowledge (here meaning wisdom rather than "R.I.") has often been said, notably in the hard saying "they that do the will shall know the doctrine".

Our question is therefore not only how does a way of life provide the *psychological* conditions for producing a theory, but also how

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[10] Cf. *Coleridge's Philosophical Lectures,* ed. K. Coburn, p. 179.

[11] Coleridge contrasts the "busy Indolent" with the "lazy Indolent" who find "preventive substitutes of occupation" by which they can reconcile "the two contrary yet co-existent propensities of men, the Indulgence of Sloth with the Hatred of Vacancy"; a class which includes "Swinging or Swaying on a Chair, Spitting over a Bridge, Smoking, Quarrels after dinner between husband and wife when tête-à-tête, the reading word by word of all the advertisements of a Daily Advertiser in a Public House on a Rainy Day". (Would he have included non-selectively watching the telly?)

(Rendered by Kathleen Coburn, *Inquiring Spirit,* p. 206. A variant occurs in *Biographia Literaria.*)

does it provide the *experimental* conditions for the particular kind of theory which a religious theory may turn out to be.[12] Put in this way, we can see the need to develop the element of experimental knowledge which was lacking in the Platonic view of knowledge from which the Theoria tradition derived. It is not, however, altogether lacking in the Greek Christian and early monastic writers, though not taken beyond an intuitive form. Their moral language is not only prescriptive about how people ought to live, and their theological language does not express a closed system of concepts unrelated to experience, but together they contain the germ of an experimental theory of contemplative insight, both as a way of inner development, and as a source of wisdom. Just what kind of experiment is involved and what it might test are among the questions with which this Journal will be concerned. Meanwhile we can start from the hope of the Greek Christian writers, that Theoria can be not only the cultivation of a state of mind, or preparation for a *Visio Mundi,* but also preparation for a *Visio Dei.* To call it this may make it sound more like mystical experience than like thought. But the notion of Theoria as it came down from the Greek philosophers also stood for a belief that mysticism could degenerate into emotion and pious formulae unless it was flanked on one side by moral development and on the other side by intellectual effort. When this happened, it was claimed that not only could these purify the mystical experience, but it in its turn could inspire them. The intellectual outcome of Theoria was shown in exact work in mathematics, logic, the sciences, metaphysics and theology. At present constructive work in these last two is full of frustrations. This is not to say they are dead. But they need the intellectual vision which can give a fresh start and fresh hope. It may be worth looking at their root as it was seen in one historic tradition, so as to enlarge our view of what it might be in circumstances where not only the world we live in but also the *Visio Mundi* is a very different one.

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[12] I have stressed this aspect in the article in the *Journal of Theological Studies* referred to above, "Theoria and the Way of Life".

Welcome to the Journal

Dr. Michael Ramsey, the Archbishop of Canterbury, writes:—

I find the objectives of this new journal very fascinating. I have a feeling that religion may be more intelligible to the modern world, and more intelligible to those who practise it within the modern world, if its nature is presented less in terms of dogma and more in terms of contemplation as this is understood by some of its earlier exponents within the Christian tradition. I would hope that the kind of dialogue which the new journal plans may assist the meaningfulness of Christianity both for those who accept it and for those who do not.

The Decay of Monastic Vision

George Every

Monasticism is not a distinctively Christian institution. Buddhist and Jain monasticism are some five centuries older than the Christian religion, and have their roots in other and older monasticisms. In what are called the "lower" religions, devoted to local and tribal gods, we find a common, though not a universal belief that some deeper understanding of what is ordinarily hidden is accessible to those who submit themselves to be trained in a moral and physical discipline that at any rate implies a large measure of renunciation. This discipline is conceived to be a way to vision, to what the Greeks called *theoria,* an experience which "assumes as its key situation a reciprocal, active and passive vision, a spectacle in which men are both viewers and viewed".[1] The discipline itself has been called by various names, but among the early Christians and in the Byzantine empire it was called *theologia.* The theologian *par excellence* was "S. John", the author of the Fourth Gospel and the epistles. Others who were thought of chiefly as theologians included "the three holy doctors", S. Basil, S. Gregory Nazianzen, and S. Gregory of Nyssa, Maximus Confessor in the seventh century, and S. Simeon "the new theologian" in the tenth. Theology in this sense is more than spiritual or mystical insight, although it is impossible without it. It implies a capacity to lead others along the way to it. It is my contention that concern for this kind of theology has been displaced in Western Christendom by an unbalanced preoccupation with the study of authorities, whether these are original sources or solemn pronouncements by the *magisterium* of the Church on the interpretation of the Christian revelation, and that this has been disastrous.

Theoria is from one point of view an aspect of that paranormal power which is common to the seers of all religions, but this has a higher esteem in Christianity, as in Buddhism, than for instance levitation or magical heat (the power to dry out wet blankets or clothes[2]). Miracles are to be expected in saints, but in themselves they are no proof of sanctity. Vision on the other hand is the end

[1] C. Kerenyi, *The Religion of the Greeks and Romans,* London, 1962, p. 144.

[2] See Mircea Eliade, *Naissances mystiques,* Paris, 1957, pp. 185–8, and *Myths, dreams and mysteries,* E.T., London, 1960, pp. 92–5, 99–110.

of ascetic discipline, because it is the sign of union. The supreme aim of the Buddhist monk and nun is enlightenment, of the Christian the vision of God in union with Him.

Both are open to the same two practical perils. The first is that renunciation may be made ostensibly to enlarge knowledge by a deeper insight into untapped possibilities of experience, but actually to acquire status. The second is that the vision itself, the knowledge of the truth that renunciation is intended to attain, may become no more than part of the exercise of renunciation; and that contemplation, the vision of truth, should be incorporated as meditation upon "noble truths" or "divine mysteries" into a particular place in a round of spiritual exercises.

All spiritual exercises are in danger of becoming accomplishments, and so ends in themselves instead of means to light and knowledge, to growth in depth. The earliest Christian exercises were originally devised for the assistance of the whole Church. The vigil, the watch through the night, derived its earliest shape from the regular Church meeting, beginning with readings from the Scriptures of the Old Testament, including the psalms. These prepared the way for testimonies, including readings from Christian epistles and gospels, spontaneous "prophecies" and prayers. The vigils were longer, and probably less disturbed by ecstatic excitements. There the readings from both the Testaments led the way into silent prayer, which might be concluded some hours after by more psalmody and singing before the dawn. These vigils were kept in many churches by a hard core of keen Christians at regular intervals towards the end of the period of persecution, and continued in the new church buildings erected or adapted after the conversion of Constantine. Their use and significance may be better understood if we remember that they grew up in lands where the length of the night is fairly constant from one year's end to another, and in an age when artificial light was scarce and expensive. Where the siesta is a regular institution for all classes in the early afternoon, at any rate in the summer, very few adults sleep the whole night through. The vigil was and is a necessary defence against the dissipation of mental and physical energies. It need not involve undue deprivation of sleep.

This watch was naturally observed with particular zeal and frequency by the first monks and nuns, alone or in community. Cut off to a large extent from the corporate life of the Church, they shared her corporate worship by using the same readings, the same psalms, the same hymns. To these they added other exercises of a like nature at other hours. All these were originally regarded as

starting-points for contemplation, for *theoria,* the vision of God, to be entered in stillness and pursued in silence as they continued their daily labours in manual work for themselves and others. The life of the monk was to be a continual vigil.

S. Benedict was among the first to lay a greater emphasis on the regular and reverent performance of set spiritual exercises than on long and fervent prayer or severe austerities. In his community he sought to limit the amount of time spent in prayer after each office, by ordering everyone out to another exercise, sleep or work. This was cool common sense, at a time when an increasing number of monks were drawn to the monastic life in the West, not so much by a passion for prayer and contemplation, or by zest for discovering the deep things of God, as by an overmastering need to find some time for calm, for leisure and order, in lives continually threatened by the vicissitudes of civil war and barbarian invasions. These beginners must not be daunted, or tempted to competition in a spiritual marathon, by the sight of their elders standing for hours on end, rapt in contemplation.

To some extent a like development took place in Eastern monasticism, but in a less uniform manner. The important difference between the Christian East and the West lies in the much larger gap between liturgical and common speech in the Latin world. No doubt today the difference between liturgical and modern Greek is great, perhaps as marked as between Latin and Italian, but it was nothing like so large in the Byzantine age, when recruits for monastic choirs were already accustomed to liturgical singing in the church choir at home, in which all with sufficiently good voices, both men and women, no doubt joined. Liturgical texts in their Slavonic forms were equally familiar to the children of mediaeval Russia, in their Coptic and Syriac forms in Egypt and Syria. Ge'ez, the liturgical language of Ethiopia, was the spoken language of the country from the ninth to the thirteenth century.[3] Throughout the mediaeval centuries no Eastern monk had to learn a language in order to join in the worship of his monastery, unless he deliberately left his own country to find his vocation elsewhere, and even then in such international centres as Jerusalem and Mount Athos he would probably be directed to a choir of his own speech. In the West, even in Italy, Latin never seems to have replaced the local vernaculars in the country districts. It was always a language of the schools, that lost ground as civilization declined. But it was a long time before any attempt was made to use the

[3] See E. Ullendorf, *The Ethiopians,* Oxford, 1960, pp. 119–24.

romance languages as a literary medium; and although religious poems and prayers were written in Irish and English by the first generation of British Christians, the possibility of a vernacular liturgy was apparently not considered.

In consequence the *lectio divina,* the arts necessary to the correct recitation and singing of Latin liturgical texts, with some measure of understanding of their original, literal, and symbolical or mystical meanings, became the substance of ecclesiastical, and so of monastic learning, from which only a few had time to advance further into the heights and depths of contemplation. Some parallel might be drawn between this and the concentration of Brahmins on exact correctness in the recitation of the Vedas and Upanishads. It would be a mistake in either case to interpret this in purely mechanical terms. *Lectio divina* was an art, or rather a series of arts, including music as well as Latin grammar and composition in poetry and prose, intended to encourage meditation on the manifold literal and mystical meanings of the liturgical texts, especially the Scriptures. But where the texts are the centre of attention, the freedom of aspiration is lost. In India as in Europe this emphasis was accentuated by a belief in the divine inspiration of the Scriptures, already held, but slowly intensified as they themselves became the central objects of concentrated attention, rather than glasses through which the vision begins to be seen.

The heart of the *lecto divina* was the fourfold sense of Scripture. That the literal sense has a certain priority was acknowledged by everybody. The superficial meaning of the text must be first understood before symbolic significations were explored. But in practice the spiritual meaning in its three divisions, mystical, moral and anagogical (in relation to death and the world to come), was more important, especially in the psalter, which had so large a place in the monastic offices of prayer. This preference for the spiritual sense coloured the monk's reading, not only of the psalms and lessons, but of the Latin classics (there were mystical interpretations of Virgil and Ovid), and of books of beasts, where mystical and moral meanings were assigned to real and imaginary animals. Moreover the devout and discerning man or woman might see a mystical and moral meaning in any event. Examples may be found in a collection of "similitudes" associated with S. Anselm, who was Archbishop of Canterbury at the end of the eleventh century. One is the story of a hare, hunted by boys with dogs, who fled between the legs of the saint's horse. The boys grinned, but the horse would not allow them or their dogs to get at the hare, while the saint compared the terrified creature to the soul at the point of death, and the boys

and their dogs to devils. When he had finished his short sermon, he let down the reins, and in a tone of command ordered the dogs off. The hare escaped.[4]

S. Anselm's concerns were still fundamentally the same as those of his Byzantine contemporaries, whose educational formation was Greek not Latin. The important difference is that Byzantine intellectuals were almost invariably educated for the civil service. Those who became monks did so as the result of a crisis, early or late in life. The training of monks and nuns both in the East and in the West, was primarily intended to prepare them for progress through *theologia* to *theoria,* to growth in the knowledge of God and of understanding of the meaning of life in Christ. In this the educated Byzantine who became a monk as a result of some crisis or setback in his official life was not necessarily at an advantage, although if he had the insight, he might be better able to explain it, to "theologize" in the early Christian sense, than a monk who had never been experienced in the drafting of state papers. But in the West, where the clergy were the educated class, it was necessary for Popes, kings and bishops to look for their secretaries in churches and monasteries. Most monks resented and resisted attempts to use the monasteries as training grounds for the king's secretarial staff, but the cathedrals, which had always been regarded as training grounds for the clergy in the dioceses, were disposed to favour improvements in clerical education, especially in the arts of disputation, in the skills required not only for the study and practice of the church's laws, but for precise and accurate argument on disputed points of law, logic and doctrine. In the cathedral schools a few went on to apply the art of argument to selected *Sentences* from the Christian Fathers, and texts in Scripture itself, and these at first were heavily criticized by theologians in the tradition of the monasteries, who held that their dialectical approaches were necessarily superficial.

A like conflict broke out in the thirteenth century between some of the Franciscans and some of the Dominicans. This is the decisive crisis in the history of Western monasticism, and it is important for our judgement of the whole movement to be just to both sides. The Dominican and Franciscan orders were at least attempting to integrate the new logic of the cathedral schools with the contemplative wisdom of the monasteries. In so far as they were monks, and simply a new kind of disciplined cleric, they were the last monks to be pioneers of thinking over the whole field of learning.

[4] *Patrologia Latina,* 157, c. 189–90. The examples reflect the concerns of the age. What is important is that the "texts" are drawn from common life as well as from the Scriptures.

But the rules of disputation were not made by them, but by the Masters of Arts in the cathedral schools, who derived them in a large part from the schools of the Spanish Jews and Moslems. The domination of formal logic in the mediaeval universities made for clear, accurate and precise thinking, but also for a division between prayer and thought, between speculation and mysticism. The scholastic method pushed the mystical sense of Scripture on one side, and preferred to argue from the authority of the literal sense of a text, for mystical meanings are constantly void through uncertainty, but in the monastic tradition the mystical meaning is the heart of theology.

At this point our modern sympathies are generally with the scholastics. We fail to notice that while mystical and moral interpretations of Scripture or of anything else can be commended or criticized on rational and moral grounds, the literal sense of a sacred book, once this is established, is much less open to criticism. In the monastic tradition inherited from the Fathers, unedifying inerrancies could be ignored, or made to yield deep doctrinal and moral meanings through mystical interpretation. According to the rules of the schools these were only valid if they could be harmonized with the literal sense. God's hardening of Pharoah's heart became a premise in theological debate, instead of an obscurity to be explained away.[5] Scholastic theology turned on a systematic confrontation of authoritative texts, with answers to every objection, on a disputed question. In matters of faith, where Scriptural proofs were lacking, appeal might be made to unwritten Apostolic tradition, but this was conceived as something handed down from generation to generation, not as living tradition, growing and developing.

The consequences of this can be seen in the changed relation between theology and contemplation, *theologia* and *theoria*. Not only the new orders, the Dominicans and Franciscans, but all the older monasteries were in time affected by the methods of scholasticism. The change can be seen most clearly in the separation between the school and the choir and between the divine office, the *opus Dei,* and contemplative prayer. Before the thirteenth century the heart of the *opus Dei* was still the vigil. This alone was of obligation on all clerics, whether monks or not.[6] The obligation was

[5] See Miss B. Smalley's essay on "The Bible in the Middle Ages" in *The Church's Use of the Bible,* ed. D. E. Nineham, London, 1963, p. 58.

[6] So I understand *Distinctio* 91 in the first part of the *Decretum* of Gratian, though in "reconciling" conflicting passages he cites one that might imply more.

no doubt fulfilled in a variety of ways, by long hours spent in prayer and spiritual reading, or by the slow recitation of psalms and lessons from Scripture and from the Homilies of the Fathers. Outside monastic and cathedral churches Office books other than a psalter and a book of lessons were probably rare. The smaller and poorer monasteries, as well as the parish churches, were often without antiphonaries or responsaries containing the variable parts of the greater and lesser hours. What mattered was not the full and complete recitation of the whole office, but time spent in prayer and recollection at regular hours of the day and night. Moreover in the greater monasteries, where the full office was larger and longer, this was still regarded, at least in theory, as a framework for contemplative prayer. The Cluniacs, who were largely responsible for such elaborations as the office of the dead, and the Cistercians, who wished to prune these back and restore the vigil to something more like its original form, were at any rate agreed that there should be a pause in the middle of every verse of every psalm. They differed about its length, but moderation seems to have meant a minute.[7] The Cistercians at any rate insisted on more than that.

The Friars on the other hand said their office by the wayside, out a new kind of book that could contain the whole text of all the hours for that time of the year, spring, summer, autumn or winter. This was not indeed their invention,[8] but they were soon seen with it in every part of Europe. Their portable breviary inevitably excited the interest and envy of the best of the parish priests in town and country, who had hitherto done their best to fulfil their liturgical obligations with a minimum of books. Many of these no doubt prayed longer and more fervently with a breviary, but they lost what was left of the spontaneity that continued to persist in some more isolated places until the invention of printing. This not only made Office books, for which a sale was immediately assured, much easier to produce, but for the first time made it profitable to include in all of them detailed rubrics, directions for the conduct of the service according to the use of the great church whose Office book was being printed.

What is important about this "modern office" is not the omissions from the older texts, which were numerous but not very significant,

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[7] See M. D. Knowles, *Cistercians and Cluniacs* (Friends of Dr. Williams' library, 9th lecture), Oxford, 1955, p. 25, citing Peter the Venerable, Abbot of Cluny, in P. L. 189, c. 1026.

[8] See S. J. P. van Dijk and J. H. Walker, *The Origins of the Modern Roman Office*, London, 1960.

but the manner of recitation presupposed. The object of the exercise was no longer preparation for contemplative prayer, or a prolonged penitential exercise to take the place of silent contemplation for those to whom this was not at the moment of use, but the precise fulfilment of an obligation now regarded as common to all monastics, and to all clerics of a certain standing. This is something entirely different from mental prayer and mystical contemplation, and it is not the time for theological study or interpretation of the texts. This belongs to another place.

We do not know what corresponds, in the conditions of modern life, to a mystical or spiritual interpretation of the Christian Scriptures, of other classical formulations of Christian doctrine, or of the events of our own time. But we may fairly suppose that the first and second will be related to the thought and action of our own age as a purely historical interpretation cannot be. At the same time it must take account of the results of historical criticism, as earlier spiritual interpretations took account of the literal meaning as this was understood at the time. It will certainly not be found by assembling and selecting older typological and allegorical interpretations, but it may be said that it is on the way to being discovered wherever serious Christians, involved in the mental and spiritual struggles of their own time, begin to meditate again upon the Christian mysteries, and to take them as their starting-points for contemplation. To do this we need some ascetic discipline, though the conditions of asceticism change from age to age.

The Function of Speculation in Science Exemplified by the Subassembly Theory of Mind

Irving John Good

The topic of this article is more controversial than might be supposed. That speculation has some function in science will not be denied by anybody : the question is what function. Largely it is a question of what speculations are worth publishing, but the question also arises in ordinary conversation. For example, one often hears the remark "That's mere speculation", but not "Man you're speculating; congratulations!" One can imagine Newton saying at a beer party, "I shouldn't be surprised if the sun exerts a force on a planet like the earth exerts on an apple", and his tutor replying "That's idle speculation". This would perhaps have provoked Newton to develop the calculus, the laws of motion, and the inverse square law. For it is said that when he was at school he was kicked in the stomach by an older boy, and consequently he began to study hard and eventually became head boy of the school. It seems that at his school academic qualifications had more weight than cricket.

Another expression that is usually regarded as derogatory is "half-baked", but in some circumstances it ought to be interpreted as complimentary. One criterion is the number of words used in order to expound the idea. If some one writes a whole book containing only one idea, then the reader has the right to expect that the idea will be more than half-baked. It is amusing to try to construct a formula for the number, N, of words worth printing in order to expound a single partly-baked idea, of bakedness p, where $p < 1$ and might be negative. A partly-baked idea, or pbi, is either a speculation, a question of some novelty, a suggestion for a novel experiment, or a stimulating analogy. A formula that makes some kind of sense is

$$N = 10^{9px/2},$$

where x, the importance of the topic, is between 0 and 1. This formula is tabulated in the following table :

px	1	7/9	2/3	$\frac{1}{2}$	$\frac{1}{4}$	< 0
N	30,000	3,000	1,000	200	14	< 1!

The formula can also be used in reverse as a contribution to the definition of p and x. But the formula is itself half-baked so I had better not say more than 200 words about it.

The bakedness of an idea can be estimated only subjectively; in particular one's own ideas are liable to appear more baked than they seem to other people. Although it might not be possible to give any convincing quantitative rules, one can at least state some of the qualities that determine whether a pbi is worth while. There is its potential value, the chance that it can be completely baked, its originality (which depends both on where it was anticipated and to what degree, and with what lucidity), its interest, its stimulation, conciseness, lucidity, and liveliness. It is often better to be stimulating and wrong than boring and right.

Here are some examples of succinct partly-baked ideas. Some of them are entirely unoriginal.

(i) Half-baked ideas of people are better than ideas of half-baked people. (Anon.)

(ii) What would be the nature of a discipline that would do for logic what logic seems to be doing for mathematics? (Mullin.)

(iii) Is it a tautology to say that those species survived that were fittest for survival; or is it wrong?

(iv) Immortal men became extinct by Natural Selection!

(v) The origin of hypnotism is that it was essential for the stability of primitive societies. Does it explain the pecking order in chickens?

(vi) Is it a pseudoproblem to ask why objects fall to the ground? Does it make any difference to say that the earth exerts a force on them?

(vii) Do most people who are not colour blind see the colour red in the same way? Must this question be interpreted in terms of the topology of the abstract "colour-space" of the perceiver?

(viii) Do people other than oneself feel pain? Could a sufficiently complex machine feel pain, even if it were made of cog-wheels? Does consciousness depend on the helical DNA molecules vibrating like the toy called Slinky?

(ix) Did Rutherford believe that atomic energy could not be economically useful because he didn't want people to think he was indulging in science fiction?

(x) If life originated on earth by a special act of creation, is it likely that God tried the experiment on only this one of the

quadrillions of planets in the universe? Is it human vanity that makes some people believe that there is no other intelligent life in the universe? *Why on Earth?*

(xi) The p-baked idea is father to the q-baked idea, where $p < q$.

(xii) Why has space three dimensions?

(xiii) An explanation is a linguistic transformation.

(xiv) In orgs (organisms and organizations), entropy has a tendency to *decrease* until ossification sets in. Should this be called the Fourth Law of Thermodynamics, or should it merely be taken as the definition of an org?

(xv) Is there already in existence in some country a society for artificial insemination that is deliberately increasing the intelligence of the population without the knowledge of its own government?

(xvi) Will there one day be schools both of and for highly gifted whales? Will they live in synergy with highly gifted children, and will the children have to learn "Whelsh"?

(xvii) A string is stronger than its weakest fibre. The toughest material would consist of polymer molecules plaited in three mutually perpendicular directions.

(xviii) A tautology can be misleading and a logical contradiction can be enlightening.

(xix) The degree of socialism in a country can be measured by the proportion of income taken in taxation.

(xx) Psychological positivism is the thesis that everything is all right if you can't be found out.

(xxi) The reason the brain cells do not repair themselves is that it is better to forget than to remember what ain't so.

(xxii) General principles are important, obvious, and overlooked.

(xxiii) You can describe another person in terms of probability, but to describe yourself you have to introduce utilities also.

(xxiv) The only way of meaning what you say is to remain silent.

(xxv) If there is no understanding there can be no misunderstanding.

(xxvi) It is impossible to understand a completely unambiguous statement.

(xxvii) A definition is often a restrospective administrative decision.

(xxviii) Consciousness and matter are equally metaphysical.

(xxix) The best mathematical thinking is like Zen Buddhism : it consists in catching what you are half thinking.

(xxx) Hypnotism is the internal mechanism by which the brain achieves integration.

(xxxi) The functions of philosophy are : to tell people what they mean; to define some new long words; to define "philosophy"; to prove that all other philosophers talk nonsense; to settle the problems of the world without looking at it; to go on talking; to establish a minimal vocabulary while exhibiting a maximal one; to explain away the inexplicable; to rationalise your own behaviour; and to tear threadbare arguments to shreds.

I have expressed some of these partly baked ideas as questions, but to a sympathetic audience it should be equivalent to express them as conjectures, and it should not make much difference whether one conjectures the truth or falsity of a proposition, so long as it is formulated in an interesting or provocative manner.

It seems to me that there are some strong analogies between (i) speculations, (ii) philosophical statements, (ii) theory unbacked by experimental check, (iv) non-rigorous arguments. I should like to elaborate a little on these analogies.

It is typical of philosophical arguments that the steps do not have the rigour expected in mathematical arguments. In other words the probability that a mistake will be made at any given point is higher. Consequently a philosophical argument cannot be many steps deep. If it is convincing it is more by cross-checks, by arriving at conclusions by more than one route. Conversely a mathematical argument can be accepted as a proof even without cross-checks, however desirable the cross-checks might be for psychological reasons. A mathematical argument is often a chain, whereas a philosophical one is a string (see pbi number xvii above). When philosophy becomes rigorous enough to sustain a serial or linear argument, rather than a parallel one, then it ceases to be philosophy and becomes mathematics or science. Philosophy is necessarily half-baked, that is why it is more important than science.

The practical scientist is suspicious of philosophical arguments and of theory in general if it is not checked properly by experiment. Many practical scientists are mainly interested in hard facts, facts they can rely upon. To them a philosopher is invariably an armchair philosopher. Even Wittgenstein felt this about philosophy. It is no coincidence that he started his career as an engineer.

Philosophy, theory, and speculation all have this in common : their value has to be judged fairly subjectively; it is usually difficult

to prove definitely that they have been influential. My own opinion is that philosophy, theory, and speculation all have great long-term value, and that without them science would lose most of its interest. Stephen Toulmin expressed this view very strongly in an article in *Advancement of Science* (1963.) He says, for example, that the "combination of free speculation and vigorous criticism carried the Greeks in 400 years from the first sweeping theories of Thales and Pythagoras to the exact and sophisticated analyses of Archimedes and Hipparchus". He goes on to say that at this point the Greeks were trembling on the verge of modern science, and that they could have done what Newton did if they had not suffered from a lack of intellectual nerve. When the focus of intellectual life was moved from Athens to Alexandria, science degenerated from being natural philosophy to intellectual technology. As an example, he mentions Hero's *Pneumatica,* which begins with a perfunctory statement of an atomistic theory of matter, but goes on to describe hydraulic and pneumatic gadgets, including a slot machine for delivering holy water, and table decorations for the dining rooms of the rich. And even Ptolemy (second century) declared that astronomers should concentrate on their calculations, and that there was no point in speculating concerning the true nature and workings of the heavens. It was Copernicus, in the sixteenth century, who demanded a theory of the heavens that would be "consistent, systematic, and convincing".

It is interesting that the official view today concerning quantum theory is that it is a set of rules for making predictions and that there is no point in asking for intuitive explanations and pictures. There are of course a number of rebels, such as David Bohm, but they come in for some very emotional attack from some of the high priests of quantum theory.

In my opinion it is not surprising that Newton gave up science, and went in mainly for theological speculation in his later years. He hoped perhaps that the kind of thinking he had used in science would shed light on even more important problems. Having made a useful contribution to one pseudo-problem, namely "Why do things fall?", he hoped to do the same for other pseudo-problems.

Newton had a distinctly speculative turn of mind. As Bernal pointed out, in an article in *The Scientist Speculates,* Newton listed many queries at the end of his book on optics, which were really speculations. Bernal goes on to say that these speculations had the greatest effect on the development of physics in the eighteenth and early nineteenth centuries : that it was not what he could prove but what he did not know that stimulated other people to work.

Many other great scientists had a philosophical and speculative turn of mind, for example, Archimedes, Einstein, Gauss, Poincaré. Archimedes argued that the universe must be spherical because it was inconceivable that it could be of infinite extent, and that, among finite bodies, the sphere was the most perfect. Einstein states how he was influenced by the philosophical views of Mach although he disagreed with them. In fact he said "he did not place in the correct light the essentially constructive and speculative nature of thought, and more especially of scientific thought".

Einstein is here accusing Mach of making a mistake similar to the one made by Francis Bacon, but not in as extreme a form. Bacon thought that if only enough facts were collected, the theories would fall out. The obvious general principle that seems to be overlooked so often is that facts and speculation are both essential in first-rate work.

Gauss worked out a theory of non-Euclidean geometry, but did not publish it apparently because he feared the opinion of bumbledom. Poincaré wrote books on the philosophy of science. Eddington's thinking was intensely speculative and partly-baked, perhaps too much so in his *Fundamental Theory*. One begins to feel that a scientist who is not a philosopher has one stick in the mud.

I mentioned earlier the difficulty of proving that philosophy and speculation are influential. Sometimes this can be done because the baker of an idea makes an acknowledgement to the half-baker, or the q-baker makes an acknowledgement to the p-baker ($q > p$). Unfortunately for the history of science this kind of acknowledgement is by no means universal: many bakers prefer to cover their tracks. Often the baker thanks the half-baker in private but not in his publication. Also most scientific editors do not encourage writers to describe how they made a discovery.

One example of an acknowledgement of an idea was Einstein's acknowledgement of Mach's insistence that mechanics was not necessarily the basis of all physics. As Einstein says "even Maxwell and Hertz, who in retrospect appear as those who demolished the faith in mechanics as the final basis of all physical thinking, in their conscious thinking adhered to mechanics as the secured basis of physics. It was Ernst Mach, who, in his *History of Mechanics,* shook this dogmatic faith; this book exerted a profound influence upon me in this regard when I was a student". (*Albert Einstein,* ed. by Schilpp, New York, Tudor Publishing Co., 1949, p. 21.)

Einstein's views on the importance of partly baked ideas is illustrated by the following extract from his joint work with Infeld, *The Evolution of Physics* (Cambridge University Press, 1938), p. 95,

"Galileo formulated the problem of determining the velocity of light but did not solve it. The formulation of a problem is often more essential than its solution, which may be merely a matter of mathematical or experimental skill. To raise new questions, new possibilities, to regard old problems from a new angle, requires creative imagination and marks real advance in science". (The authors are here obviously referring to skill in routine rather than creative mathematics.)

Another example of an acknowledgement of an idea was Darwin's acknowledgement of Malthus. Popularly, Darwin is often thought to have originated the theory of evolution. But the notion that man evolved from more primitive forms of life occurred to many people before Darwin : the idea would force itself to the attention of any one who looks at Linnaeus's classification of species. Moreover Empedocles, over 24 centuries ago, suggested that life arises from non-life, and animals from plants. The Comte de Buffon (1707 - 1788) believed at one time in the mutability of species. Darwin's basic idea was simply that of natural selection, that favourable variations would tend to be preserved, and unfavourable ones to be destroyed. He stated that he was influenced by Malthus's thesis that population is held in check, not by some mystical agency, but by war, pestilence, or famine. Actually Darwin was a bit of a Lamarckian, in that he believed that acquired characteristics could be inherited, but he thought that natural selection was more important in evolution. The analogy with Malthus's thesis was the notion that simple blind forces could have very important consequences for living populations, especially since they tend to increase in multiplicative ratio. (It is interesting to note, by the way, that, if the population continues to increase at $1\frac{3}{4}$ per cent. per year, then, after about 3,500 years, we people will have converted into people *all* the matter that can be reached by travelling with the speed of light, and there will be none left over for food.) The point I want to make here is that Darwin did not need to make an acknowledgement to Malthus, and he probably did make one because he was generous to a degree. Evidence of this is that he almost decided not to publish his own extensive work when he received a document from Wallace in which the same idea of natural selection was proposed.

I doubt if it will ever be possible to write a really authentic history of ideas. It is not merely that people often fail to give acknowledgements; perhaps more often they do not even realise that their thinking has been influenced by some stray remark. The theory of particulate inheritances was first published in 1866, by Mendel, and

was rediscovered apparently independently by three people, de Vries, Tschermak, and Corrense, in 1900. But how can one be sure that the rediscovery was entirely independent? It is true that Mendel's paper was published in an obscure journal, but there might have been indirect and unconscious influence. The same could be said even if Mendel had been totally unable to publish his work.

Mendel had been discouraged from publishing his work in a reputable journal by a botanist of some reputation. This shows that what seems to be half-baked to the accepted authorities might really be pioneering : in fact most original ideas are especially likely to be misjudged. As Bloggins said (*The Scientist Speculates*, p. 213) "The best experts resist innovation, for they wish to remain experts, and they are right only three-quarters of the time". This is in itself one of the justifications for publishing ideas that appear to be half-baked. But of course it also shows how difficult it is to estimate their bakedness. I do not wish to suggest that everything should be published : there *is* such a thing as piffle in this world.

The main justification for publishing partly baked ideas is not for the benefit of historians of science. In fact it is not essential that an idea should be entirely new in order to justify its publication. The main purpose is to give the idea some circulation. Naturally, if the author, referee, or editor knows that an idea is not new he should say so. If the idea is thought to be possibly new by all three, then at any rate this is evidence that the idea is not too familiar to be worth publishing. The question "familiar to whom"? arises. Relevant to this question is an article called "Ignoratica" by Félix Serratosa, also in *The Scientist Speculates*. This article was written in a quaint and lively style, and was improved by several minor grammatical and spelling errors.

Serratosa argued that the more knowledgeable people should publish lists of important problems, largely for the benefit of young research students. He says that "the more the man pushes forward in the field of science the more the man will realise how far he is from the goal". Also, "It is absolutely necessary to have an Space Ignoratica".

I should like to refer to some advantages of publishing partly baked ideas even for readers who are experienced research workers. Every scientist is too busy to read all the literature that is relevant to his scientific interests. He will be forced at best to scan superficially most of the papers that he looks at. *So, even if a paper is fully baked, the information obtained from it by most readers will be only partly baked.* If a paper, P_1, is only partly baked, but is much shorter than another one, P_2, that is fully baked, then the total amount of

information transmitted by P_1, per man-hour of reading put into it, might be greater than that of P_2. In both cases, the information obtained might be misleading, but if P_1 is admitted by the author to be partly baked, then the reader can hold this in mind. So it can easily come about that a fully baked paper is more misleading than a partly baked one. It reminds me of a remark made to me by McCulloch, "Of course I am interested in partially baked ideas and only in them". When I was a Civil Servant, being deluged with reports, I used to sigh, "If only people would just send me *ideas*, and miss out all the turgid details!"

One advantage of having a medium for the publication of (self-avowed) partly baked ideas is in relation to 'kudology'. This word has the advantage of being a neologism: it means the science of credit assignment, from the Greek kudos meaning kudos. According to an article in the *New Scientist,* about January 1962, most scientists behave as if they were interested in their own kudos, even when they won't admit it to themselves, and *a fortiori* if they won't admit it to others. People want love, sex, power, prestige, freedom, and money, in various proportions depending on the person. Scientists and artists typically put more emphasis on prestige and freedom than other people do. Any discussion of the functions of publication that makes no reference to prestige would be like a discussion of sociology without reference to economics.

What credit should be allotted for a p-baked idea? The only answer I can suggest is based on the fraction of royalties allowed for contributions to *The Scientist Speculates.* (Credit should be measured in utiles or kudiles rather than in pounds, but, for small sums, the amounts are proportional.) A contribution of L pages was allotted a fraction of the royalties proportional to $2/3 + L^{2/3}$. But, as said before, the theoretical maximum length allowed was $10^{9px/2}$ words. So the credit, measured in payment, if the contribution is of maximum permitted length, is proportional to

$$\tfrac{2}{3} + 360^{-2/3}10^{3px},$$

assuming 360 words to the page. This makes no allowance for the fact that the idea might have been partly anticipated. The more general question (raised by Bob Churchhouse, following pbi no. xi) is what credit should be allotted for raising the bakedness of an idea from p to q. The above formula suggests that it should be roughly proportional to

$$10^{3qx} - 10^{3px},$$

the maximum value of which is 1,000. I leave the reader to compute some numerical examples if she wishes.

Mrs. Max Born is against the publication of partly-baked ideas on the grounds that the authors of them might get more credit than they deserve, at the expense of the later bakers. The above formula shows, if it is not misleading, that there are some grounds for her fears, since the exponential function is a rapidly increasing function of its argument. But it does not usually happen; for example, Darwin gets most of the credit for suggesting Natural Selection, and Wallace's name is much less often mentioned. Darwin collected evidence for twenty years, whereas Wallace did not support the idea with a great mass of detail. If Natural Selection had not been Darwin's idea he would have deserved even more credit for having done so much work on it, provided he had given proper acknowledgement.

In arguing against Mrs. Max Born's views, Freeman J. Dyson wrote, in a letter "The publication of an anthology of partly baked ideas is . . . a useful step, encouraging the growth of science beyond its present boundaries". He also quotes Sir Toby Belch, who says to Malvolio: "Dost thou think that, because thou art virtuous, there shall be no more cakes and ale?"

Why are so many people against the publication of speculations? Bernal mentions, for example, that once, when he suggested that his son should be a joint author of a paper in which he had helped considerably, his son replied "It's all right for you but I have my reputation to consider". I suppose some people feel that there is a lack of scientific integrity in publishing half-baked ideas. It seems to me that the opposite is true, provided that the author admits the idea is half-baked. In fact, I should say that a scientist who does not publish half-baked ideas must lack integrity, because he must be too jealous of his ideas. It is a less clear way of contributing to science, less use to the writer's reputation, and might even harm it. It needs some courage to publish speculations owing to the prejudice against them. It's like in the Civil Service: you can win the war, but, if you make a spelling mistake you won't get an O.B.E. A remark of Appleton's is relevant. He said that one's influence on science can be much greater if one is not concerned with personal credit.

What kinds of people are against the publication of speculations? I suggest the following categories:

(i) People who are more concerned with development than with research. This is a perfectly legitimate professional bias if it is not applied all the time.

(ii) Perfectionists. A perfectionist is a person who does not like

to be slap-dash on *any* occasion. The sort of person who says that if a thing is worth doing at all it is worth doing well.

(iii) People who think it is fatal to make a mistake especially in print. Many senior Civil Servants.

(iv) People without a sense of humour.

(v) People who have been unlucky enough to suffer personally through too much credit being assigned to some one else's half-baked idea, which they themselves had baked.

And in favour:

(i) People who recognize the importance of vague thinking, including those who are incapable of exact thinking.

(ii) Zen Buddhists.

(iii) People who have more ideas than they have time to exploit, possibly because they are getting old, or are cluttered up with administrative responsibilities.

(iv) Cranks and geniuses. (Is a genius a crank who turns out to be right?)

(v) People who think that if a thing is worth doing at all it is worth half-doing.

(vi) People who see that their reading would give better return for a given expenditure of time if the literature emphasized ideas more than technical details.

A field in which speculation seems to me to be especially justifiable at the present time is that of machine intelligence, because the subject is new and more important than any other. Which is not to say that there is no room for precise arguments, theorems, and experimental work; far from it.

As an example, consider the following conjecture concerning the effect of facilitation and inhibition in the nervous system. Suppose that a neuron (nerve cell), A, has just fired and has sent a pulse to a synapse (junction) on cell B. We assume that this synapse can be facilitatory (excitatory) or inhibitory.

Let F = 1 if B fires, −1 if not.

Let S = 1 if the synapse is facilitatory, −1 if inhibitory.

Let R = 1 if the reinforcement is positive (pleasure), −1 if it is negative (pain).

Let C be the sign of the change in the strength of the synapse. Then the conjecture is that C = RFS. A probabilistic form of this conjecture is that the probability of this equation being true exceeds $\frac{1}{2}$, the probabilities on various occasions being independent.

Now the point I would like to make is that it does not matter if the conjecture is false, because, for the purpose of machine intelligence, it could be incorporated into an experimental machine anyhow. Moreover it is a logically natural conjecture.

If some one had invented an aeroplane and had thought it was a model of a bird it wouldn't matter: he would still have had an aeroplane.

A similar justification can be given for many other conjectures concerning machine intelligence, for example, the "subassembly theory" (*Advances in Computers, Vol.* 6, 1965, 31 - 88), which is a modification of the Hebb-Milner cell-assembly theory.

According to the assembly theory, for each "unit concept" in one's mind there is a large assembly of neurons, forming an org, and permeating a large part of the cerebral cortex. When an assembly fires it reverberates for say a quarter of a second and inhibits any other assembly from firing. The concept in question is then present in consciousness. The assembly is sustained by facilitatory loops but it soon becomes temporarily fatigued and breaks up. The sequence of assemblies that fire correspond to the stream of consciousness.

Since only one assembly fires at a time, we cannot be conscious of two concepts at a time. Consider, for example, Necker's cube, a picture of the twelve edges of a cube. It can be perceived in two different ways, but not both at the same time. (Strictly, one can cross one's eyes and see two cubes, in any one of four states at a time.) One can *do* more than one thing at a time because of the power of decentralization in the nervous system. If assemblies were small and localized we would expect to be able to think of several concepts at the same time.

A neuron can occur in a great variety of different assemblies on different occasions. This is a much more economical use of neurons than a one-concept/one-neuron usage would be, and explains the reliability of the brain in spite of the unreliability of its components, the neurons. The reliability originates of course in the great "redundancy" of representation of a concept.

The number of quiescent assemblies that can be simultaneously present in any one brain cannot be more than about the number of seconds in a century. This is about five (American) billion, which happens to be the standard estimate for the number of neurons. But the number of ways in which neurons could be interconnected to form an assembly is almost infinitely greater than the number of neurons.

In the *subassembly* theory it is assumed that when an assembly tires and breaks up or becomes quiescent, comparatively small parts of it, called subassemblies, continue to reverberate. These are the units that embody the unconscious and preconscious parts of the mind. The cells of a subassembly are highly interconnected, much more so than those of an assembly in relation to its size, but the closed loops are long. Consequently a subassembly reverberates for a longer time than an assembly. This duration varies from one subassembly to another, and can be anything from say a second to several hours. Measured by the number of its neurons, a subassembly is too small to inhibit other subassemblies or assemblies, and is sufficiently interconnected to avoid rapid extinction by inhibitory pulses from assemblies.

The subassemblies provide the mechanism of the association between assemblies, and the subassemblies that are left behind by an assembly-sequence are the determinants of the next assembly to fire.

When we wish to recall a memory, we think of a few clues. These activate various assemblies in turn, and hopefully the subassemblies left behind by them will be enough to activate the right assembly or assembly sequence. It is just like the use of index terms when retrieving a document in a scientific probabilistic information-retrieval system. When we make the appropriate retrieval it is confirmed by the recovery of a large number of new details that were not put in as clues, but could have been if we had thought of them.

An assembly can be thought of as the embodiment of a molecular concept and a subassembly as that of an atomic concept. In quantitative terms, I should guess that as assembly has of the order of a hundred million cells, whereas a subassembly might sometimes have only a few thousand. But these *are* guesses.

Subassemblies are not produced only by the breaking up of assemblies: they are also produced by the activity of the sensory cortex. Thus the subassembly theory is intended to help explain how it is that we can recognize objects.

Novel assemblies and assembly sequences correspond to new concepts, generalizations, and creative thoughts, and will usually bear a simple relationship to assemblies that previously existed. Thus new concepts and generalizations are not usually excessively far-fetched. This is fortunate since the best theory is usually the simplest one that explains the facts. In art too what is aesthetic has a unity and simplicity in comparison with what is ugly. Pleasant music leads to the growth of novel assemblies, whereas noise does not, since there is no discernible pattern in the assembly sequences. Trite music has discernible patterns, but does not lead to many *novel* assemblies.

When an assembly is repeatedly used, its connections become stronger and stronger, so that, at each successive firing, fatigue sets in more and more quickly. Hence the durations of the firings become shorter and shorter, given a similar background of subassemblies on each occasion. Eventually the duration becomes so short that the assembly will have its effect on the stream of consciousness without by itself necessarily giving rise to a conscious thought. There is an analogy with the way that words repeatedly used, in the evolution of a language, tend to become shorter and shorter, and to be given very little attention when reading.

There is probably a central control in the brain, sometimes called the centrencephalic system, which lies in the 'old brain', the part that developed early in evolution. One of the functions of this central control must be to facilitate activity in the association areas of the cortex when the activity there is low, but not when it is high. A possible mechanism is indicated in the diagram, in which it is assumed that the centrencephalic system contains both an arousal and a sleep centre. When the sleep centre is active it inhibits the arousal centre, so that the facilitation of the association areas then comes only from the sensory areas, apart of course from the facilitating pulses within the association area itself.

When the body or brain is tired, fatigue chemicals tend to inhibit activity in the association areas. If the sensory areas are also inactive, then the activity in the association areas will decrease still more. Consequently the sleep centre will not be inhibited, so that it will be able to inhibit the motor areas and the arousal centre. Sleep will be achieved. When the fatigue chemicals cease to operate, the association areas will become more active and will inhibit the sleep centre. Hence the arousal centre will not be inhibited and will still further facilitate the activity in the association areas. You wake up.

When you are awake the activity in the association areas is prevented from becoming too great by the arousal centre's getting switched off. Moreover there could also be a suppressor centre which would strongly inhibit the association areas when they become over-excited.

During dreamless sleep, the association areas have negligible input, apart from the inhibition of the fatigue chemicals. The total activity never becomes large enough for the firing of an assembly. But there is nothing to prevent a very large number of subassemblies from reverberating in a more or less random way. Since the activity at these times has no well organized pattern, statistical reasoning suggests that the rate of change of the total activity depends roughly

only on the total current amount of activity. Hence the level of total activity will oscillate with constant frequency during dreamless sleep. This would explain the "delta rhythm" of the electroencephalogram.

After a few hours' sleep much of the fatigue chemicals will be used up and assemblies will fire more frequently, that is, the amount of dreaming will increase. But the firing of the assemblies will be at low power, so that the association between consecutively firing assemblies in a dream is weak. This explains both the low logical cohesion of dreams and the difficulty of recalling them. Even if a part of a dream is recalled in waking hours, the rest of it is still difficult to recall. For since the assemblies fire at low power in dreams, the transition probabilities between assembly sequences and assemblies are not the same as they are during wakefulness.

A possible function of sleep is to allow the day's half-formed subassemblies and assemblies to consolidate themselves by exercise (and to relate themselves to unconscious drives), the subassemblies during dreamless sleep and the assemblies during dreams. During wakefulness there is no time for this exercise because there is too much input from the sensorium. This would explain why it is often useful to "sleep on a problem".

A drug that increased the activity of the suppressor areas would cause the assemblies to operate at low power even during wakefulness. Waking thoughts would then have many of the characteristics of dreams. It might also be possible to "catch the thought that lies between two thoughts" in the manner of the Zen Buddhist. Perhaps this is the effect of LSD 25.

All the rhythms of the EEG might be caused by the operation of various control centres; for example, the sleep centre, the arousal centre, the suppression centre, the pain and pleasure centres, and probably a control centre associated with the visual cortex.

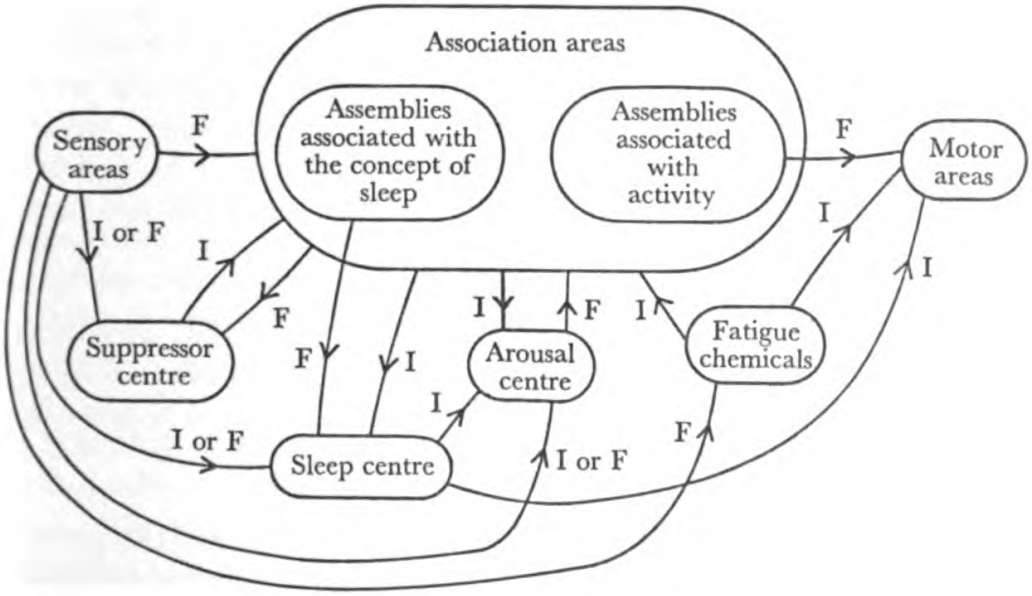
The whole theory might be wrong, but it has a cogency about it, and it could be made the basis of an experimental machine. How could we incorporate a pain-pleasure principle?

Let us suppose that there are two focal points in the machine, which, when activated, would reinforce the circuits used most recently, in accordance with the formula C = RFS These two focal points can be called, a little misleadingly, the pain and pleasure centres. The machine would be trained to recognize certain events, called "pleasant" by us, since we would stimulate the pleasure centre when these events occurred. ("Event" here applies to both input and output phenomena.) The pleasure centre would become associated with appropriate assemblies. This would en-

courage the machine, both in its output and in its internal operation, to behave in a manner regarded by us as good. Similarly, by use of the pain centre, we could discourage it to behave "badly". The machine would eventually operate as if its motivation were ethical by our own standards. We shall not need to instal a small animal in the machine in order to incorporate a pain-pleasure principle.

If the input at some time happens to be "unpleasant" enough, the negative reinforcement of the recently active subassemblies might lead to a permanent "forgetting" of the events that occurred at the time of the "traumatic experience". If this experience happened to be associated with what we, as the machine's makers, had intended to be pleasant, then the machine might thereafter be incapable of "enjoying" what we had intended it should enjoy. It would become a "neurotic" machine, divided against itself, and in need of special treatment.

Thus man might build a *deus ex machina* in his own intellectual image, but it might turn out to be a *diabolus ex machina*.



Some conjectural positive and negative feedback mechanisms in the brain (F = Facilitation, I = Inhibition). The stimuli from the sensory areas to the Sleep Centre, Arousal Centre, and Suppressor Centre, are supposed to correspond to possible drugs or glandular secretions, and can each be either facilitatory or inhibitory. Eight qualitatively different kinds of drugs are thus suggested, but they might not all be possible.

Dialogue between Richard and Gregory: Leap of Faith?

R. B. Braithwaite, Knightbridge Professor of Moral Philosophy in the University of Cambridge; Father Gregory Wilkins, S.S.M., Director of the Society of the Sacred Mission.

Gregory: We are to discuss the difficulties of communication between those brought up in a religious tradition and those educated in a scientific tradition. Where shall we start?

Richard: We might start by thinking of a scientific humanist who has become interested in Christianity and wants to learn more about it. He may have become interested in it through reading poems or other works of Christian mystics; or his curiosity may have been aroused by acquaintance with Christians who appear to have something which he has not got, and he wants to know more about what this is. Probably his own moral principles will seem to him not to differ much from Christian moral principles. What he finds difficult to understand is a Christian's philosophy and his reasons for religious practices, and he will want to know how and why Christians attach importance to these things.

Gregory: I can't give a simple answer to these questions. Christianity is not merely a set of propositions nor merely a way of life, though it includes a way of life, and there are certainly propositions which a Christian wishes to assert.

Richard: It is these propositions, I think, which are the prime difficulty. The scientific humanist hears or reads statements about God which Christians make, and is prepared to believe that they mean something to a Christian. But they don't convey anything to him in the first instance. How is he to learn what they mean to a Christian?

Gregory: Is the situation worse for a scientist wanting to learn about Christianity than for a non-scientific Christian wanting to learn about science? He will find the scientist asserting all sorts of things about, for example, electrons which convey nothing to him.

Richard: But there is a recognized method for teaching a science which is successful with anyone of normal intelligence who is prepared to devote enough time and trouble to learning. The method, of course, will be more than merely instruction in the way the scientists use their language; it will include understanding the way in which the propositions believed are based upon empirical evidence, and this will involve learning something of scientific method. Is there any comparable method for communicating the Christian view of life—comparable in that the method can be stated and explained?

Gregory: There is at least one thing in common. In both the cases of teaching Christianity and teaching a science there are assumptions which have to be granted before the exposition can get started at all.

Richard: I suppose you're thinking of such an assumption as that nothing can happen without being covered by some general law, so that scientific explanation by giving some general law is always possible. I agree that making assumptions like this have frequently been involved in the motivation of a scientist. It's a highly controversial matter among philosophers of science as to whether any assumptions are strictly necessary for justifying scientific enquiry. But supposing that some assumptions are necessary, they can be stated and understood without being believed: understanding them comes before assuming them. But what Christians give as their assumptions, the scientific humanist has difficulty in understanding. He does not know what it is he is being asked to assume. The difference about the assumptions (assuming that the scientist must have them) is that the Christian can understand what it is that the scientist is assuming, though he may not agree with it. So the Christian and the scientist can discuss the scientist's assumptions. But they can't discuss the Christian's assumptions, since the scientist doesn't understand them. This is the point at which the "dialogue" breaks down.

Gregory: I agree with you that there is a great difficulty in communicating the assumptions of Christianity. This comes out very clearly when I say that its two most important assumptions are that of a personal God and that of the incarnation of God in Jesus Christ. Let's talk about the first of these. I suppose that you would feel that there is a great difficulty in understanding what is meant if I say: "There is a God who controls the universe for his own purpose".

Richard: A scientific humanist might be able to understand this if God were taken as the universe or as part of it. But some Christians don't mean that, for they talk of God being "wholly other".

Gregory: I don't think that any Christian would equate God with the universe. When I spoke of God's controlling the universe, I implied that he is to be understood as in some sense external to the universe.

Richard: But that is a great difficulty. How can there be anything external to everything? You said "in some sense external". What is this sense?

Gregory: For a Christian God is not just one more thing, one more item in a series, extra to all the other things. He is the ground of all things.

Richard: How does this help? What is meant by "the ground of all things"? This isn't at all clear.

Gregory: I think that our dialogue has now reached a point which we should have reached had we started almost anywhere in an attempt to explain Christianity to a scientific humanist. Sooner or later the point would have been reached where I think that you will see what I am trying to say only if we leave our attempt to communicate at merely the conceptual level. In explaining we necessarily try to communicate at the conceptual level; but for understanding something more is required. Christianity is not primarily a set of propositions or view of life, as I said earlier; but of course there is a Christian view of life. A major difficulty is that this cannot be stated in such a way as to convey my full meaning to one who is not a Christian : it cannot be made intelligible from outside. I don't believe that there are any "good knock-down arguments" that inevitably carry conviction. Sooner or later, if you want to understand what the Christian is trying to say, let alone accept it, you will have to see it from the inside. In order to grasp fully what Christianity is and what it is all about, you need to be fully in.

Richard: I might be prepared to grant that a full understanding of Christianity would have to be from the inside. But can there be no understanding whatever if one is not already inside the Christian conceptual system?

Gregory: Something can be done by way of analogy. But for any real understanding, yes, I think you have to be inside.

Richard: How does one get inside?

Gregory: I can only answer that question by using metaphors. I can put it for example by saying that you have to make a leap.

Richard: But a leap is in one direction rather than another. In which direction must the leap be made? Surely that must at least be indicated.

Gregory: Then I shall change the metaphor, and will speak of a flash, or click, of understanding. Many scientists have described making their discoveries in these terms.

Richard: I certainly understand what is meant by a flash of understanding. But the flash of understanding that scientists speak of always, I think, relates to an understanding of the relation of one set of concepts to another, usually of a new concept to a set of old and familiar ones. I don't see how you can break into a conceptual system by a flash of understanding, unless the flash is that of seeing how to connect up the new concepts with old ones. And how to connect the Christian concepts with those of the scientific humanist's way of thinking is exactly the difficulty.

But may I go back to the metaphor of a leap. The situation would seem to me quite different if you were speaking of a leap into the Christian moral system rather than into the Christian conceptual system—of a leap to the Christian *way* of life rather than to the Christian *view* of life. A man whose moral system is egoistic, and whose ultimate goal is the advancement of his own interests, may come upon the Christian way of life (call it the way of *agape*, or the *agapeistic* way). He might meet it either by seeing it exemplified in an acquaintance who is a good Christian or by reading about it in biographies or novels. He may then discover that he prefers the agapeistic way to his egoistic way, and adopt it as his ideal for living. His change in way of life, especially if it takes place in a short period of time, will rightly be described as "conversion". Now here there is a leap—a leap into acceptance of a new moral system. But it can be discussed and talked about, since the concepts of the new morality are related to those of the old. Unselfishness is the opposite of selfishness. Although the final stage

in accepting a new way of life is a leap into it—a personal commitment, what is being leapt into can be described, and reasons can be given for and against making the leap. The consequences of leading the new way of life can be compared with those of leading the old one. It is true that there will always be an unknown element. Before making the leap the man will not know exactly what leading the new life will be like; but here he can intelligibly take account of what is said by those already practising it—that it leads to joy, peace, fulfilment.

Gregory: But surely you won't accept a way of life without approving of it? Can you approve of it without reference to some standard of judgement outside the way of life itself? The Christian would base his approval of the agapeistic way of life upon his Christian beliefs.

Richard: I shouldn't be prepared to admit that holding a set of beliefs was necessary to justify practising a way of life. Indeed I would say that it was impossible to justify a practice from a set of beliefs alone, since a statement of how I intend to act cannot follow just from a statement of what I believe—unless I include in what I believe my more general intentions. In any argument intentions as conclusions require intentions as premisses. A man's intention to act in a particular way may be a consequence of his intention to have a general policy of action combined with his having a particular set of beliefs. But an intention cannot be based upon the beliefs alone.

Gregory: Surely beliefs can form part of the justification?

Richard: Oh yes. A Christian's beliefs about what God wants him to do would be part of the reason for his action, the other part being that he himself wanted to follow the general policy of doing what God wants him to do. But even if (as some moral philosophers think) a belief could provide by itself good reason for acting, this wouldn't help the humanist. He can't make anything of religious beliefs, and so would not be able to use them in justifying a policy of action.

A humanist who was living, or trying to live, the Christian, the agapeistic way of life—let's call him a Christian humanist—might well associate Christian stories with his considerations when he was thinking about how to act agapeistically. ("Christian humanist" is the best epithet to describe my own philosophy of life, so I'll sometimes speak in the first person.) When I think of Christian stories

I only think about them in a pictorial or imaginative manner. For example, I would think of doing the will of God in terms of doing the will of a supremely wise and good man, whose moral judgement I respected. I know that for Christian believers God is more than a supremely wise and good man. But since I do not understand what this "more" can be, I would not *believe* the proposition that I was acting in accordance with the will of God. I would act *as if* there was a very wise and good man whose will I was obeying, without believing that this man existed.

Gregory: What is the use of thinking in this way? How does the notion of an imaginary man help in your thinking? If he is imaginary his example won't assist you or any other Christian humanist to follow the agapeistic way of life.

Richard: But it might help. Lots of people have been helped leading moral lives by the examples of characters in novels.

Gregory: That may be so. But an example is surely much more effective if it is not fictitious. Reading biographies is more help than reading fiction, because then you know that someone has actually lived like this. For example, the biography of Jesus.

Richard: A Christian humanist can quite well take Jesus of Nazareth as his model in considering how he should live—provided, of course, that he has independently decided that Jesus was living the agapeistic life. But this doesn't require taking Jesus to be more than the ideal man. *Imitatio Christi* does not require any theological beliefs.

Gregory: But what would you mean by taking Jesus as being the ideal man? Do you mean the best example so far, or do you mean the best conceivable man?

Richard: The Christian humanist who took Jesus as his ideal would be both adopting the agapeistic policy for living, and regarding the life of Jesus as completely (or almost completely) exemplifying the agapeistic life, together with finding that thinking of the life of Jesus assisted him in living agapeistically himself. He would be taking Jesus as his ideal because he believed that Jesus lived the agapeistic life.

I suppose it would be the other way round for a Christian believer?

Gregory: Yes. A Christian believer accepts the agapeistic way of life because it was taught and exemplified by Jesus, who (he believes) is the Christ, the Son of God.

If the Christian humanist uses Christian stories, and admits that he finds them helpful in leading an agapeistic life, how is this different from believing the stories?

Richard: There is no difference if believing, for example, that Jesus is the Son of God is to be regarded as equivalent to taking Jesus as a moral ideal.

Gregory: Of course the Christian believer means far more than that.

Richard: And this "far more" is, of course, what this dialogue is all about. For the humanist cannot understand what this "more" can be.

Gregory: We've got back to the point we reached before.

Let's start again. We agree that the Christian humanist has a way of life and that, by calling him a Christian humanist, we are assuming that his way of life is in many ways similar to that of the Christian believer. Does not this imply that he holds some view of life also in some ways similar to that of a Christian believer?

Richard: Similar in some ways, perhaps; but not in the metaphysical parts.

Gregory: It seems to me that any view of life must in part be metaphysical, because to have a view of life is to view reality as a whole, and this surely is metaphysics. I can see that there are objections to Christianity, but Christianity cannot be objected to on the ground that it includes a metaphysic, if every view of life involves a metaphysic.

Richard: You are making a strong point. I don't think I should be prepared to agree in general that having a way of life presupposes holding a view of life. But I am prepared to go along with the people who would say that any man who is organized enough to have a general way of life will also have some sort of general view of life, and that this general view includes some sort of metaphysic. But a humanist like myself would say that his metaphysic is a naturalistic one, not a theistic one.

Gregory: But you said earlier that you could not understand what was meant by theism. Why is a naturalistic metaphysic any easier to understand? Surely to talk of a metaphysic involves talk of the transcendental.

Richard: I can't agree to that. It doesn't follow from my being prepared to admit that the humanist has a metaphysic. I called his metaphysic "naturalistic" precisely to show that it excluded transcendental elements.

Gregory: Doesn't this mean that you are limiting the scope of what you are prepared to think about and talk about, in a way that a Christian believer, with his transcendental metaphysics, does not?

Richard. A naturalistic metaphysic will have to cover everything that there is. What is there limiting about "everything"? If God is inside the universe, of course it would be a limitation not to include him in "everything". But if, as you want to say, he is outside the universe, why should he be included?

Gregory: The Christian believer holds that God is both outside and inside the universe: he is both transcendent and immanent. This is what I meant when I said that a humanist's metaphysic is limited in a way a Christian believer's is not.

Richard: I don't suppose a Christian believer will want to hold that God is partly outside and partly inside the universe. So in saying that God is both transcendent and immanent he will surely mean that, regarded in one way or under one aspect, God is outside the universe, but regarded in another way or under another aspect, God is inside the universe. The humanist may well be able to give sense to the notion of God under the second aspect. Is it then a limitation that he cannot give sense to the notion of God under the first aspect?

Gregory: It is a limitation to the extent that to think of God only as immanent rules out the possibility of asking the question: Why is there a universe to think about? If God is not transcendent, but only immanent, there must always have been a universe for him to be immanent in. And the universe would be as necessary for God's being as, on the Christian's view, God is necessary for the being of the universe.

Richard: I agree that both these propositions are immediate consequences of the proposition that God is immanent but not transcendent. But they are not objectionable unless one already holds that God is transcendent.

About the question as to why there is a universe to think about: it's not at all clear to me what exactly is the force of the question. Do you mean by your "Why" a causal "Why"—so that the question amounts to "What causes there to be a universe to think about?" or is your "Why" a demand for a reason—"What is the reason for there being a universe to think about?" Which of these questions is it whose possibility of being asked would be ruled out if there were not a transcendent God?

Gregory: Both would be ruled out.

Richard: About the causal question, what is wrong with a naturalist's answer that the cause of the universe is the state of the universe at some earlier time?

Gregory: I agree that at one level that might be a satisfactory answer. But such an answer raises the question: Why is the universe such that its earlier and its later states are related in this way?

Richard: That is a demand for a reason rather like the demand in your other question—the reason not merely for there being a universe, but for there being a universe with certain characteristics. This question is by no means ruled out for the humanist, if he takes it as a request for more general characteristics from which the characteristics in question can be derived; and he may be able to give an answer to it. I have to admit, however, that the humanist is at a loss to know where to look to find a reason for there being a universe at all—for there being something rather than nothing. But is the theist in any better state? For if he says that an act of God is the reason for there being something rather than nothing, he lays himself open to the question: What is the reason for God's acting rather than for his not acting? How would you meet this question?

Gregory: I can't answer it, except that I might say that it is in God's nature to create the universe.

Richard: Then what is wrong with the humanist's declining to answer the original question except by saying that it is in the universe's nature to exist?

Gregory: I don't think that's an answer to the question. But I admit that my answer to your question shows where the theist is at a loss. There will always be a point at which any further question is unanswerable. The theist prefers to recognize the unanswerable in God rather than in nature.

If I understand the humanist aright, he holds that it is possible to understand nature, so that there is nothing inherently incomprehensible in *nature*. I think I agree with him. But if this implies that it is theoretically possible for a man to arrive at a stage where he comprehends everything, to me such a stage is unimaginable.

Richard: I should reply that such a stage is unimaginable because, whether or not it is theoretically possible (and this is a subtle question involving logical complications), we know that it is practically impossible. We know that we shall never know everything; and our imaginations are not good at imagining things which we know will never happen.

Gregory: I wasn't thinking primarily of our actual powers of imagining. What I had in mind was that we all know how a good answer always raises further questions. If a naturalistic explanation were to be complete, it would not raise any further questions. So there would be something smug about it.

Richard: Look here; you are trying to have it both ways at once. When the humanist admits that no naturalistic explanation that in fact he will ever be able to give will be complete, you say that this shows that there must be some more ultimate and transcendental explanation to complete it. But if the humanist accepts your view of humanism, and admits the possibility—the theoretical possibility—that he might know everything, so that his naturalistic explanation would be complete, then you accuse him of smugness.

You would rightly accuse a man of smugness if he said that he knew that he was a virtuous man. Is it smug to believe that it is theoretically possible to be a virtuous man? The humanist knows quite well that he will never understand everything.

Gregory: I applied the epithet "smugness" to the final stage of the process of comprehending. I think we are agreed that this stage is unattainable. The difference between us is as to whether it is merely practically unattainable or is theoretically unattainable. The theist would hold the latter view, and would say that there must always be an element of mystery beyond our comprehension.

Richard: If this element is "beyond our comprehension", how can it be part of a conceptual system? It is the Christian theistic conceptual system that you were trying to explain to a humanist.

Gregory: As I said at a much earlier point, in explaining one is trying to communicate at the conceptual level. Christianity is more than a conceptual system, though the Christian believer must have some conceptual system. This must allow for mystery.

Richard: I suppose it is because you hold that there is an essential element of mystery involved in a Christian's conceptual system that you hold that it can only be appreciated from the inside, and that a leap is required to get there?

Gregory: Yes; but that does not mean that the leap solves the mystery. *Credo ut intelligam.*

Review Discussion of Austin Farrer's "A Science of God?"*

Dorothy Emmet

This is a short book, written as a popular one, and partly at any rate as apologetic. It might therefore be said that detailed criticism is unsuitable; it was not meant to be the sort of book that calls for such heavy treatment. But the fact that it is short and highly readable may mean that a number of people read it; and the fact that Dr. Farrer has a highly distinguished mind means that even in a popular book he can open up important questions, making it all the more exasperating that he leaves them where he does. He both has some genuine insights into the possible bearing of science and theology, and then swings away from them into a form of theology which is hardly affected by whether we have any particular kind of science or not. This is because he is trying to combine what he says about science with a form of natural theology and a highly personalist language which do not really integrate with it in spite of the hopes raised by his admirable opening pages, e.g. p. 11 "For believers in God do quite soberly claim that an account of things which omits his presence or his action is incomplete: 'They reckon ill who leave him out'. And it would be surprising for the claim to be so widely and so confidently advanced as we see it to be, if there were no facts anywhere even seeming to demand a theistic interpretation. Very well; but the facts, whatever they are need careful sifting; and when we have sifted them, it will not be scientific to use them without more ado as evidence for or against traditional religious belief. We shall have first to ask what they actually suggest to us, or what is the best account that we can give of them". Farrer sees science as concerned with non-obvious facts: not obvious ones such as the existence of cats and dogs, but alleged facts such as second sight among Highlanders or the Yeti in the Himalayas. Evidence for has to be balanced by evidence against; and the way the facts get described will be recast, so that instead of just saying "So there is (or isn't) second sight" we say "What is the best way to describe and classify the facts our inquiry covers?" Though Farrer sees here that description and classification of facts may take us a long way from obvious and common sense distinctions, he doesn't see how far it may take us. On the whole he thinks

* London: Geoffrey Bles, 1966; New York: Morehouse-Barlow Inc.

facts are noted and observed before a scientist has a theory. So his view of science stops at the stage of being classificatory and descriptive, and scientific explanation is a kind of narrative causal explanation rather than general theory. Other people better qualified than I am will be saying more about Farrer's view of science; I have only sketched it in so far as it seems to affect his view of natural theology.

First, we have fact-collecting described by the metaphor of a sieve. Science is a number of sieves for collecting certain kinds of facts, or for selecting certain aspects of them (this mixes the sieve metaphor somewhat, but let that pass). Thus "Physics is concerned with forces active upon other forces, in so far as their action is measurable" (p. 20), and thus "deals with the force relation between everything and everything else". But while theology, we are told, deals "with the dependence-relation which ties everything to God", we are also told that while physics has a sieve, theology has none. It has no way of distinguishing God-related aspects from others, or saying what would *not* be a God-related aspect (p. 21). So how do we know what we are looking for and how to look for it? "Personal facts and mappable facts are no trouble to pick out" (is this really so?) "whereas it seems that God-manifesting facts cannot be picked out at all; or anyhow not on any scientific principle" (p. 22). So he invokes the metaphysical notion of the dependence of finite on infinite being, a notion of "Ultimate Cause" which has had a long history.

In his actual handling of this argument, Farrer both has an insight and fails to follow through its importance because he is too much dominated by its traditional form. He sees that the old model of First Cause gave a picture of the creation of a world started as a going concern with a complete repertoire of species, and that this is now out because science as distinct from obsolete science is thoroughly evolutionary. So he turns away from speculations about the origins of the universe, partly because they are speculative, and because they have a short life nowadays—the Big Bang theory for instance may now be on the way out, and in any case this kind of causal explanation is a piece of natural history about a critical event, which may, for all we know, have been preceded by a number of other developments. So Farrer pertinently turns his interest away from the notion of creation as original cause to reflecting on creation within a developmental process. We are to look for God not in the way in which things got started, but in "the way in which they go". "God makes the world make itself; or rather since the world is not a single being, he makes the multitude of created forces make the world in the process of making or being themselves".

We recall Mother Carey in the Water Babies. But can we get any less pictorial than Mother Carey and does Farrer help us? His model of "making" is mostly given in terms of *thinking*. God makes e.g. atoms and molecules not by thinking human thoughts, but thinking atomic or molecular thoughts, i.e. presumably something like the specification of every kind of thing in nature in its own terms. "God's thoughts and the real processes composing the world correspond" (p. 80). Then haven't we got a sort of Spinozistic parallelism—the "thought" story is another way of describing the same reality as can also be described in terms of the natural processes, so what does it add to them as explanation? The way out of this "double entry" difficulty is found by Farrer by saying the thought must be *personal*. Here troubles arise by anyone not already steeped in Christian personalist language, and in effect he jettisons his initial attempts to show how evolutionary views of nature will affect, or even point towards theism.

First, there is the notion of a mind that can think all the thoughts appropriate to all the different kinds of processes in nature, human and non-human, simultaneously. Farrer sees this is very unlike any personal thought we know, and this is hardly helped by saying some of us can, e.g., do carpentry and carry on a conversation at the same time by giving both the attention they deserve (pp. 84–85), and therefore on the strength of this that it should not be too difficult for us to see that God does not act with a mere fraction of his mind at any one point in his creation. It is indeed too difficult—unless we are to take refuge in the negative way of saying that "God's thoughts are not our thoughts"—and how far can we go in this direction of speaking of God as personally thinking atomic, molecular vermicular, bovine, canine, human, etc. etc. thoughts simultaneously for all the kinds of creatures there are, and for each of them individually, without emptying the notion of personal thought of any recognizable content? Of course this can be said to be an old difficulty; but Farrer skates over it with his example of the conversational carpenter.

I think that what has gone wrong here is that while Farrer very properly objects to the Deist notion of God as a First Cause starting the world off from outside, he still keeps the ghost of this kind of natural theology in the notion of a thinker with a vast host of concurrent thoughts corresponding to the processes of naure and thinking them : and that doesn't fit with what he also says about God's creativity as enabling things to make themselves. If he followed this latter line out further, he might be able to make more of the possible relevance of anything we can learn from the sciences

about the character and conditions of creative growth. He says that we are intimately aware of this process of creation from the inside in our own will when we seek to be at one with the will of God. He uses the word "experiment" in this connection, but rejects its usual sense of something through which we try to test or find something out. This is ruled out because "The sensitivity and the virtue required to do God's will in a way that might make it deeply revealing is not a standard of competence to be taken for granted in the common practitioner like the standard of competence we can safely expect of trained scientific researchers" (pp. 118–119.) But the revealing experiments in science are not often done just by the common practitioners; and even if we are most of us tyros in religion, we may yet be able to learn something about what we may or may not mean by the "will of God" if we lay ourselves open to do so. And the literature of religious experience can tell us things that the saints, who are not just common practitioners, have learnt. Farrer sees this (p. 118), but does not give it significance as learning from experiment because he also says following the will of God is something so personal and unique to each individual that nothing general can be said about it. Is this really so? Elsewhere he does indeed speak of "signs of blessing" and "how it would be odd if our giving ourselves to God made us on the whole more restless, more frustrated, less able to manage our relations with others or to discipline our own passions, less generous or outgoing, less alive all over" (p. 110). Yet he then connects "signs" with "present personal advantage", which of course cannot be the aim of those who try to put themselves inside God's creative purpose. But need the notion of "experiment" be downgraded like this, so that it gets connected—as Farrer indeed connects it—with putting God to the test for our own purposes? "Experiment" can be a sustained openness to learning from experience, and from mistakes, and putting oneself in the way of learning.

At the beginning of the book Farrer said "No decent thinker who has grown up in the scientific tradition can help feeling sooner or later that the empirical method ought to be tried in theology. Not that the attempt is certain to succeed; only that the scientifically trained Christian will have no peace of mind until it has been made. Perhaps we shall manage to do some empirical theology, or perhaps in attempting it we shall discover that theology cannot be fully empirical, and why it cannot. In either case we may hope to satisfy our minds". But ought we to be satisfied until this method has been given a much longer run than he gives it—indeed a very long and costing run indeed?

The question is the way, if any, in which scientific knowledge may be relevant to knowledge of God. Farrer clearly wants to say that the kind of scientific view we hold, whether it is an obsolete static one or an evolutionary one, will affect our theology. But he sees the religious interest in facts either in a "dependency" relation so general that the character of the facts is irrelevant, or so particular to the inner will of the individual that it would hardly seem to matter theologically what the scientific view of the world is. Certainly plenty of theologians have thought just this, but I do not think Farrer really wants to make science thus extraneous. If creation has to do with "making things make themselves" better understanding of how they do this could turn out theologically relevant, and so it will matter whether we hold a development view or not. The main thing I am asking Farrer to do is to break even more decisively than he does with the External Causation Deistic view of creation, and to go further in trying to relate the notion of creation to what we can find out about the character of development, especially at its most crucial points. Then the hopes which he raises at the beginning of the book would not be so dashed at the end.

Ted Bastin

I propose to discuss the programme that is put forward by Farrer, that knowledge of God should be developed as a science like a modern experimentally based theoretical science. This suggestion definitely appears in Farrer's first chapter, and even though Farrer does not consistently commit himself to the consequences of this programme it is that programme and its discussion which gives his book its definite character and importance.

My general position is that Farrer prevents himself from getting a clear view of the effort required to carry out this programme of developing knowledge of God as a modern science by allowing himself to relapse at every vital point into *sermon-talk*. I introduce this offensive term to refer to any personalistic theistic language whose use in its particular context has not been explained or justified. I am going to try to show how the sermon talk spoils Farrer's enterprise, and allows him to blind himself to the problems that that enterprise raises.

It would not be rewarding to go through Farrer's book pointing out all the examples of sermon-talk. I believe that if challenged I could take an example from any page given me at random from

the book. I didn't choose page 82 with any care: at the bottom of it we find, "With some such human model in mind we turn to the thought of God's wisdom, and of how it draws the universe into the focus of a single view. We shall naturally allow that God's capacity for seeing or thinking many things at once is much greater than ours; yet the idea of its being *infinitely* greater carries no conviction. How can we seriously believe that God can have time or attention for every detail in this impossibly vast and endlessly complex universe?"

This passage appears with no attempt at providing a theoretical background. If we try to answer the question how much background would be required to present it as part of a science of God we can use Farrer's own specification. On page 14 he says: "If we are to have a science of God our requirements will be these:

(1) Some solid and relevant facts.

(2) An effective and reliable method of studying them.

(3) The ability to form appropriate theories.

(4) A method of testing our theories on the facts".

In the passage I quote we are being invited to consider what it is plausible to assume about the memory storage capacity of God. This discussion would presumably come under sections (2) and (3) of Farrer's requirements for a science of God. (We can ignore requirements (1) and (4) because we are not at present concerned with any facts.) Now at no point in the 81 pages of text that go before our passage has Farrer formulated any sort of theory of God at all within which his arguments could be carried on, and therefore we have no background of ideas from which we could begin to make an inference about the probable memory storage capacity of God. (In the absence of any such background I seriously find myself forced to wonder whether Farrer really makes the inference he describes by unconscious reference to how he felt as a child in the presence of a clever uncle.) We might have been given any of the following, however:—

(*a*) A model of God in terms of computer construction with appropriate flow charts and general principles of circuitry. Such a model would represent a super-personality in terms of computer construction, and with some such model Farrer might have succeeded in articulating and giving substance to the remark he makes on his page 21: "Physics deals with the force relation between everything and everything else; theology deals with the dependence-relation which ties everything to God". Without our having been shown

how to go on to apply and develop this remark of Farrer's it remains merely prophetic, though highly suggestive. With development it could have been the seed from which the desired science of God could slowly have grown.

(*b*) A provisional logic of interpersonal relations which could be extended to define an entity which would be classed as personal within the meaning of "personal" in the theory, but by its definition common to all other persons. If this entity were shown to satisfy Farrer's dependence relation, it could be used to define the concept "God", within the given field of interpersonal relationships.

(*c*) A set of expressions appropriate for training of the will when one is being taught the elements of the spiritual life. Of these "God" would be one. In this context "God" would assist in the process of learning a certain skill. I am quite prepared to be told that this skill is the pre-eminently important thing for the religious person, but it is a skill none the less, and the best masters of these skills that I have met have been as capable of relapsing into sermon-talk as anyone else when called upon to think, but when they are engaged in putting the pupil into that way of behaving that has traditionally been associated with submission of the will to God, they are not thinking. They are much nearer to the rowing coach who is struggling to get an inexperienced crew to know what it feels like to "loosen up and row with light hands".

Both course A and course C are programmatic outlines for developing and giving content to Farrer's suggestion that a science of God should exhibit God as the centre of a dependence relation. They differ fundamentally in that the first is a plan for a system seen from outside. The second concerns the method of training a human being to be part of such a system. They must not be mixed up under any circumstances, nor the methods of the one used as an excuse for not properly pursuing the other.

I think Farrer does confuse the various possible scientific approaches to theism and that this confusion has the result that he fails to marshall a great area of experience that could be made of the highest scientific relevance to theism. Thus (using his sieve metaphor which I shall not discuss) Farrer says "If then theology is a science, it differs from every other in having no sieve for the relevant fact" (p. 22). In the three programmes A, B, C that I gave, each has its own sieve (accepting Farrer's expression for the moment) and it is vital this should be so. Farrer's indiscriminate use of sermon-talk, therefore, which could only have a proper place within programme C, amounts to a deliberate policy of wriggle.

Theology, further, he says, is "About God, obviously"; that's easily said. But it does not tell us what in the world to look for. Personal facts and mappable facts are no trouble to pick out, whereas it seems that God-manifesting facts cannot be picked out at all; or anyhow, not on any scientific principle".

I find this statement quite amazing—particularly in view of Farrer's remark that "there is more theology to be dug out of a saint than out of a sandpit" (p. 17). What hope is there—personally—for any of us if we can't pick out "God-manifesting facts" with some sureness from those that are less God-manifesting. We can certainly construct doubtful cases like that of the parson who was recently killed by lightning while playing golf on a Sunday. We don't believe that his death was a God-manifesting fact at all—even though there is a superficial case derived from popular mythology for thinking it was. If we are confronted with a remarkable healing, or a piece of supernormal knowledge on someone's part which played a significant part in some event, then we are in no doubt how to interpret their significance (as distinct from their authenticity). They are straightforwardly God-manifesting.

A large part of the gospels—and indeed of the literature of every religion—is about God-manifesting facts. Even the controversies about the people who required "signs" were directed to an over-crude attitude to God-manifesting facts—the attitude itself was assumed. Moreover—to come to the contemporary scene—*how* we react to God-manifesting facts is intimately connected with every piece of scientific understanding we possess (consider again how we reject the case of the parson who was struck by lightning). And Farrer would presumably be in substantial agreement with me here, in view of his discussion of how impossible it is to separate any item of our thinking from the scientific understanding of the world (p. 24). In the context of God-manifesting facts it is natural to think of the modern science of parapsychology. I do not know why Farrer cursorily dismisses this group of studies in his chapter on experimental proof. Perhaps because it is dubious science in the sense that it will cause scientific controversy: but then everything connected with a science of God will do that. More likely it is because of the curious reluctance on the part of modern fathers of souls to admit that the sphere within which their competence lies has the same background in experience as the field studied by parapsychology. This reluctance, in turn, presumably springs from the great difficulty they feel, in the face of a modern inimical Weltanschauung, of distinguishing the kinds of prayer they wish to inculcate from the whole amorphous range of parapsychological

effects. Here again it is the sermon talk which blankets discernment of the serious branches of relevant knowledge on Farrer's part. They get turned in on themselves and confused one with another by the uncritical assumption that because personalist terminology for theism may be of value in some aspects of the spiritual training, in the hands of some practitioners, it can therefore be transferred to all the possible growing points for scientific investigation of the field of God-manifesting facts. And Farrer seems to like it so.

It cannot be, one feels, that Farrer has not noticed how much weight he is throwing onto the validity of a personalist language. Indeed the first time I read his book I waited with mounting impatience for his scientific justification of personalism. I assumed without question that the object of using it was to prepare the way for a scientific evaluation of it. When the dénoument comes at last however, on page 92, it is with the testy irritation of a schoolmaster with boys who want to see an experiment performed instead of talked about. "It is a popular attitude nowadays even with professed believers to wallow in theological indecision and in particular to refuse to affirm anything about the personal nature of God. But if belief does not assert that everywhere and in all things we meet a sovereign, holy and blessed Will, then what in the world does it assert?" Well, Farrer, it is for you to tell us, and you kept us waiting till page 92 before giving us anything in the nature of a premiss or presupposition that could explain the personalist language that had so long been in use, and which alone could form the basis, science-of-God-wise, for some deductions and tests.

Unfortunately there isn't much development of, or deduction from, the statement. True, on page 107 we get "How can we have experimental knowledge of the will behind our will? Only by opening our will to it, or sinking our will in it; there is no other conceivable way. We cannot touch God except by willing the will of God". This seems to be my science of God type C dressed up as science of God type A, with the deduction from the evident incompatibility between A and C that it can't be done. As for sticking to type C and developing the field further, we are most disappointingly referred to St. Paul and St. Augustine when the book should have had a new slant on just *this* question if it was to have a function in advocating a science of God.

I very much regret the suggestion that is implied in all this discussion by Farrer that to go on pressing for elucidation of the theistic position (the only way—I should have thought—to get to a science

of God) is somehow wrong-headed and perverse. Farrer, alas, seems to have had no higher aspiration for the scientific analysis of religious experience than that it should at some point give place to sermon talk.

Margaret Masterman

The explicit object of this book is persuasive (see especially on this, not Farrer himself, but the Bishop of London's preface). Even Farrer, however, though with reluctance, offers his readers "a few crumbs" of edification and blames the fact that he does so upon the further fact that he is writing his essay for a series directly concerned with holy living.

But he had no need to write it for such a series. When deep questions were proposed and discussed, as they are here, no other purpose should have been had in mind but the pursuit of truth itself. Similarly, when in the second number of the new series of the journal *Theology* the Editor said that "Theology must be the servant of the Church (as well as of the truth)"* he had got his priorities the wrong way round.

In particular, Farrer desires to persuade people to make the "final jump" from scientific insight into theological insight, although this jump need not be made along some one predictable line. Thus, although on p. 14 he desires to leave the question open as to whether theology can be fully empirical (that is, to leave it as a question about which the reader must make up his own mind), by p. 41 Farrer has so far predecided it for him that, when discussing the present state of biology, he says, "No 'God-hypothesis' . . . can come into biology. It may still be, however, that living things and their histories, viewed with all the help biology can give us, will help us *to jump on* beyond science into theology" (*italics mine*). The vital transition comes on p. 28, when he says that scientific ideas must "throw a bridge back" from the creation to the Creator; and asserts roundly that "however important a share science may have in making our evidence speak to us, the actual movement of our mind in going from the world to God is always a jump beyond science. And so, if anyone asks whether belief in God is "scientific", we are bound to answer Yes and No. Yes, for it can be the following out of thoughts started by science; No, for it cannot be a piece of science itself".

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* *Theology,* Vol. XVIII, February 1965, no. 536.

Now to discuss the potential boundaries of scientific knowledge, and especially to consider whether the scientific quest for knowledge "can extend beyond the boundaries of the science themselves" (p. 70) is to discuss an exceedingly important matter, which practising scientists ought to think about a great deal more than they do. Moreover, it is a question which, in principle at least, can be disinterestedly discussed; i.e. no underpinning metaphysical or theological presuppositions—or anti-metaphysical or anti-theological presuppositions—are needed for the discussion of it. It need not be discussed for instance, persuasively, or to edify. *But it cannot be discussed without knowing what science is.* Start with a defective conception of science, and you will not end up with an adequate idea of what the general purpose of scientific method is, or of where, in the case of any particular science, its boundaries are. Neither will you end up in a condition to make up your mind as to whether it is really the case (as Farrer alleges on pp. 22-23) that scientific thinkers always look at things in a specialized, or at any rate a one-sided way and that a religious thinker by contrast tries to look at things "in depth and in the round." For if the *method* of science (as opposed to its *results*) is, by its nature, general, pervasive, deep —any or all of these—then the scientist, by using it—even if he normally uses it on a particular subject matter—may well train himself better to "see things in general, in depth and in the round" than the theologian, who (according to Farrer) equates seeing things in depth and in the round to asking himself (p. 23, line 4) "what in the Universe is to indicate God to us", which is to be very one-sided indeed.

Once the question which Farrer asks in this book is rephrased as a question about what science is, then it becomes clear at once that Farrer does not adequately know what it is; and this not so much because he himself, professionally, is not a scientist as because he has got firmly imprinted a wrong conception. Thus many passages make it clear that Farrer thinks of science as a kind of natural history; "the best way to describe and classify the facts our inquiry uncovers" (p. 4). It is true that the facts which attract us to inquire into them are, on the whole, out-of-the-way facts: "is there second-sight?" (p. 10); "is there a Yeti in the Indian mountains, or a dragon-like reptile in the waters of Loch Ness, or a small planet, invisible to common observation, somewhere beyond Neptune or Uranus?" (p. 15). But whether anything of a particular kind exists thus appears to Farrer to be, *par excellence,* the scientific question; though not if it is already obvious that it does exist. "We need not call in scientific procedures to show that there are dogs and cats"

(p. 10). It is true that he admits (for instance, in the case of physics), that there are scientific procedures which inquire into an unlimited range of facts; e.g. "into the basic nature and action of that physical energy which we take to be stuff of all things" (p. 15). But typically, science is concerned with *things;* and laws of nature are formulations of the ways in which real things act on, or react to, one another : they "are read off from the behaviour of existing beings" (p. 54); moreover, there is no discontinuity between what we are doing now in doing science, and what our ancestors did. "They fastened their eyes on the beautiful structure and appropriate functioning of plants, animals and other visible parts of nature, and saw in these things the art of a creative wisdom . . . Our ancestors were looking at the same realities as we; they were not seeing them *so clearly or so exactly",* pp. 40–41 (italics mine).

It follows from this natural history conception of science that he will stress classification; since, for naturalists, classifying is of paramount importance. Thus he talks a great deal about "pattern"; (and hardly at all about (e.g.) derivability); "the pattern is scattered piecemeal over the forces and events which make up the world", he says on p. 81 "it is drawn together and enjoyed as one in the mind of God. In this respect the divine mind is like the human. A human botanist grasps and possesses the 'family' structure of plant-classification", etc. Throughout the book he recurs again and again to the metaphor of a sieve. "Science needs not only a range of facts to go upon, but a sieve for selecting its facts" (p. 21). "Physics has a sieve for fact . . ." (ibid.); "a physicist . . . is looking for energies acting measurably on other energies. So there's his sieve". "Then the newly observed fact drops straight into a mental slot prepared for it" (p. 27). And, "the passion for neat schemes and tidy pictures is common to us all, we want to get the world into our heads; we have a passion for any account of it which will make it fit nicely into our mental pigeon holes" (p. 36). And finally, "there is a *grid* of hard thinking which gives shape and solidity to theistic belief" (p. 125) (italics mine). Now a sieve, or a grid, can be envisaged in two ways. Essentially it is a simple device for making a binary classification. Any set of things you put through a sieve will be divided into two, and only two, lots; (*a*) those which go through, and (*b*) those which do not. But a grid can also be regarded not only as a classifying device, but as a frame; as any literal or metaphorical frame. And in this second sense, a frame (as opposed to a sieve) is something that is, indeed, more like a scientific theory, though not very like one, for much more has to be said about a scientific analogy, or a mathematical scientific theory, than that it is

like a frame. But a sieve, in itself, is not like a scientific theory at all; it is a classifying device; and classification is only peripheral to doing real science.

I do not want to oversimplify Farrer's overall view of science by quoting only from the more popular passages in his book. Thus, he describes the politico-scientific process of gathering evidence for or against a hypothesis in what is essentially the terms of legal procedure; on p. 12 he correctly contrasts scientific inquiry with the procedure of debating a motion in a debating society; and in various passages he equates scientific inquiry with any philosophic empirical[1] inquiry; so that his "large-minded scientist" as described on pp. 13–14 is in fact a scientist who is also an empiricist philosopher. For when asked about his large mindedness he will say, (p. 14, top) "That's my philosophy", and in describing him, Farrer comments, "The large-minded scientist's attitude is . . . an honest taking-to-heart of the lesson which scientific discovery has taught the world. It is called 'Empiricism' " (ibid.).

Now it might be thought that if Farrer equates science with *any* serious and reliable mood of thought he can't be wrong; for, surely, what any particular practising scientist asserts science to be will fall within what Farrer allows science to be. But in practice it won't. For Farrer insists that science must be concerned with things; his metaphor of the sieve is paralleled throughout by a metaphor of bricks and blocks as the units with which science is built (see especially pp. 56 et. seq.), to such an extent that, in one place he actually speaks (p. 29) of "a block of force"; he assumes also that science provides enrichment for antecedently existing pre-scientific ideas (p. 25); and that it fills in the detail and generally sharpens the picture given by these ideas (pp. 25, 40) so that they stand out and are made more clear. All this blinds his eyes to what science really does. For science gives new ways of seeing. The essence of scientific method is that, strictly applied, it forces new and unprecedented ways of seeing to an extent that neither ordinary observation alone, nor the images of ordinary natural language alone, nor the development of analogical or discursive arguments alone, nor the perfecting of mathematics and technology alone could any of them do. And it does this by taking the extraordinary or recalcitrant fact, which will not fit in to the more ordinary common-sense derived picture (i.e. with what Farrer most of the time seems to think science is, though he has a feeling that extraordinary facts

[1] ***Note for non-specialists.*** An empirical inquiry, as "empirical" is used here, is an inquiry founded, in any way whatever, on actual experience.

have a part to play in it) and turns this fact into the basis of the new theory, in such a way that all the old, common-sense derived, more "normal" facts fit into the new theory as being merely one class of the facts that it deals with. Then, with the aid of the genuinely counter-intuitive new generalization, crucial experiments are set up, or unheard-of predictions made, and—eternal miracle—they turn out right. All this against a background of years of build-up of accuracy and of drudgery, and against a background also of reiterated heartbreak, when the first set of new predictions or of new crucial experiments, for various extraneous but none the less crippling reasons, fail quite to work.

So scientific method is a device for forcing a new way of seeing. That's what it is, and it is the only such device known to man; for new mathematics, however daring, can't do the job alone. So, by the nature of the case, scientific method can't be subjected to, or used as ancillary to, another older way of seeing, since the first thing scientific method would do if it really took the older way of seeing seriously, would be to cause it to disappear by—as it were—turning it upside down. You can't use science as a frill to enhance an older theology—even if theology were nowadays a new way of seeing, which it's not: it was once, but it has now degenerated into being a set of images derived from canonical utterances. Once you embark on science you've got to leave all your theology behind to take what science gives; which means that in due course you have got to allow your eyes to be forcibly and counter-intuitively opened. Teilhard de Chardin, with all his neologisms saw this. Farrer, for all his skill in wielding philosophical devices, hasn't.

Put professionally, then, and in terms of the discipline of the philosophy of science, my objection to Farrer's view of science is that it is defective. Lip-service is at last paid to the importance of theory (p. 120), though theories are still held to be totally separable from any formulation of the facts which discount or confirm them (i.e. the difficulties in disentangling facts from theories, in real science, are never discussed). The result is that an exceedingly naïf view is taken throughout of the nature of a fact. (For especially blatant cases of this, see p. 37 on astronomical facts, p. 41, on biological facts, pp. 43–45, on evolutionary facts, pp. 47–48 on "facts about creatures" p. 49, on the facts of the central nervous system, p. 56, on facts as bricks, and pp. 66–67, on "near" and "distant" facts). Predictiveness is first mentioned as a characteristic of science, and then in passing only, on p. 64; on p. 31 we are told "all explanations carry us back along some stream of history", so that scientific explanation becomes a form of historical explanation; and

finally, the whole function of experimental proof in science is distorted or ignored (the only place where it is even touched on is p. 107) in spite of the fact that the book contains a whole chapter entitled "Experimental Proof".

So, philosophically speaking, Farrer's conception of science ignores all its most central features, and all the current controversies about them; although these problems and controversies are to be found in an easily accessible literature with which Farrer as a philosopher could easily have acquainted himself.

But there is a more serious objection to his thinking even than this. It is that what he is trying to do is to put scientific imagery at the service of theological imagery, both (in this book at any rate) without manifesting any deep feel for what lies behind the theological imagery and also without having any genuine feel for science as it really is.

He has insights, yes: and by "insights" I here mean not insights in general, but relevant and special insights of no mean order, which, if he had followed them up, would have served him as clues towards achieving the book's main purpose, which is (I take it) to say what in outline a true science-based theology might be. The book is peppered with such insights. (This is why it rouses scientists). (p. 11) "Great tracts of experience may seem flat and godless; the light breaks on us in occasional bursts of godhead" (p. 18); "Physics deals with the force-relation between everything and everything else; theology deals with the dependence-relation which ties everything to God" (p. 21); "Take all scientific doctrines away, and you can scarcely be said to have any picture of the universe at all. What indeed would be left you, beyond the ideas suggested to an ignorant child by the sky on a clear night?" (p. 24); "it is no use telling him (the scientist) that general evolution isn't proved; you will have to show him that it is impossible, before he will be prepared to accept the miraculous alternative" (p. 43); "it is often suggested that there are two approaches to belief in God. We may reason from the world to a divine Cause, or we may trust religious experience. What I have just been saying will have been said in vain, if my readers still think that the two paths run separate" (p. 70); "Since (simple people) were first told that 'things did not make themselves', that proposition has spoken to their minds as an evident truth. There are plenty of convictions which are profoundly reasonable, and of which the force may be felt without any long process of argument; yet they need a long argument to establish them, once they are called in question" (p. 71); "the divine quality in the human mind is not its humanness but its sheer mentality:

its power (a limited power certainly) to escape from ways of thought which express the human attitude, and to see every sort of thing just as it is" (p. 75); and "our whole *discovery* of the divine" (p. 86) (italics mine).

It would be hard not to pick up and read through with absorption a book in which the set of assertions quoted above were correctly connected together, and developed. But they are not here connected together or developed. On the contrary, each is treated by its own author as if it were an isolated line of poetry, or an individual aphorism. Not only is there no attempt to follow them up : there is no attempt to make the rest of the book consistent with them.

And the result of this multiple inconsistency is that Farrer constantly veers to and fro between at least two vitally different senses of every key word which he himself wants to use : "theology", "God", "Universe", "separate", "pattern", "science", "experiment", "test". Moreover, his philosophy—the whole orientation with which he approaches the problem—veers also. He does not know, philosophically speaking, whether he wants to take a "one-world view" of reality (as on p. 70), or a "two-world view" (as in many other places); that is, he does not decide whether he thinks that what is essentially some variant of scientific inquiry is the only tool we have to investigate reality, no matter of what kind that reality is, or whether he thinks on the contrary, that there are two "spheres of being", the one approachable by science, and the other, which is for ever ineffable, by religion. Then (on p. 11) he says he wants to cut poetic statements of God's existence out of his inquiry, whereas for all the rest of the book he keeps putting them back. Then he is for ever first asserting, and then denying that God can be sought by investigating a limited range of especially "God-dependent" facts, as opposed to looking equally at all the facts in the Universe. And so on and so on. It would take too long to go into all the ambiguities and embroglios into which this fundamental philosophical veering to and fro leads him.

And the final result of this in its turn is that the whole book, read by a scientist, has the opposite persuasive effect to that which Farrer desires. When a reader gets hold of the book who is not committed to theism beforehand—and especially, of course, one who has some insight into what science is really like—then the "jump-off" which he takes, and which occurs at the point (on p. 70) where Farrer begins his section on "the God of Nature", is not into theism but, on the contrary, into most violet atheism. "Whatever may be true about the Universe", he cries out, "this baby-vision form of

theism is not true". And by the time he gets to (say) the key-point on p. 97, he may well conclude that the statement of this kind of theism is not only false but something very near gibberish as well. For the forced juxtaposition of theological and scientific imageries produces absurdities; absurdities such as Newton produced when he said "it seems to me probable that in the beginning God created a large number of small, hard massy particles". "(God) rejoices that rocks and trees, rivers and meadows, created on quite other principles, afford such feasts to human eyes; as indeed he rejoices that vegetables and beasts, created for their own sakes, afford a necessary food for human stomachs" (p. 76). "It is no matter of regret to God, that the universe is not a piece of streamlined engineering" (p. 6); no wonder that, in another of his sudden flashes (as usual not followed up), Farrer concludes "what moves believers to worship moves atheists to ridicule". No wonder also, that every time he gets himself into this kind of impasse he reverts into religious baby-language (of which I have counted five instances); into facetiousness (twelve), mock apology or patronage (three), and downright cynicism (three). One case of this last I must single out for mention (on p. 125). Farrer seems to say that it hardly matters what he says, since "I know very well that everything I have written can be pulled to pieces by subtle philosophers; but then I think that I also know that it can be put together again by philosophers no less subtle". It doesn't matter the slightest whether what Farrer says can, or can't, be pulled to pieces by subtle philosophers : only only one thing matters about it at any stage : Is it true?

Science is a way of creating a new language; a way of forcing genuinely new thought deeper than either observation or mathematics could go alone. Farrer says (p. 18) "The range of a scientific exploration may be boundless; the depth cannot be." This is wrong both ways round : for there is a built-in limit to its completeness; there is no built-in limit to its depth.

To accept science, with its new way of seeing, and then to reject this same new way of seeing, in order to keep science ancillary to an older pre-scientific pictorial theology, is to undo with your left hand what you have just done with your right; to try to make a car progress along a road by driving equal distances forward and back.

Nevertheless, isolated insights occur; and a theologian who is also a philosopher, and who might have stayed securely within his own fields, has launched out publicly and insecurely into a new kind of enterprise. Deep thoughts are proposed; and a Christian has stuck his neck out.

Reply from Austin Farrer

I am surprised and somewhat overwhelmed by the honour of a notice in so distinguished a place, for a slight and popular book, and one which was evidently so ill-conceived. My critics ask why, if I had such a book in mind, I should have presented it in such a series. But that's their irony. They know that one first undertakes to write for the series, and then (overtaken by time and destiny) plunges into what one thinks may be of use. My aim was mildly to suggest to Christian minds a few moves forward on the road to hard thinking in theology. And my readers complained not that I kept relapsing into sermon-talk (as Mr Bastin so well phrases it) but that I dragged them through aridities of argument.

An honest author never writes down to his public, still less does he tell them any lies; but he has to get the appropriate level. Philosophy will always want to take up the mental floor on which the common man is standing; and if she can persuade him to join her in so disquieting an activity, it will place him on a lower floor which in turn philosophy will wish to tear up. In the philosopher's view, the question my book presumed to handle will demand the pulling up of all the floors there are; any other treatment of the subject will seem frivolous or indeed indecent. The common man is not going to follow us through such a programme as that. He might be better at the job than we are, but it's a lifelong specialization and he has something else to do. Either, then, we abandon hope of admitting him to our counsels, or we stick to levels on which we can ask him to accompany us. In moving on those levels we, who claim to have pulled up the floor, must not encourage him to take any steps which we do not think the boarding will bear; but it will be fair enough for us to commend sound steps as proper movements of the mind, so long as we ourselves think them to be so.

A book of this sort is an exercise in tact, and in the assessment of one's readers' habitual levels. What lines of thought will they find natural? As I was writing in a lenten series and under episcopal blessing, I took for granted a readiness to think in terms of heightened personal act when thinking of God. I supposed that would-be Christians would use a full-blooded mode of personal representation, checked against standards of elevation, scope, simplicity or power exceeding every finite possibility. I did not suppose they would thank me for a disquisition on the perplexed logic of analogical predication; nor that they would throw the book down and refuse to resume it until they had reasoned out a justification for what Miss Masterman calls my baby-talk. What is full of gaps

for Miss Masterman was not going to be full of gaps for them. At the same time, since they had heard quick-tongued philosophers conversing on the air, they were going to have the vague feeling that everything and especially theology is disputable. I might be successful in getting them to think on levels proper to them, and they might nevertheless have an uneasy suspicion that the floor could be broken up under their feet. I could only give them my personal reassurance—I knew that what I had written could be pulled to pieces by philosophers, but I believed it could be put together again on philosophical grounds equally good; a sentiment which Miss Masterman takes for cynicism about the rational quest. I did not mean it so.

As my critics show by their reactions, this sort of writing is a game you can't win. What seems a natural movement of thought to one mind is a scandalous begging of questions, a criminal neglect of distinctions to another. So what are we to do? Shall it be speech or silence? One thing at least cannot be worthwhile, and that is for me to join my critics in patching up my pamphlet into philosophy. They do it too much honour. I will hold no brief for it, even as what it is; I dare say it would have been better to put in what I left out, and leave out what I put in. It seems more worthy of the occasion, simply to give an opinion on the general issue which my critics bring up. They want a more positive relation than I have allowed between scientific exploration and theistic belief. The relation I sketched comes down to the following three points.

(1) The enquiry after ultimate cause is in so far continuous with the scientific enterprise, that it (*a*) deals with a question to which scientific work naturally gives rise and (*b*) is itself a serious search for explanation.

(2) In method and approach it is discontinuous with scientific research, in that the empirical element it relies upon is an "experiment" with one's own moral existence in relation with the Creative Will.

(3) Allowing that the First Cause is creative will, all scientific research which opens a closer perception of how actual processes are in themselves, is evidence in so far of the creative intention they embody.

Such is the thesis I wished to state; and however badly I stated it, I suppose it will be allowed to be capable of statement.

Now the attitude of my critics appears to be this. They object to the deistic, or sermonizing, or infantile supposition in (3) that God thinks the world as it goes; and so they cut the path I offer

them to a better acquaintance with creative volitions through a scientific study of created things. So far, they scarcely appear in the guise of friends to a science-based natural theology. They propose a compensation, however. They will open the gates I have shut in (2); they will set no limits to the Godward advance of natural enquiry. Science is a method which constantly forces us into views wider and stronger than we had conceived, and presently will bring us face to face with—well, with what? With Creative Act?

It is, I take it, because my critics entertain such rosy hopes that they feel so keenly the inadequacies of my remarks about science. They want to see it exhibited as an unfettered heuristic method capable of leading none can say where. If I had thought there was a straight empirical road through nature into God I would have spread myself on that aspect of research. As I didn't, I allowed myself omissions and simplifications which, however regrettable, do not seem to me to have let down my argument. When my critics tell me I don't know what science is, I cannot, of course, refute so sweeping a negative. When they go on to tell me what I think it is, I am on safe ground in assuring them they are mistaken; and when they detail the truths of which I am ignorant, I am happy to recognize old friends, the familiars of my thoughts from youth up. And the next time I pronounce the funerary laudation of a scientific colleague, I will not fail to put in all those bits about the selfless objectivity, heroic patience, unswerving loyalty to observation and incalculable power of self-transformation inherent in the scientific enterprise.

But transform herself as she may—though it be into a very angel of light—the scientific method is never going to disclose to us anything but how finite activities, processes or the like are organized, interact, or build themselves up. If it is said that such knowledge is all the objective basis religion can justifiably ask, let it be plainly understood what is stated—pious atheism. Language expressing faith in a personal being, in God, may be accepted as a poetry which adjusts our attitude to a godless universe. We may even live our poem; being ourselves persons, we may find it vitalizing to conduct our most personal life as a dialogue, in which the great Other, our determining and claiming environment, is so personified as to maintain its part. But that's moonshine, objectively speaking.

I do not, in fact, think that Professor Emmet takes so stark a view. We have her word for it that the old deistic story of a thought, a will behind the world is unreal to her. But—and here I must speak with the greatest diffidence—I think she hopes the reality of the Universe may somehow provide a peg on which to hang the

Attributes that piety adores. Perhaps I am quite wrong : but I cannot understand what such hopes, if entertained, can mean unless they amount (roughly) to the supposition that pantheism is true, after all; that the action of the Universe is somehow one whole of action, in which we can hope rationally to descry the living principle and positive tendency. But I should have thought (and here my ignorance of the sciences is indeed crucial) that every scrap of evidence points the other way. There's no such thing as the universe, nor any such system; there are multitudes of systems in mutual engagement. And if you ask how such a free-for-all was to achieve the oases of system and delicacies of structure we observe, there are only two answers. The first is "Go and find out (empirically) how it does it". If that does not satisfy you, and you want to know why it should do it at all, you have only the second answer, creative will—and why not the will that wrestles with the praying mind?

I see no force in the complaint that science is made ancillary to a preconceived theology. What is preconceived? The bare concept of a first-causal actuality; and that is only preconceived by being self-defined. The postulate of a First Cause which has any relevant firstness, or any relevant self-identity, is the postulate of transcendent will. To learn what is willed, you must look at the effects. Science opens one range of evidence, the dialogue of faith another. It's a stale thought, if you like, that God is personal; but then it's a stale thought that ice is frozen. Everything can't be news. God isn't news; the type of news was the Gospel.

Theism as a Scientific Hypothesis

Margaret Masterman

In proposing even to consider theism as a scientific hypothesis, the would-be fundamental scientist is in a uniquely difficult position. For not only is there great difficulty in itself about what he wants to say; but also he has to contend with two sets of people to gain the right to say anything.

These two sets of people are: the *via negativa* theologians, of all kinds; and the tough-minded "positivistic"[1] scientists, also of all kinds. Moreover, whereas in most periods of history these two strands of opinion could be considered separately—and, indeed, might initially be thought of as being opposite to one another—at the moment they are merging together in a way that strengthens each, in forbidding any assertion of theism in any form whatever.

The negativizing theologian proper says: "Theism, asserted as a scientific hypothesis, is inconceivable; because, by the time the scientist had so asserted it, what he would be asserting would be no longer theism. God by His nature is so fundamental as to be incapable of limitation; thus even to assert His existence is to attempt to place a limitation upon Him. The attempt, inevitably, fails; and the assertor is left with the assertion of some fundamental feature of the Universe, indeed, but always with something that is less than God".

The tough-minded scientist says: "To assert that God exists is to assert a perfectly comprehensible proposition, which has, indeed, been constantly asserted through the centuries. Modern scientific research, however, has shown this proposition to be quite evidently and definitively false".

At first sight, therefore, these two prohibitions are of quite different natures. But in effect, they are not. For if the negativizing theologian can show that it is impossible even to postulate God's existence without either, on the one hand, postulating something else by mistake, or, on the other hand, talking gibberish, this is all grist to to the positivist scientist's mill. If the assertion of God's existence, no matter in what form, is unstatable—if all that is produced, in fact, is either a quite different hypothesis, or something like a not-

[1] Used not in the modern more complicated sense defined on p. 80, but in the older Auguste Comte sense, in which he said mankind passed through three stages, theological, metaphysical and positivistic.

well-formed formula in mathematics—then the scientist need not even take the trouble to assert that the hypothesis is false (or indeed to make sure that he himself understood what the assertor really meant when he asserted it). He, the scientist, has got rid of it from his science, and that is all he cares about; for the rest, let the throat of the last priest be strangled with the guts of the last theologian.

Analogously, the contemporary advocate of "religionless religion" notices that the tough-minded scientist has excised all possibility of theistic implication both from his science and from the positivistic philosophy of science which goes with it. So then, the theologian uses this fact to support his own negativizing attitude, and to commend the line of conduct deriving from it, and which he advocates. This is that, since science has shown that God does not exist, and therefore that there is no such thing as religion, what religious people have miscalled "religion" must in fact be the relation of disinterested love holding between ordinary human beings. The contemporary Christian, then, should forget about the so-called "religious" world, which is really a no-world; and should immerse himself, intellectually, morally, politically, socially, in the real world of his own time. His Christianity will manifest itself, not in any outward observance, but in a subtle, though discernible *something*—a *je-ne-sais-quoi*—which comes from his (presupposed) capacity for disinterested love. But his ecclesiastical vestments, set of habits, status and accoutrements, these will remain only like a chain of bubbles coming up to the surface from a man who is either frog-diving or drowning (no one can tell which), and which mark the place from which he originally went down.

Now as a scientist and as a philosopher, I reject all this, both on behalf of contemporary science, and also on behalf of really traditional theology.[2] I reject "religionless religion" because it is too completely negative to be an intellectually tenable position. Morally and socially, there is indeed something very right and attractive about it, and also something heroic. But it feels much more like a therapy than like a doctrine on its own; and it would not be feasible and could not be maintained by the people who do it, if there were not something else and something deeper which they are drawing on—a positive something which religion, in *some* sense of religion, is all about—and to the excesses and abuses of which it serves as a very badly needed corrective. I reject tough-minded

[2] The word "traditional", which is highly ambiguous, is here meant to refer to the original "theologia" (see the article "Why Theoria?" by Dorothy Emmet in this number). In my view this sense is still preserved in Greek and Russian Orthodoxy.

science, on the contrary, because it is too naïve; because, in the last analysis, it is too brash and simpliste to be completely scientific. (But, don't forget, tough-minded science is also disinterested and heroic; and science requires of its practitioners that they should be tough.) In the end, therefore, I think that both of these have to be rejected; but—this is the point—they can't, either of them, be rejected on a superficial level, or by thinking second-hand thoughts, or thoughts which are just "popular"; recent controversy in the philosophical and theological journals has shown this. In the course of rejecting negativism of both these kinds, and over the last 20 years, I have found myself dealing with another, quite different set of ideas; a set of ideas so new that I despair of being able either sufficiently to clarify them, or adequately to handle them. In such a situation I have thought, until now, that the right course was silence accompanied by intellectual struggle. Now, on the contrary, I have come to the conclusion that the right thing to do is to sketch in what I can; to block in that to which I cannot yet put a firm outline. The profound and powerful ideas which I propose for consideration, however, should not themselves be judged by the manifest inadequacy with which alone I am able to propose them.

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I shall begin, in this section, by saying what I am going to try to do; so as to provide a programme against which can later be placed my almost total failure afterwards to do it.

Beginning from the traditional theological end, I shall start by examining the true nature and purpose of the original, Egyptian-desert type, of *apophatic theology*.[3] I shall first consider this discipline as a profound and genuine Christian contemplative exercise. This discipline—I shall say—is meant to cause the Christian *hesychcast*,[4] at a certain stage in his training, to distrust successively. both his ordinary reasoning-powers, *and his natural intuition* (this second is the crucial point to grasp in understanding all true apophaticism). It can thus be compared to the well-known use, in

[3] For the meaning of "apophatic" and its spiritual purpose, see Lossky, *The mystical Theology of the Eastern Church* pp. 34ff, 42ff. It is a method whereby any assertion about divine things has to be countered with a denial (from ἀπόφασις, "denial").

[4] Literally "man of silence". The method of building up interior silence by practising "prayer of the heart". See *Writings from the Philokalia*, p. 28 (London 1954). From ἡσυχάζειν, "to be still".

Zen Buddhist meditation, of paradoxical and apparently nonsensical *koans* and *mundos*,[5] which is recommended with the same object.

In this original and undistorted sense of "apophatic", I shall say that basic scientific research is itself apophatic. In fact, it is the most completely effective apophatic device which the human race has ever known. I hope to be able to give examples of this to show what I mean.

Apophaticism also depends for the strength of its appeal, however, upon a second type of insight. This is an insight into the essential limitations of human speech (and therefore of human thought) which prevent any literal or adequate or complete description of anything ever being attainable.

These limitations to human talking and thinking indeed exist. They certainly exist when the instrument used for the thinking is ordinary natural language, and they are not totally removed when natural language is used as an adjunct to interpreted mathematics. But two points have to be made here. The first is that these limitations of natural language hold whatever you may be talking about; *i.e.* they do not only hold when what you are talking about is the existence of God. If, therefore, we do not hesitate to use language to talk freely about other subjects, we cannot consistently refuse to use it to talk about this one, unless some reason for refraining from doing so can be alleged additional to the general overall limitations of speech. The second point is this : since people do in fact talk a great deal about the question of the existence of God, the onus is on the objectors to show that they ought not. (In particular, you cannot use the word "God" in order to say, "You cannot meaningfully talk about God and His existence", for how do you know what it is that you cannot meaningfully do, unless you have already ascribed some meaning to the words "existence" and "God"?) This enterprise —of convincing people that the true nature of conversation and of exposition is such that language is misused when people use it to talk about God—has been indeed repeatedly attempted in the last thirty years. One such attempt, namely J. N. Findlay's famous disproof of the existence of God (see *New Essays in Philosophical Theology,* ed. Flew and Macintyre, Blackwell's, 1955), I hope to be able relevantly to discuss, since it gains its plausibility precisely from

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[5] For the meaning of these, see Christmas Humphreys *Zen Buddhism* (Pelican, 1951), p. 183. "The two most famous devices of Rinzai Zen, less used in the Soto branch, are the *mundo,* a form of rapid question and answer between master and pupil which aims at so speeding the process of thought that it is suddenly transcended, and the *koan,* a word or phrase insoluble by the intellect, which is often a compressed form of *mundo*".

the fact that Findlay first sets up a scientific-like definition of God, and then knocks it down with an apophatic theological argument. In general, however, this attempt always boils down to a discussion of the nature of religious metaphysical concepts, and of how they differ from scientific theoretical concepts; and on this there is a large contemporary philosophical literature, in which it is surprising to see how little the objectors have proved their case. It is easy enough to construct an argument, as Logical Positivists like Carnap and A. J. Ayer used to do in their early days,[6] in order to show that you should not use any abstract or metaphorical concepts except to express remarks of the kind which can be directly verified in human experience. But this argument cuts out the right to use scientific theoretic concepts equally with religious ones—concepts like "mass", "force", "particle", "electron", and even more so concepts like "development", "recapitulation", "messenger RNA", sub-conscious". All of these are verified and falsified in exceedingly complex ways, and then not in ordinary human experience. So that when the sophisticated theist comes back at the positivist logician, and says, "Theism also is a highly theoretical concept—it is by no means, in use, the pictorial and concrete cluster of images which it appears to be—and moreover, expressions containing it are also verified in very complex ways, and then only fully in extra-ordinary (as opposed to 'normally accessible') experience", when he says this, he is exceedingly difficult philosophically to knock down. His opponents may disbelieve him; but they cannot easily floor him.

In any case, by squarely proposing in this essay the assertion of theism itself as a scientific hypothesis, I am minimizing to nothing the already (as I think) not very great logical difference between a religious-metaphysical and a theoretic-scientific assertion. Moreover, I am meeting the linguistic objection of the original apophatics in the best way possible, *i.e.* by admitting its validity. A scientific system, by its nature, always deals with a limited range of facts; it is never literal; neither is it ever completely abstract (in fact there is a case for saying that it always has a concrete analogy at the heart of it); it is always schematic; it is nearly always crude. Far from being exempt from the limitations of natural speech, therefore, it exhibits these limitations in an explicit and exaggerated form. Its power consists, not in the fact that it is a complete description of anything, far less of everything, but in its capacity to go deep—

[6] This is the modern form of Positivism referred to on the first page, in which propositions not directly or indirectly verifiable in experience are said to be not false but meaningless.

down below the commonsense picture or the intuitively known facts—in the exploration of fundamental reality.

In this second sense also I shall maintain that science is explicitly apophatic.

From this point on I shall assume, rightly or wrongly, that I have sufficiently countered the objections of modern apophatic theologians. More, I shall turn theologian myself, in order to say that what I propose, theologically speaking, is the construction of an *icon*[7] of God. By "icon" I do not here mean "Sacred Picture in the Byzantine style, usually painted on wood", but "icon" in the much more general sense which inspired such remarks as: "Byzantium is an icon of heaven", and, "Christ is an icon of God". The whole general notion of an icon, or model, though embedded at the very core of Greek Orthodox Christian thinking, has not come up for explicit analysis and discussion since the twelfth century[8]. I shall bring it up, and try to set down the nature of an icon, and its properties, at some length. For (seen theologically) it is on the prior acceptance of this notion that everything else which I have to say depends. In order to get any kind of a hearing from the Christian world, I have got to be able to defend myself against the accusations of inadequacy and irreverence with which I shall surely be charged, by saying that the concrete, crude but deep and counter-intuitive schema of reality which I propose is, nevertheless, an icon in the traditional Christian sense; and that those who wish, by using apophatic arguments, to deprive me of the right to construct it are not true apophatics at all, but iconoclasts, and therefore unreasonable and henceforward to be ignored.

From this point, my argument will cease to be theological, and will enter the field of the philosophy of science; eventually passing from that to the discussion of foundations within science itself.

* * *

The problem will be how to get a conception of scientific method sophisticated enough to contain within itself something which could also be thought of as a concrete icon. And, as a matter of fact, such a conception of scientific method, which there is in any case good reason to think gives a more faithful picture of it than any

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[7] For "ikon" (εἰκών) see G. Sherard "The art of the Ikon" *Sobornost* Spring 1962.

[8] *Messager* No. 30–31. Paris 1959. I overlooked this whole literature through not realising that the French *"image"* was Lossky's translation of the Greek εἰκών. I still think however there is a great deal more to be said.

other, already exists in T. S. Kuhn's *Structure of Scientific Revolutions.*[9]

I shall develop this. The essential point which Kuhn makes is that science does not progress (as earlier philosophers of science thought that it did), by steady accretion of knowledge proceeding little by little, but in bumps; each gap between two bumps being caused by a fundamental upheaval which Kuhn calls a scientific revolution.

First you have, in general, an entirely concrete beginning. Either a new research line starts with a new piece of apparatus, or with an old piece of apparatus doing new operations, and with an insight that these operations are relevant; or somebody makes a new picture—often literally, a picture—of the field; or somebody develops a new and striking analogy; any or all of these. The new line catches on; a new set of scientific insights and habits develop round it; by and by (though usually not at the beginning), a more abstract theory develops to back it up; and this whole totality of insights and habits Kuhn calls a paradigm. At first, the paradigm is not only concrete but crude; gradually, however, it extends, becomes articulated, is beautified, and we have now a world-wide scientific orthodoxy. Nobody notices that, while it has been developing, the paradigm has also been becoming more and more rigid, and more and more limited in its application, because the paradigm itself has become, not only the unique vehicle of scientific truth, but also almost an object of worship; problems—and facts—which it cannot solve or which do not square with it are just brushed aside. Suddenly, however, from within the heart of the paradigm itself, trouble develops; this trouble, Kuhn calls an *anomaly*. The original concrete analogy, which by now everybody has forgotten, becomes overextended, and so the theory which forms its mathematical envelope begins to yield nonsense; the technique goes bad on its practitioners; defectiveness or inconsistencies become apparent in the mathematics; any or all of these. The adherents of the paradigm do not give in; they think up ingenious extensions of the paradigm, they variegate it, they reorganise it—and, of course, sometimes these attempts succeed. When they fail, anomaly deepens into *crisis*. All the faults and defects of the paradigm are brought to light and stressed, the area of anomaly, far from being played down, is itself increasingly explored; all the unsolved problems and awkward facts which were earlier brushed aside are now remembered again. Different schools of thought develop, each discussing

[9] Foundations of the Unity of Science, Vol. II No. 2 Chicago 1962.

fundamentals; almost the scientists cease being technicians and go back to being philosophers behaving in a prescientific way. Suddenly, in the middle of all this, a small group emerges with a new picture, or analogy, or technique, or what have you. They have started again, from quite another place, building their attack on all the awkwardnesses which knocked the old paradigm over. By the side of the old paradigm, the new one looks crude indeed; but it shows promise; and it has solved the anomaly, which, for it, becomes the central paradigmatic fact. A struggle ensues between the adherents of the old paradigm, the old trying to incorporate the new, inconsistent, central insight, and those of the new trying to incorporate into their development as much as possible of the detailed discoveries gained by the old paradigm. If these last are successful, a scientific revolution has taken place; the whole process starts again, and, in its turn, the new paradigm becomes the scientific orthodoxy.

Notice that the anomaly which starts all the trouble always develops from inside the old paradigm, not from outside; and, one way and another, it nearly always develops from the limits of extensibility of the initial concreteness.

So science goes from the concrete to the abstract, and then—owing to the requirement that its truths have to be verified by actual experiment—back again, by another route, to the concrete.

* * *

The next step is to look at the present overall scientific picture. And here, using Kuhn's language, I shall maintain that the present, overall [non-theistic], scientific paradigm is developing an anomaly. This anomaly, which has been seized on and built on by, among other people, Teilhard de Chardin, is as follows :

Inorganic science, broad and large, and with a notable breakdown in the field of the physics of high-energy particles, still proceeds from an initial mechanistic analogy. This mechanistic analogy, changed and extended, is now being developed by geneticists and molecular biologists to describe what goes on inside the living cell. From the single living cell on, evolutionary theory, in principle, can show an unbroken chain of development, so that, by showing that a multicellular organism is, after all, only a particular type of construction built of living cells, the same mechanistic analogy ought to be extensible to describe life itself. It isn't. For years doctors, depth-psychologists, poets and others have been telling experimental psychologists that drastically simplified mechanistic models of a white rat do not sufficiently cause us to understand human beings or human societies. It is now becoming clear that they do not cause

us to understand white rats also, since they do not show how specialisation builds up between and among living cells to produce the different organs of the body. And when it comes to those higher potentialities of man which he himself becomes aware of partly but not wholly through introspection, where are we to look for these inside the living cell?

The scientific reaction to this anomaly is to extend the existing paradigm, by complicating still further the genetic model of the cell. This is now becoming so complicated as to be almost unimaginable; nevertheless the geneticists brilliantly—and probably rightly—go on complicating it.

However, the anomaly is now deepening into crisis. For not only is the current "non-view" of man, by all the ordinary scientific criteria, proved in practice disastrously defective and false; not only has it contributed to the current social build-up of a "rat-race" instead of an adult civilisation, with a huge and increasing number of damaged people going into mental hospitals, and so on; but also a new scientific fact, of fundamental nature, has now emerged, which is totally inconsistent with the foundations of the present paradigm. This fact is the recent establishment, by Vasiliev, of telepathic communication of information as a repeatable occurrence, and as exhibiting a form of long-distance linkage between person and person which cannot, by any known criterion, be analysed as physical.[10]

For years, as almost everybody knows, the facts of experimental parapsychology have been irritating science. Anecdotal and statistical evidence has been piling up in favour of the hypothesis that there is a form of communication-linkage which can occur between human beings which does not work according to the ordinary physical rules; in particular, it does not follow the inverse square law. But it was always possible—and probably right—scientifically to reject this hypothesis without further investigation on the ground that the form of linkage in question was only intermittently operative; that the outcome of parapsychological experiments was not reliably predictable, let alone repeatable. Now telepathy between trained participants has been shown by Vasiliev to be repeatable (see the review of his crucial experiment elsewhere in this issue) and thus, provided Vasiliev's experiment is itself shown to be repeatable —to be an ordinary scientific fact.

I wish I could convey to people outside science what a shock this is; it is the worst thing that has happened in science for at least

[10] See review by Matthew Shaw in this issue.

a hundred years; it cracks our whole picture of the regularity of the universe.

Moreover, as I have said, the intrusion of parapsychological facts into science, turns the anomaly produced by the present paradigm into a crisis; that is into a situation the only cure for which, scientifically speaking, is the rejection of the whole current paradigm, and its replacement by another one after a prolonged period of scientific revolution. For up to now we have treated human beings, scientifically speaking, as separate organisms, psychic hard-boiled eggs, finite-state machines, closed systems. If, therefore, it turns out that they are not even organically separate, but are, in some non-physical but still scientific sense which we do not in the least understand, interlinked, or at least interlinkable with one another, and not only for purposes of communication but also of interaction, it is no wonder that our current scientific picture of man does not work out in actual fact. We can see this, and, in particular, the science fiction writers can see it; for they have been presupposing the truth of parapsychological fact for some years past. But the trouble is that, if we accept Vasiliev's result, all we can see round us, scientifically speaking, is breakdown. What we cannot see at all is what to do next.

It is worth mentioning in passing (I speak now as a scientist) that if we are to suppose apparently separate organisms to be, in fact, multiply interlinked, then, by comparison with that basic scientific shock, it is a mild matter to imagine them also linked to a central, though crude,[11] invisible something, *X*, which religious people who speak English have called "God". This second hypothesis, the crude theistic hypothesis—what I shall call, for want of a better name, "raw theism"—may or may not turn out to be scientifically necessary to account for the full potentialities of development of life and of man. But it is no longer the least shocking, given the first hypothesis. Moreover, if this second hypothesis is made, and I think it will be made, it ought to be possible, on ordinary scientific criteria, to decide whether, scientifically speaking, it is a required and true hypothesis or not. And, in a sense, the theistic hypothesis is a great deal less counter-intuitive than the first; for *X* is, *ex hypothesi,* invisible to normal sensory perception, whereas other human beings are not. The primary hypothesis, therefore, which the inclusion of parapsychology into science requires—namely that

[11] For the explanation of "crude" here see the earlier section on ikons. Also Margaret Masterman, "The Nature of a Paradigm". International Colloquium on the Philosophy of Science, London, 1965. To be published in Amsterdam in 1966.

human beings, though they look and seem separate, are in fact linked, and by bonds which are both imperceptible to our senses and undetectable to our scientific instruments—this is what is worse than any Zen Buddhist Japanese *koan* to swallow, and which it is an exceedingly mild statement to call apophatic.

Of course, in the next few years, every possible attempt will be made, particularly by molecular biologists, to fault Vasiliev's experiment or to discredit it. Over the short run, these attempts may succeed, but my guess is that over the long run, they will fail. For there is evidence that there have been several civilizations—notably the Tibetan and that of the aboriginal peoples who inhabited Australia—whose members, through necessity, have so developed their telepathic powers that they could use the art of "sending messages on the wind" as we use the telegraph; only we, blinded by ignorance and by prejudice, would not admit this, and indeed, have almost crushed the first of these civilisations to extinction. And then, what about children? And, in particular, what about similar twins? And again, what about organisms which are less than man, and about which science and theology alike are at present so presumptuously mechanistic? Do dolphins and termites parapsychologically communicate with one another? And (this is the crux) what about the separate cells of our bodies? Is a growing and developing organism complex not only a genetic system, but also a continuously operating para-genetic signalling system (and this is why, on a molecular biological basis alone, we cannot at present explain the process of differentiation and ultimate specialisation of initially identical cells)? Once introduce the principle of parapsychological linkage, and where is it all going to end?

* * *

The difficulty, as by now will have become apparent, is not to form a horror-image of the present breakdown, but to say anything whatever which does not sound either like the purest science-fiction or the worst idealist monism, about the build-up of the future paradigm. No one person's thought can handle this situation. But, with every conceivable caveat, what I want to say is that our picture of basic reality must be remade round the cybernetic concept of *information,* not round that of energy. We must seriously try to conceive the universe, including man, as an information-system.[12] There are gigantic, almost inconceivable difficulties about this, and

[12] The inaccessibility of the contemporary fundamental literature on the concept of Information is shown from the fact that the best reference on it known to me, which I have not yet succeeded in obtaining, is Kolmogrov, A. N., *Problemy Peredachi Informatsii,* tom. I. (1965), pp. 3–11.

no room, here in a summary, even to discuss them. Are we, disastrously, using "information" in different senses in different scientific contexts, and, in particular, variably, in a strong and in a weak sense? What is the bearer of information? And what is the unit of information, i.e. the signal? What light (if any) can the information-sciences (within which I work), give us on this? Are we extrapolating in a totally inacceptable manner from cybernetics? And is there at present anything non-phoney in the total field of artificial intelligence? These are only the beginnings of the trouble one gets into, once one faces the kind of picture, which, given the truth of parapsychology, has got to be built up. And yet, is it right even from the scientific, yet alone the religious point of view, to hide one's head in the sand and refuse to consider it, given that, here and there, there are already emerging brave and prophetic men, all talking of an unhandleable concept of "information", and all trying to expose themselves fully to think what it all means?

* * *

And theism? Once one has immersed oneself so far, in thinking, into the foundations of science, it is wrong—as I hold—to go back to the earlier, more pictorial symbolism. (In particular, it is totally wrong to say that, if the older natural theology, which postulated the world as a watch, required the world also to have a watch-maker, so the newer one, which sees the world as an information-system, requires the world also to have a giver of information; for this is to make a simplification, like Paley's, which will do us no good.)

Nevertheless, I think there is one thing that must be said. On the present overall paradigm of science, the scientist, in imagination addressing God, would be bound to say to Him, as the Bishop of Woolwich in effect does say, *We are : and Thou art not.* But my personal guess is that on the new overall scientific paradigm, as it will be developed, say, in 250 years, a scientist in imagination addressing God would be equally bound to say, as St. Catherine of Siena (speaking in ecstasy) said, and as many other people have said : *Thou art : and we are not.*

Maybe the theologians of those days will not like this new scientific reaction any better than they liked the old one; but this is what I personally think theism as a scientific hypothesis will give.

The further sections of this essay will be devoted to trying to make clearer what, in outline, I have here just said.

[To be continued]

The Web of Consciousness

Joan Miller

In this paper I would like to consider some features of our environment which are often neglected, but which, nevertheless, play an important part in human experience, and, in my view, have a profound significance for the future development of the human race as a whole. In recent years this topic has received some attention, particularly with regard to Teilhard de Chardin's postulation of the "noosphere", and although we may feel that we cannot fully subscribe to his views, and that perhaps his description of the universe is somewhat fanciful, there is no doubt that he had insights concerning the human condition, the implications of which have not yet been realized.

In the course of the discussion which follows I wish to examine the noosphere idea, and to take what are sometimes called "telepathic" phenomena, as an example of activity in the noosphere. It will become evident as the paper proceeds that I have several reservations to make about what is often called "telepathy", and it may be asked, in view of these reservations, why I introduce the subject at all. The main reason is that in spite of all the criticisms which can be made, I think workers in the field of Parapsychology and others interested in Psychical Research have accumulated a mass of data which should be taken seriously, even if there is no general agreement about its interpretation. Whatever final conclusions about the status of the data and its significance might be, it remains empirical evidence of some people's experience, and I do not think it should be ignored when the whole complex of personal relationships is being considered. From the literature it would appear that attempts to try and investigate telepathy by individual laboratory experiments have not met with much success. It seems to me the lack of useful hypotheses in the field of Parapsychology is due, not to lack of data, but to attempts to fit the data into too narrow hypotheses, in the interest of "science". Attention was drawn to some of the problems by Gardner Murphy in a paper read at the Convention dinner of the Parapsychological Association, 5th September, 1958, entitled "Progress in Parapsychology";[1] and an informative review of the situation can be found in *Telepathy and Medical Psychology* by Jan Ehrenwald.[2] It is clear that, whatever

[1] *Journal of Parapsychology*, Vol. 22, No. 4, December 1958.

[2] *Telepathy and Medical Psychology*. Jan Ehrenwald.

else the phenomenon might be, it is social, i.e. it takes place between two or more persons, and this being so, I think a more useful way to approach the subject might be to investigate certain group settings, as a first step.

I think we cannot escape the conclusion that our life in the physical world is accompanied by simultaneous participation in a "sphere" which is not of the same kind, and manifestations of its presence are often referred to as "atmospheres". At the outset, I would like to say that the terms "sphere" and "atmosphere" are certainly not being used in a literal sense. I do not intend them to refer to some kind of entity, but rather to denote an aspect of the milieu in which we live which is to be distinguished from the material world, and is made up of a complex of relationships between human beings and their environment as a whole, i.e. relationships both with other people, and the world. As I cannot think of any alternatives, I hope I may be permitted to use these terms loosely for the time being, and I will try to be more precise later, when discussing goals and enclosures. I say this "sphere" is of a different kind because, for example, it is not spatio-temporal, at least in the sense that this term is applied in the physical world, i.e. the same measurements do not apply.

In spite of the difficulties in attempting to describe this feature of our experience, I think it is nevertheless real and is not only basic to all communication, but is also the pre-condition of any development of personality. Whatever it may be, it does impinge on our consciousness, if not all the time, sometimes, and the more sensitive we are the more we can become aware of it. One telling piece of evidence that everyone has some experience of this seems to me to be the fact that the phrase "you could cut the atmosphere with a knife" is meaningful. In a general way people not only know what "atmosphere" means in this context, they also know what kind of atmosphere is being referred to, usually an unpleasant one. I do not want to push definitions here too far; all I want to say is that there is general recognition of something which can be experienced, but not observed in the usual way. That is to say, a set of individual behavioural descriptions about a particular situation would not tell the whole story. And given this "something", and assuming it has its roots in the world as we know it, i.e. it is part of our experience of living, as are the objects we see and handle, and the people we meet, then it presents a field for investigation just as much as what we are pleased to call "the material world".

Probably one of the reasons why some have cast doubts on the possibility of investigating this field in any scientific way, is because

of the difficulty of defining its limits, and here I think de Chardin can help. According to him, the earth's roundness is significant because it limits man's environment and in so doing intensifies "psychosocial" activity. In an unlimited environment man's thought and effort would diffuse outwards, but when it is confined, idea encounters idea, and a complex web of thought emerges which is capable of generating high psychosocial energy. It seems to me that this notion can be used with advantage when the non-material facets of human experience are being investigated. I think such a postulation of a noosphere has some merit from an empirical point of view, and that it is not entirely arbitrary. Evidence that there is "something" is afforded by the widespread feelings of, what are often called "atmospheres", being attached to people, places, and things, e.g. some places, situations, make one feel happy, while in others one feels uneasy or frightened, and on occasion, a particular person, or group, may give rise to impressions which cannot be defined adequately. It well may be that such feelings or impressions are due to, or are augmented by, a failure to give a "rational" explanation of the event concerned, but if by "rational" is meant a complete description of the event, this is just what is not available. It would seem to be more rational to accept such phenomena, and try to investigate them, than to deny them, or ignore them, because an exhaustive account cannot be given. In the present state of human knowledge a certain amount of vagueness is inevitable in this domain, if only because we are attempting to consider factors which have not yet been brought to consciousness, or of which we are only dimly conscious.

Just as from a material point of view, the fact of the round earth on which we all live means we all occupy parts of a common space, so from a psychological, or spiritual, point of view, we cannot escape each other, and "consciousness" forms a milieu in which we live, even if it is no more than a kind of ethos or atmosphere made up of collected individual consciousnesses. This may sound rather like Jung's "collective unconscious", but I am certainly not intending to refer to such a concept. At this stage the "space" I postulate is too vague for any conceptual definition. The only satisfactory way of building up a more precise picture, it seems to me, is to examine the empirical phenomena available and try to see what sort of conceptual implications emerge. As our earth-bound existence sets limits to our physical environment, so also limits are set in the conscious sphere, in the sense that it has boundaries related to the set of people, because it is derived from earth-bound beings, and this implies that it is confined and not diffuse. In other words, this

non-material milieu forms a sort of "envelope" for the world, as, in a similar way, does the air we breathe.

A look at modern economic, political and social problems seems to show that man is only just beginning to realize the implications in the material world of being forced to develop in a closed, and not indefinite, area. This area is not merely confined, but is becoming increasingly small, as the population explosion takes place, and as modern methods of communication, both as regards transport and as regards radio and television, make all men neighbours to an extent hardly dreamed of not so many years ago. People are being forced to live closer together, and this proximity makes, inevitably, for fertilization of ideas and increase in maturity. I say "inevitably" as it seems to be a peculiar property of ideas that they affect each other, intentionally or not, and in this respect it makes no difference whether they are definite and well-formed, or whether they are blurred and inconsistent, nor whether they are being accepted or rejected, whether they are rational or irrational, conscious or un-unconscious. This proximity also has its dangers. According to a West German psychologist, his experiments with animals in artificially overcrowded communities point to the conclusion that the basic problem of the population explosion is that the psychological and social health of future generations will be undermined by the presence of too many other human beings.[3]

Each individual human being lives in a world of people, places and things, which affect him whether he likes it or not, and he has to come to terms with them, adjust himself to others, if his life is to be at all satisfactory. He cannot behave just as he might like, with no reference to anything else; for instance, the physical world imposes many constraints on him; he cannot walk through a brick wall, even if he wants to do so. The range of his behaviour is limited to possibilities, and not all things are possible. From a psychological point of view, he finds himself forced to recognize that sometimes factors external to himself invade his consciousness, and they often upset rational calculation. That is to say, something from outside, i.e. something the individual cannot control, moves the human organism, and a response is called forth. In other words, external stimuli affect the organism and lead to a reaction. There is always a reaction; there has to be, otherwise the organism would be dead, life being a process of acting and being acted upon, and it is always some sort of act, verbal or otherwise, which is called forth

[3] See "The sane community—a density problem?", by P. Leyhausen, in *Discovery*, XXVI, No. 9, September, 1965 (pp. 27–33).

by the stimuli. The act may be one of acceptance or rejection, withdrawal or participation, aggression or submission, etc., but if the act is not to be completely determined the individual has to use his will in the situation, and this involves him in making choices and decisions.

I think it is permissible to consider this source of stimuli, at least on some occasions, as being the noosphere or atmosphere of thought in which man is involved, and the stimuli affecting him as deriving from his growing awareness of it, and his involvement with it. I think it is possible to regard this sphere as a definite "space", in the sense that it marks a set of relations between people, who are forced to operate within defined limits. However, there is not one set of relations in the noosphere, but many, and they are generally incredibly complex, and their boundaries are usually indistinct. In so far as boundaries are marked at all, I think they are marked by the goal being aimed at, and the set, or sets, to which an individual belongs is determined by the choices, decisions, he makes as to which goals he is going to pursue. Here I appear to differ from de Chardin who does not departmentalize the noosphere in this way, but treats it as a whole, related to the "Omega Point". I suppose if one overwhelming goal is posited his view is correct, but bearing in mind the limitations of human knowledge, I do not think it helpful in trying to build up a scientific picture of the noosphere.

I suppose it might be said that all human behaviour is goal-directed in one way or another. When a man acts, he does so in order to satisfy a need, either his own or someone else's, and the direction which his activity takes is towards the goal which he believes will produce the desired end of satisfying the need. In this respect goals can be likened to centres, and as things tend to converge towards a centre, so a goal being something towards which men move, exercises a kind of pulling power. This power has a uniting function as far as all those pursuing the same goal are concerned, because they are all converging on the same point, and it is often recognised as love, love being an energy which tends to affinity.

Thus I think if we want to look for shape or form in the noosphere we have to direct our attention to goals, to consider and compare various kinds of goals and to investigate their function. I think one of their functions is to set boundaries in the thinking, conscious, environment of man, akin to the way the skin localizes the body. The body enveloped in its skin is confined, it occupies space and is separated from other bodies, and it produces energy, by which I mean, it can act. But what about the mind, what localizes

mind? If "mind" is taken to mean anything more than the physiological activity of individual brains, and I would not wish to confine it to this definition, then I do not think it can be confined to to individual bodies. In other words, however secretive one may wish to be, or however private one may imagine one's thoughts to be, thinking is basically a public activity and it has to use some sort of language and follow rules. If it does not, it cannot be recognized as thinking by anyone, including the individual who purports to be thinking.

This, of course, raises problems about what is generally called a person's "interior life". Whatever this is supposed to be, it is usually thought to be private, above all. But I wonder whether this is the case. I am inclined to think that if it is, it is non-existent, that is, if "private" means, peculiarly and absolutely individual. It well may be that people do have an interior life in this sense, but here I think we must distinguish between what is real and what is imaginary. In my view the imagination tends to obscure reality because I regard it as a subjective device for trying to overcome our separation from our environment, which is, of course, helpful when used as a guide, but an obstacle when its interim character is not recognized, as is often the case. Reality, on the other hand, must be objective, that is if it is anything at all it must be something held in common, something that in some sense is always external to individuals, even though perhaps one can make it, in some way, one's own, if one has a right relationship to it. In this context I do not think it can be said that an individual can possess himself as a "person", but that his personality, such as it is, derives from the relationships he is engaged in. In other words, a person, as opposed to an individual, can only be found and created in community.

It seems to me that goals not only perform a localizing function in the noosphere, but sociologically also they mark out various communities and have influences on the individuals coming within their particular orbit. Submission to a common goal by several individuals appears to form a sort of enclosure, i.e. a "space" with boundaries set by the implications which lie within the goal, usually recognised by the demands made upon each individual who wishes to pursue that particular goal. When an individual decides to pursue a particular goal, he enters the enclosure which it circumscribes and has to accept the constraints inherent in it. Examples of such enclosures are those formed by almost any social group, a club, a regiment, a college, a Religious Order, etc. Any such enclosure has its own peculiar characteristics which mark it off from others, and

each enclosure generates energy, i.e. it has effects, it is a powerhouse for good or ill.

Now as an illustration of activity concerned with the noosphere, I would like to consider the phenomenon which is often called "telepathy", and I intend to use that term, for want of a better one, although it has many associations to which I do not wish to subscribe. One of these associations is that it is usually discussed under the heading of "paranormal psychology", and I am not clear what the words "normal" and "paranormal" are supposed to mean here. It would appear that "normal" is reserved for ordinary sense perception, whatever that is, and I see no reason why this should be so. It seems to me the issue here is basically an epistemological one, concerning what can be said to be known, and this depends on the type of evidence accepted as constituting knowledge in any particular context. It may be the case that the criteria accepted as constituting knowledge when sense perception is involved draw a blank when this phenomenon is being discussed, but I do not see that this has anything to do with normality. I think the phenomenon is normal, in the sense that it is not unusual, but that individuals vary greatly in their awareness of it.

Here it is assumed that telepathic experiences happen. By this I mean that communication takes place between people without physical means, words, in particular, being employed. It has been well established that there is such communication between people. There is considerable evidence that non-verbal communication is common place in illiterate societies, for example, where persons transmit information to each other, quickly and accurately, without words. It also seems to be the case that this ability is soon lost as such a group becomes a bit more sophisticated, starts to be "educated". When they start to think—the power goes. Generally speaking, in literate societies the desire to communicate in this way arises when ordinary physical means are not available, often because the parties concerned are "at a distance".

It is often said that this activity is immediate, and what is meant by that appears to be that some sort of radio signal is supposed to pass from one person to another, usually it is said to be from brain to brain, or mind to mind. However, I doubt whether the mechanics are like this, and in any case do not find such a theory useful in considering the phenomenon. I think it is more helpful to regard the phenomenon as arising out of person inter-acting with person within a particular setting, which is common, in some way, to them, and that sympathetic, simultaneous, reactions to the common situation form the basis of the communication. I think some

evidence for this kind of interpretation is provided by the fact that, in the societies previously referred to where this type of communication is common place, success depends upon a close-knit group; when the unity of the group is broken or destroyed, the ability to communicate in this way is severely impeded, if not lost altogether. In other societies, it would seem a prerequisite for this type of communication to take place, that there should be some kind of "rapport" between the persons concerned, an affinity between them; the sort of thing which makes itself felt, for example, as when in a conversation one is suddenly apprehensive of what a person is going to say. Perhaps a better illustration is when one person is aware of what the other person is *not* saying, the kind of situation referred to by the man who remarked, that in his opinion, a man was not really married until he understood every word his wife did not say.

An interesting account of one person's telepathic experiences is to be found in the book by Rosalind Heywood, entitled *The Infinite Hive*.[4] She is inclined to think telepathy is a pretty common method of communication between people, and people and their environment, but that it is hardly ever recognized, for various reasons. From her experience she notes that a telepathic situation generally needs what she calls "strong emotional fuel", and so it tends to emerge between people with an emotional link, and also on occasions of crisis. Some professional workers in parapsychology have noted also that personal relationships play a significant part in ESP phenomena, and experiments devised to test this have yielded positive results.[5] On the other hand there are those who appear to hold the view that from a scientific point of view it is necessary to eliminate the personal elements as far as possible, and they have tried to devise experiments to cater for this. However, I think most of the experiments devised to investigate this phenomenon, e.g. the Vasiliev experiments,[6] even though they do not intend to, in fact, provide evidence for the fundamental importance of affinity or rapport, because they have all been conducted with "special" subjects, and the selecting of such subjects is an integral part of the experiments. That is to say, some may wish to

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[4] *The Infinite Hive.* Rosalind Heywood.

[5] See, e.g. the work of G. E. Rice and J. Townsend reported in a paper entitled "Agent-Percipient relationship and GESP performance", in the *Journal of Parapsychology,* Vol. 26, No. 3, September 1962, and also Vol 22, No. 4, December 1958, the survey of work on ESP and Teacher-Pupil attitudes by M. Anderson and R. White.

[6] *Experiments in mental suggestion.* L. L. Vasiliev.

argue that the question of affinity does not arise, that the experiments are conducted among people who have no connection with each other, but I think the vast amount of trouble taken to sort out "suitable" subjects, and in preparing them, often by hypnosis, makes nonsense of this argument.

If the point of view is taken that the basis of the communication is sympathetic reaction to shared stimuli, then it takes place initially at an unconscious level, and for information to pass the original communication has to be translated into consciousness, by one or both of the parties. It seems to me that acquiring competence in this translation procedure is the great problem. I do not think it can be claimed that information is transmitted unless the alleged information can be specified and checked. This means that it should be put into a verbal form, or at least submitted to some empirical test, either by asking about it verbally, or by acting in accordance with what is supposed to have been learnt, so that its accuracy may be verified. That is to say, the communication originates at an unconscious level and has to be translated into the consciousness of each of the parties concerned for information to be conveyed. Thus the information is not transmitted immediately, but is the result of the processing by the consciousnesses of the persons concerned of the data received. In other words, the original communication has to be organized and brought to consciousness, for it to be said that it contains information. I know it is claimed by some that information is directly transmitted from one brain to another, as for example, in card guessing experiments, but the evidence so far offered in this connection does not impress me. The actual mechanics of the process has not been explained yet, and even if some form of direct transmission does take place, I do not think it is relevant to this discussion. What I am interested in, is not so much a peculiar ability of perhaps a few people, but something more general, which seems to work through intermediaries provided by our environment.

Investigation of this phenomenon seems to indicate that the translation of the data received into consciousness is usually only partial, and is sometimes erroneous, *i.e.* the communication is wrongly interpreted. A given situation can be judged by the accuracy and completeness of the information said to be involved. If this cannot be formulated, no verification that there has been any communication is possible. It would appear that three types of situation can be defined, (*a*) where an agent is deliberately transmitting, (*b*) where an agent is unintentionally transmitting, and (*c*) the mutual case. In cases (*a*) and (*b*) the percipient may be

waiting, ready, to receive, or it may come unawares. Within these conditions various sets of relationships may operate, in some cases the agent may be consciously transmitting, while the recipient is unconscious, in others, the agent may be unconsciously transmitting, while the recipient is conscious. I think in these two cases the question of checking up is more or less impossible, and usually does not occur. In the mutual case, which may concern two or more people, and includes the close-knit societies referred to earlier, all the parties concerned are conscious, so information may be conveyed, and if necessary, checked. In this case especially, but in any case, some sort of affinity or rapport is a necessary pre-condition for communication to take place. And, except perhaps in the most primitive societies, this seems to depend on the persons concerned each submitting to the same goal, or to something, which results in a sort of "conditioning" which tends to dispose them to act, or react, in similar ways.

There is an important difference between telepathic communication in a very primitive society, where individual members have little or no sense of personal identity apart from the group, and that in more sophisticated groups, where each individual has, at least to some extent, begun to develop his own ego. The development of the ego, i.e. the consciousness of oneself as "I", is intimately bound up with the use of the intellect, and because in this connection the intellect has an isolating function, making one aware of oneself as being over against things and other people, a sense of separation from other people, and the world, is felt, and barriers begin to appear. One of the ways of repairing the divisions which stem from each individual's own intellect, is the submission to a common goal or goals, on the part of those individuals who wish to be united. Perhaps the main reason why illiterate societies quickly lose their ability for non-verbal communication as they begin to become literate is that literacy stimulates the intellect which immediately tends to encourage the individual to develop his own ego, and alongside this self-interest is developed. The adoption of suitable goals can discipline the intellect and help to eliminate individual self-interest, which is a serious obstacle to any communication, and appears to be fatal to the type of communication being discussed.

However the development of the ego on the part of individuals is an important stage of human growth. It enables each man to become a rational, mature, human being, and as such he can make a greater contribution to the human race, and enrich the society to which he belongs. A society which has been re-integrated after divisions caused by each member striving after his own individuality

can live at a higher, or deeper level, than primitive societies. It has more direction and control over its environment, and mutual relations between its members can be more creative, and this because it is based on conscious awareness and mutual sharing, rather than an unconscious merging, which is incompatible with personal responsibility. Such a society has a wider range, if only because it includes intellectual relations between the individuals which compose it, and as each individual is potentially a "centre", interaction between centres becomes a possibility. Attention has been drawn to the importance of this by de Chardin in the *Hymn of the Universe.*[7] He says "Amongst the various forms of psychic interaction which animate the noosphere, therefore, it is the 'intercentric' energies that we have above all to identify, to harness and to develop if we would make an effective contribution to the progress of evolution within ourselves".

Further consideration of this theme is not possible at present, but I hope it may be developed in another paper. I think when the whole range of telepathic phenomena is taken into account, the necessity to examine the implications of mutual commitment of persons becomes increasingly important. This is especially so when it is remembered that passing "messages" is a compartively minor feature of the phenomena. Of greater significance is the part it plays in personal relationships in general, and in intercession and healing in particular. Also I think such an undertaking permits a more rational approach to the phenomena. If manifestations of the phenomena are not to be regarded as "magic", they must be directed and controlled, at least to some extent, in a rational manner, and this can only be achieved by persons, not sinking their identity in an oblivious merging with the mass, but freely and consciously sacrificing their own egos for the good of the whole.

[7] *Hymn of the Universe.* T. de Chardin. p. 123.

New Maps of Heaven

Eric Hopkins

Kingsley Amis has discussed science-fiction under the title *New Maps of Hell*. But some science-fiction is better regarded as expressing wishes for salvation—salvation from the present lot of mankind. In these stories, either man saves himself from disaster by developing supernormal powers—contemporary man cannot escape disaster—or he is saved from himself, from his unfitness to continue, by the intervention of a super-terrestrial agency. Probably in the former case, and certainly in the latter, the aspiration expressed in the story is a religious one.

It needs to be understood that there has been a shift of interest in science-fiction during the past quarter century. We are no longer preoccupied with what the modern engineer calls "hardware"—rockets, computers, robotic appliances are merely commonplace. In science-fiction, at any rate, these wonders have ceased. Since the Second World War SF writers have been more attracted to psychological and sociological accounts of man, to the meaning of behaviour, human or alien, to the logic of what is being said, what is being done. Science-fictional man is seen essentially as a rule-following animal, responding, often fighting desperately to respond, to his problematical situation, according to his limited canon. This treatment of human beings by SF writers is seen most clearly in their modern use of robots in their stories. In recent SF the robot is a spare, simple paradigm of man. It is of no interest whatsoever as a gadget but is used with great ingenuity to explore the logic of rules of behaviour, of identity, of alien cultures (and therefore the nature of human culture). Robots impressed with "The Three Laws of Robotics" (see Asimov's *I, Robot*) run into unforeseeable situations and become conscience-stricken to the distraction of their human masters. In a quite different setting, a robot is fashioned into a "man" with such cunning art that the robot itself believes it is human until it explodes, just a nuclear device! In *Pilgrimage to Earth* Sheckley introduces a robot lifeboat which, programmed to save its extinct and alien manufacturers, almost murders two humans with its well-meant ministrations. They save themselves only by pretending to be dead.

Probably the most popular theme of speculation among SF writers since the War has been what used to be called simply "telepathy". But we are not led by the writer to wonder at the very notion of

communicating thoughts directly from mind to mind—many of us have seen dogs walking on their hindlegs and some of us have even heard women preaching. Rather we are once more invited to consider what difference this additional faculty would make in certain circumstances. In the best stories, humans alone, untouched by aliens, have exploited "paranormal" psychological possibilities.

In Theodore Sturgeon's *More Than Human* a group of six humans have so integrated themselves mentally that they think of themselves corporately as "I" and not as "We". Within the group they practise division of labour—for similar reasons of practical efficiency to those of Bacon's *New Atlantis* and Adam Smith's *Wealth of Nations*. One of the group can know the contents of any human's mind, including his memories. Another has telekinetic powers and can move objects at will. Two others, who are similar twins, are "teleports" and can move themselves wherever they wish. A fifth is the computer of the group, and can perform every possible computation upon the data provided to the group. The combination of these functions confers an enormous power upon the group, a power approximating to omnipotence. After a series of disastrous conflicts with ordinary humanity the sixth member-element of the group turns up—he is the group's conscience.

The story *More than Human* can be regarded as a response to the general feeling of insecurity felt by many today. The response is the fantasy of a man, or group of men, who is virtually invulnerable to disaster. And such fantasies spring from our anxiety, our sense of helplessness, incompetence, the unbridgeable gulf between our demands for survival and any source of effective action. As the starving dream of banquets so we, in fantasy, are transformed into omnicompetent supermen.

Sometimes the disaster from which the superman saves mankind is that of a monolithic and totalitarian state (heroes in SF stories are usually political deviates); sometimes it is the arrival upon Earth of malevolent aliens with superhuman powers who can only be repelled by an equally superhuman human. But in all these cases the fantasy is of an escape from a disaster which would otherwise be unavoidable by man's own efforts. Man works out his own salvation by becoming omnipotent—by becoming God.

This humanist resolution of the fears latent in the contemporary situation may be contrasted with the resolution suggested by another group of SF stories where salvation comes from outside the Earth, from, so to speak, "above". Arthur Clarke's *Childhood's End* is an excellent example of this group. Here an enormous spaceship arrives to hover above the earth and to bring gifts to men. Its

habitants (the "Overlords"), without leaving their ship or appearing in person, teach men enough to enable them to control their environment, both physical and social, and to live in harmony with one another. After fifty years of the Overlords' tutelage, all divisions among men have ceased and the earth becomes a utopia.

But the story does not end with extra-terrestrial salvation from terrestrial evils. The Overlords descend with their spaceship and reveal themselves as having forked tails and horns—they are, in appearance, the traditional devils. They explain that an earthly paradise is not the final goal for mankind, which is now ready for its ultimate stage of evolution into a single immaterial and spiritual being which will no longer need the Earth for its habitation. "A century ago we came to your world and saved you from self-destruction. We banned nuclear weapons . . . the danger of physical annihilation was removed." Science had been "the only real religion of mankind. It was the gift of the western minority to the remainder of mankind, and it had destroyed all other faiths". But the terrestrial mystics had glimpsed a part of the truth : the proper destiny of man was to do something not envisaged even in paranormal science. The destiny of man, as of many other intelligent species, was to become part of the "Overmind" of the Universe, which is the intelligent conscious awareness of all things. So the story ends with the transformation of the human race by its union with the Overmind, while the Overlords move on to effect a similar metamorphosis in another race of intelligent beings.

Clarke is taking the religious view that man and his institutions are intrinsically defective. Even if God gave man a utopia man's condition would remain unsatisfactory. In his symbolism utopias, however acceptable, are the gifts of the devils whose real function in the scheme of things is that of enabling intelligent beings to leave earthly things behind, to destroy their utopias. Clarke's "message" is that, though an earthly paradise is desirable, it is only a stage towards the final consummation, the end of childhood, which is union with God.

Childhood's End is an excellent example of a group of SF stories in which, although there may never be direct intervention in mundane affairs, yet it is intimated that the Earth is under surveillance by superior beings. Such stories express a wish that, if the worst comes to the worst in human affairs, mankind will be saved from itself.

What these SF writers are doing is using the language of modern technologies and disciplines—rocketry, cybernetics, sociology, psychology, parapsychology, mathematical logic—to express

emotions, needs and interests which in earlier times might have been formulated in orthodox Christian language. The stories are written for a public which is, by and large, ignorant of Christian allegories such as *Everyman* or *Pilgrim's Progress*. But the SF public nevertheless has religious ideas and feelings, and these are expressed in the modern parables of SF literature.

The peculiarly contemporary anxiety of the last twenty years shows itself in a recognition that modern man is inadequate to meet demands which he has himself created. The science-fiction parables show two ways out of this impasse. One of these routes is in the humanistic tradition : it is for man to save himself by becoming superman. The other route is in the theistic tradition : it is for man to be saved from himself by a super-terrestrial power. A hope for salvation in the former way is man-centred; in the latter way it is God-centred. Both these pleas for salvation may be seen as forms of prayer.

Retreat from Utopia

Rupert Sheldrake

The voyages of exploration from the late middle ages onwards and the growth of the Natural Sciences opened up vast ranges of possibility for the imagination to populate and to describe. It is in the imaginative explorations of these possibilities that we find the origins of science fiction, and its subsequent history closely parallels and reflects the development of science and technology. Science fiction of necessity involves a projection of the imagination into the unknown; at the time of its writing it involves the description of situations which lie outside any actual human experience. It is distinguished from fantasy by appearing to keep within the limits of scientific possibility. Much science fiction in fact depends on pseudo-science; but the pseudo-science is made to seem plausible.

Ever since Sir Thomas More's, most utopias have been written within the framework of science fiction. When More wrote *Utopia*[1] he did not describe it in abstract terms as he might have done if he had modelled the form of the book more closely on Plato's *Republic*.

[1] A word he coined by combining ou-topos, nowhere, with eu-topos, a good place. It is in the latter sense that utopia can be contrasted with dystopia.

By writing it in the form of an imaginary voyage, he described it as if it actually existed. This is a very powerful device, and it is one which has been adopted by nearly all subsequent writers of Ideal Commonwealths. If a utopia is described in terms of vague possibility it is bound to meet with scepticism; but if a seemingly concrete utopia is presented in a fictional form, the suspension of a disbelief adds greatly to its force. Indeed so convincing was More's book that some people believed it to be true, including the famous Vicar of Croydon who attempted to become the Bishop of Utopia. When much of the world was unexplored, utopias were set first in the New World, then in the Pacific, then in Australia, retreating as the frontiers of geography advanced. When practically no terra incognita remained, they moved first to the moon and then to the planets, or else were transposed into the future. In the present century, as a reaction both to materialist utopian fictions (particularly those of Marxists and of H. G. Wells) and also to the social consequences of technological advance, a new type of literature has arisen which we can describe as dystopian. These anti-utopias use the same devices and science fiction techniques as utopias themselves, but have an opposite purpose. They exhort us not to pursue utopia, but to avoid it. This retreat from utopia is the most noticeable and important characteristic of modern imaginative social literature.

The great utopian books have all been produced in times of disorganization and social upheaval—Plato's *Republic* in Athens after the Peloponnesian war; More's *Utopia* in early sixteenth-century England; Bellamy's *Looking Backward* and scores of other utopias in the late nineteenth century at the height of laissez-faire capitalism. All the ideal commonwealths and constructive utopias have been urban, based on centralized government and the city. Pastoralist utopias like William Morris' *News from Nowhere* are utopias of escape which seek to reverse this situation; they lie in a different tradition.

The background of chaos against which the ideal commonwealths were written helps to explain their predominant characteristic. They all describe rational, planned and completely ordered societies; the individual is subordinate to the community. This characteristic is amplified by the way in which such books have to be written. By their very form and intention they are concerned with the community, with a discussion of laws, rituals, institutions and public ceremonies; there is little place in these utopias for the description of the private lives of individuals. From this feature there flow two related consequences, both of great importance in understanding

why in the twentieth century the writing of utopias has become less and less frequent; why in fact it has become almost impossible for utopias in the traditional sense to be written at all; and why on the other hand satirical utopias or dystopias have become the predominant type of imaginative social literature. Firstly, the subordination of the individual in utopian literature lays it open to satirical attack from an individualist and humanist standpoint. This attack takes the form of writing about the utopia from the inside describing the lives of a few individuals within it and showing how greatly are their freedoms constricted, their lives narrowed and their human relationships impaired. For in a totally rational and ordered society there would be no room for deviations from the norm, or emotions which had not been allowed for. Utopian satire of this type reflects in general the individualist reaction to collectivism, and in particular the naïveté of the utopian planners. An example, which will be considered later is E. M. Forster's story *The Machine Stops* which is a reaction to some of the utopian outpourings of H. G. Wells.

The second reason for the decline of utopias and the ascendency of their opposite lies in a radical change in the condition of society. The utopias of the past were written when disorder and anarchy seemed to be the greatest threat, but at the present time the opposite seems increasingly to be true. No longer is anarchy the common fear, but the subjugation of the individual, whether by a totalitarian bureaucracy or by a technocratic, machine-like society in which deviation, being unpredictable and inefficient, is suppressed. As society in reality seems to approximate more and more closely to the order and predictability of a utopia, for an individualist the less and less desirable this utopia seems. Orwell's *1984* is very similar in many respects to Plato's *Republic,* and Aldous Huxley's *Brave New World* strongly resembles a Wellsian utopia; they are merely seen from a different point of view. This reversal of attitude can be accounted for by the feeling of the dreadful imminence of utopia, the feeling that an ordered, planned and conformist society increasingly threatens to engulf the individual. It would not be unduly cynical to observe that in the past the writers of utopias saw themselves as the planners of society, not the planned for; and furthermore that in the stratified societies they usually imagined, they saw themselves as members of the ruling class. Plato's *Republic* is written from the point of view of a guardian, not of a slave; More's *Utopia* from the viewpoint of a magistrate rather than a labourer; and Wells' *Modern Utopia* through the eyes of one of the samurai, not those of an artisan. Perhaps this is inevitable; the same tendency appears, for example, amongst the advocates of eugenics.

Sir Julian Huxley's descriptions of the ideal type of sperm donor make it clear that he himself would fall into this category. But as utopia of a sort seems almost upon us, it becomes increasingly difficult for writers to be sufficiently detached to plan their own utopias. They are too nearly in one, and one that is not of their own making. It seems that utopia seen from above becomes a dystopia when seen from within.

Ideal commonwealths after More's *Utopia* became increasingly preoccupied with means rather than ends, they became more materialistic. Bacon's *New Atlantis* first sounded a paean to technological progress, and as inventions and the applications of science played an increasingly important part in the transformation of the condition of life and society, their importance in the utopia of means became overwhelming. Nineteenth-century utopias were nearly all set in the future and depended on continued scientific advance. Therefore, unlike the earlier utopias which are of interest as science fiction from their form, much of the content of many of the later utopias can be regarded as science fiction. The most influential of these was Bellamy's *Looking Backward* (1888). It is set in Boston in the year 2000. The economic changes, the establishment of state ownership and control of the means of production, distribution and exchange, were supposed to have come about by evolution, rather than revolution. The society is communist, and includes traditional utopian features such as communal dining halls. More's *Utopia* was based on a monastic model, but Bellamy's society is founded on a military analogy; the community is one vast industrial army. The ranks are not hereditary, but dependent on age. Crime has withered away, everyone is happy, and the millenium has been achieved by material well-being made possible by industrialism and the just distribution of property. Various inventions are in common use, including a broadcasting system and muzak. Bellamy has a persuasive fervour which makes his utopia a pleasure to read; his Boston is made to seem an attractive place, especially for a writer, like Bellamy, since writers alone stand outside the ranks of the industrial army. This is not true of most of his successors, whose materialist utopias are often as dreary and uninspiring as Jules Verne's "Frankville" in *The Begum's Fortune*. And like all utopias they describe societies seen from without.

The utopian writings of H. G. Wells envisaged in his own words, a "world-machine, planned and efficient, protecting and expanding human life". E. M. Forster's story *The Machine Stops* (written before the first world war) described the world-machine from within. Human life is lived underground in small hexagonal cells, identical

throughout the world. It is protected from disease by automatic medical machines, from atmospheric changes, from emotions and from direct experience. All truth is contained within the Book of the Machine and there are no other books. Life is expanded by lectures and a universal telecommunication system which makes it unnecessary ever to leave one's cell. Eugenics and euthanasia ensure stability. But a young man develops ideas of his own : man, not the Machine, is the measure of all things. He visits the surface of the earth and sees the grass and the sun and the hills of Wessex. The Machine "has robbed us of the sense of space and of the sense of touch, it has blurred every human relation and narrowed down love to a carnal act, it has paralysed our bodies and our wills and now it compels us to worship it. The Machine develops—but not on our lives. The Machine proceeds—but not to our goal. We exist only as the blood corpuscles that course through its arteries, and if it could work without us, it would let us die".[2] But gradually the Machine goes wrong : the Mending Apparatus is itself in need of repair. In the poisoned darkness, all life perishes. But on the surface of the earth a few men, the Homeless, survive. "They are living in the mists and the ferns until our civilization stops".

This short story of Forster's is the first dystopia. It is signficant that it was written as a satire on Wells, and not by extrapolating existing tendencies in society. The world before 1914 did not seem to be moving in the direction of the Machine; it is a satire on a Wellsian utopia but not on society. However it contains many of the features which recur in later dystopias which were much more directly affected by technological and social changes. Utopias are always seen through the eyes of a visitor from without, but in a dystopia, a utopia seen from within, it is necessary for an inhabitant to differentiate himself from the mass, to develop self-consciousness. The story then turns on the conflict between the free individual and the conformist, machine-like society. This is what happens in Forster's story, and at the end, when the Machine stops, the Homeless survive, and with them hope for the future of humanity.

Three years after his return to Russia during the October revolution, Eugene Zamiatin wrote *We*. He had worked and suffered for the revolution, but was rapidly alarmed by the tendencies he saw developing in Soviet society. The book describes a totalitarian state, minutely organized and planned, in which all the citizens are numbers, not individuals. They live in identical glass apartments, under the constant surveillance of each other and the omnipresent

[2] E. M. Forster. *Collected Short Stories,* Penguin ed., p. 131.

guardians. Every action is regulated by the Table of Hours. The United State is worshipped by all, and its head, the Well-Doer, is regarded as divine. The hero, D-503, is in charge of the construction of a space-ship, the Integral, whereby the United State will create other United States on all inhabited planets. *We* is the diary of D-503 and describes the United State and the events there through his eyes from a point of view which changes as he becomes an autonomous individual and develops a soul, until at the end he undergoes an operation on the brain which by removing the fancy renders man a totally perfect and totally happy machine.

The book turns on the conflict between freedom and happiness. Its literary inspiration was Dostoyevsky's legend of the Grand Inquisitor, from *The Brothers Karamazov*. If man is free, he is unhappy; total happiness can only be achieved by the total surrender of freedom. It is on this premiss that the United State is founded : "There were two in paradise and the choice was offered to them : happiness without freedom, or freedom without happiness. No other choice . . . They, fools that they were, chose freedom. Naturally, for centuries afterwards they longed for fetters, for the fetters of yore. . . . We returned to the single-mindedness and innocence of Adam and Eve. No more meddling with good and evil and all that; everything is simple again, heavenly, childishly simple ! The Well Doer, The Machine, the Cube, the giant Gas Bell, the Guardians—all these are good. All this is magnificent, beautiful, noble, lofty, crystalline, pure. For all this preserves our non-freedom, that is our happiness".[3] This happiness was achieved when the United State won its victory over the two forces that ruled the world, love and hunger. Hunger was conquered by the invention of petroleum food. The United State then attacked the second ruler of the world, love, and conquered it by reducing it to a mathematical formula. The laboratory of the Sexual Department finds out the levels of sex hormones in the blood, and accordingly makes out a table of sexual days. "Then you file an application to enjoy the services of Number so and so, or Number so and so. . . . It is clear that under such circumstances there is no reason for envy or jealousy. The denominator of the fraction of happiness is reduced to zero and the whole fraction is thus converted into a magnificent infiniteness".[4]

But D-503 is tempted by a woman, I-330, and loses the numerical happiness and innocence of the United State. He becomes free,

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[3] E. Zamiatin, *'We'*, Dutton paperback ed., p. 59.

[4] ibid, p. 22.

and develops the incurable disease of possessing a soul. He is drawn by I-330 into a revolutionary movement, the Mephi (from Mephisto) standing for the principle of anarchistic energy. Outside the Green Wall that surrounds the city are the remnants of humanity who hunt in the woods and ride over the steppes. With the help of D-503, they hope to take over the Integral and use it for their own ends. At the end of the book, just as the United State has developed the ultimate means to happiness, the operation for the removal of the fancy, and opened the way for the total extinction of the individual, the revolution rages in the streets. After an interview with the Well-Doer himself, a version of the Grand Inquisitor, D-503 voluntarily submits. His soul is extinguished, his happiness is complete.

In Aldous Huxley's *Brave New World* (1932) the choice is the same: freedom or happiness. The Savage from the reservation has the alternatives of happiness in utopia or freedom, squalor and disease in a primitive village. He chooses neither, and the book ends with his suicide. *Brave New World,* like *We,* is a totalitarian utopia set several centuries in the future. It has achieved the goals of utopia, summarized in the motto of the World State: Community, Identity, Stability. Art and pure science are subversive and consequently suppressed. The figure of the Grand Inquisitor appears in the person of Mustapha Mond, the Resident World Controller for Western Europe. Like the Well-Doer, he knows what has been sacrificed for happiness, he knows everything, but bears the burden of freedom to serve the happiness of others. "The world's stable now. People are happy; they get what they want, and they never want what they can't get. They're well off, they're safe; they're never ill; they're not afraid of death; they're plagued with no mothers or fathers; they've got no wives, or children, or loves to feel strongly about; they're so conditioned that they practically can't help behaving as they ought to behave".[5]

The achievement of total happiness and stability is not the product of material goods alone; it depends on the application of biology and psychology to society. As Huxley remarks in his foreword, "It is only by the sciences of life that the quality of life can be radically changed". In the United State of Zamiatin this was finally brought about by an operation on the brain. In *Brave New World* biological and social engineering are the basis of the utopia. Huxley wrote the book in part as a reaction to J. B. S. Haldane's prophecies of the revolutionary transformation of society by biology

[5] Aldous Huxley, *Brave New World,* Penguin ed., p. 173.

contained in his *Daedalus* (1923). *Inter alia* Haldane predicted that by the middle of the twenty-first century human embryos would be grown *in vitro* and that ectogenesis would be the universal means of production of people, thus opening up endless possibilities for social engineering. *Brave New World* commences with a description of an Embryo Hatchery. By the variation of their nutrient medium the embryos are predestined differently; the lower the caste, the lower the amount of oxygen and the greater the damage to the brain. When the babies are decanted, they are subjected to Infant Conditioning; their heredity and environment combine to fit them for their position in society. This idea of perfect social predestination, analogous to that of ants, had previously been developed by H. G. Wells in *The First Men in the Moon*, but the advances in embryology in the 1920s had made Huxley's embryo factories genuine scientific possibilities. The other biological changes in *Brave New World* include the development of soma, a drug which produces instant happiness, and the encouragement of sexual promiscuity The latter follows from the Freudian principle that sexual frustrations result in aggression and rebelliousness, both of which would be a danger to stability. In Zamiatin's United State, the sexual tables serve the same function. The result of all this is not only the complete elimination of freedom, but also the complete love of servitude. *Brave New World* cannot be dismissed on the grounds that the biological developments it envisages are impossible. As Joseph Needham wrote in a review, "The biology is perfectly right, and Mr. Huxley has included nothing in his book but what might be regarded as legitimate extrapolation from knowledge and power that we already have".[6] Huxley's book depicts a scientific dystopia which is frighteningly possible.

George Orwell's *1984* is the most pessimistic of all dystopias. Unlike *Brave New World* and *We* it is not set centuries hence, but only a few decades. It does not depend on any technology which does not already exist. Indeed the telescreen is almost the only science fiction element in it. Science has almost ceased to exist; it remains only in order to develop new weapons for use in the perpetual war, and to perfect a method for the elimination of the orgasm, the sole remaining pleasure of the populace. There is no freedom, but neither is there happiness. If obedience were automatic, the power of the Party would be assured without the need for the Thought Police and the telescreens; by more subtle means the Party could achieve automatic domination—but the party is

[6] *Scrutiny*, May 1932.

motivated by pure hatred and the desire to be intoxicated by power. "If you want a picture of the future, imagine a boot stamping on a human face—for ever", says O'Brien, another incarnation of the Grand Inquisitor, but a Grand Inquisitor motivated by hatred, not by any love of humanity. The plot of the book is modelled closely on that of *We*: the hero, Winston Smith, keeps a notebook, is tempted from obedience by his love for a woman; he becomes associated with a revolutionary organization, the Brotherhood. But the Brotherhood does not exist; it was invented by the Party. All his activities have been observed by the Thought Police and his diary has been read. In prison he confronts O'Brien, the representative of Big Brother. O'Brien knows everything. Winston's will is crushed and annihilated. He submits, and loves Big Brother.

In *1984* there is no hope. It carries to the ultimate and hysterical extreme the process which is depicted in all dystopias, the establishment of a stable, conformist society in which art and pure science are suppressed. It is primarily a political satire. But the continued advances in technology and applied psychology make a dystopia like *Brave New World* seem a more likely possibility; and societies of this type are one of the favourite nightmares of modern science fiction. Ray Bradbury's *Fahrenheit 451* (1954) is perhaps the best of these. It combines some of the political elements of *1984* with certain scientific possibilities, all the more frightening because they are more immediate than those of *Brave New World*. The plot follows a familiar pattern. Montag, the hero, gradually becomes alienated from his conformist society; a process which is accelerated by his meeting with a girl who is a symbol of free and spontaneous humanity. He is drawn into a subversive organization, and finally escapes to the wilderness of the countryside where a few Homeless wander. At the end of the book a war breaks out which destroys the city, but the wanderers survive as a hope for humanity. Montag is a fireman, but in his society all houses are fireproof. The function of the fireman is to burn books except the fireman's manual, comics and trade journals. "It's fine work. Monday burn Millay, Wednesday Whitman, Friday Faulkner, burn 'em to ashes, then burn the ashes. That's our official slogan". Instead of books, and giving rise to no disturbing thoughts, are the T.V. walls in every house and the ear thimbles providing an endless electronic ocean of sound.

The Grand Inquisitor figure in *Fahrenheit 451* is the fire-captain, Beatty. "We must all be alike. Not everyone born free and equal, as the Constitution says, but everyone *made* equal. Each man the image of every other; then all are happy, for there are no mountains to make them lower. So! A book is a loaded gun in the house

next door. Burn it . . . what do we want in this country, above all? People want to be happy, isn't that right? . . . Well aren't they? Don't we keep them moving, don't we give them fun? That's all we live for, isn't it? For pleasure, for titillation? And you must admit our culture provides plenty of these . . . We're the Happiness Boys. We stand against the small tide of those who want to make everyone unhappy with conflicting theory and thought".[7] The burning of books is not the only function of the firemen. They are also charged with the elimination of deviants. This is the purpose for which the fiendish Mechanical Hound is employed.

Fahrenheit 451 is an American dystopia, not one which arose by revolution and the Party, but one which evolved by the Democratic tyrrany of the majority, a possibility which had been seen and feared by de Tocqueville. The other route by which dystopia might be reached in the United States is by the power of big business and capital, and the agency of Madison Avenue. In Pohl and Kornbluth's *Space Merchants* (1953), the population of an overpopulated world is conditioned by drugs and ads, and dominated by several giant advertising agencies. One of them, Fowler Schocken Associates, is planning to develop and exploit Venus, and has started a promotion compaign for the great space voyage. The revolutionary organization, the Conservationists, plan to take over the Venus rocket, just as the Mephi in *We* had planned to capture the Integral. There are two main themes in the book, the satire on advertising, and the prospect of a grossly over-crowded world with its chlorella plantations and a population which sleeps on the stairs of the skyscrapers. Both these are themes which are treated frequently by the writers of science fiction, but nowhere as well or as amusingly as in the *Space Merchants*. The following extract describes part of a conference at Fowler Schocken Associates.

" 'I swear the whole damned government is infiltrated with consies! You know what they've done. They outlawed compulsive subsonics in aural advertising—but we've bounced back with a list of semantic cue words that tie in with every basic trauma in American life today. They listened to the safety cranks and stopped us from projecting our messages on air-car windows—but we've bounced back. Lab tells me . . . that soon we'll be testing a system that projects direct on the retina of the eye.

" 'And not only that, but we're going forward. As an example I want to mention the Coffiest pro—' he broke off. 'Excuse me, Mr. Schocken', he whispered. 'Has Security checked this room?'

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[7] Ray Bradbury, *Fahrenheit 451*, Corgi ed., pp. 62–5.

"Fowler Schocken nodded. 'Absolutely clean. Nothing but the usual State Department and House of Representatives spy-mikes. And of course we're feeding a canned play-back into them'."[8]

The Space Merchants is a satire which projects certain tendencies in society into the future. It is not strictly a dystopia; no one in the society it describes would think of it as utopia. Another amusing satire, which describes a future England as a drab, philistine and inefficient Welfare State, is Evelyn Waugh's *Love Among the Ruins.* But besides the books which I have discussed, there are literally hundreds of others which are dystopias or social satires. Almost any recent story which deals with the future of society must take the effects of technology into account, it must almost by definition be science fiction. It is significant that nearly all such stories see the future in a pessimistic light; the freedom of the individual is shown as being threatend by a conformist, machine-like society; art and literature are non-existent, or suppressed.[9] Almost all the themes in these stories are similar to, or derivative from, the dystopias and satire which I have discussed. Apart from isolated examples like B. F. Skinner's *Walden Two,* and Aldous Huxley's *Island* (which rejects the traditional utopian premisses) there are practically no modern utopias which are presented as such. In Berdiaeff's words, quoted at the beginning of *Brave New World,* "Les utopies sont réalisables. La vie marche vers les utopies. Et peut-être un siècle nouveau commence-t-il, un siècle où les intellectuels et la classe cultivée rêveront aux moyens d'éviter les utopies et de retourner à une société non utopique, moins 'parfaite' et plus libre".

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[8] Pohl and Kornbluth, *The Space Merchants,* Penguin ed., p. 10.

[9] Examples of such stories, to name only two, are "Atrophy" by E. Hill (in *New Writings* in S.F. 6, Corgi books) and "The Food Goes in the Top" by W. Worthington (*The Unfriendly Future,* Four Square Books).

Review

Experiments in Mental Suggestion. L. L. Vasiliev.

Institute for the Study of Mental Images. Church Crookham, Hants. 1963. 30s.

This is an unusual book—not only by reason of its subject (which in these days is not as unusual as it once was), but because of the almost ingenuous way in which its author sets out material of widely differing degrees of evidential value. The effect is in some ways more persuasive than a more carefully worked-up statement might have been. The subject-matter of the book is telepathic phenomena, and it consists mainly of a compilation of reports on experiments carried out in the period 1921-1938 in the Soviet Union by the author and his colleagues. There is also a concluding chapter on the present state of the problem of mental suggestion, which gives a short account of work being done in other countries and points out certain modifications that recent discoveries necessitate to the work reported in the earlier chapters in the book.

The author is professor of physiology in the University of Leningrad. In 1921 he took part in some experimental work done under the leadership of V. M. Bechterev on the effectiveness of signals given mentally to performing dogs. Thereafter he began his own investigations of telepathic phenomena in human subjects, and continued with them for more than forty years. The blurb says that his work was at first officially encouraged by the Russian government, but was later on shelved—probably suppressed—when it became clear that positive results of a startling kind were being obtained. Then in 1960 when rumours were being spread about American military interest in such matters reference was once more permitted to Vasiliev's work, and in the following four years three books by him were published. The first two of these were popular accounts of his work, and the third, which is a scientific account addressed to 'biologists, physiologists, psychologists, doctors, physicists, and specialists in other disciplines', is the one which is here given in an English translation.

Vasiliev's description of the events leading to the publication of this book provides an illustration of what I have spoken of as his ingenuousness. Hs was, of course, a victim of the isolation that all Russian scientists had to endure in and for some time after the Stalin era, and had very little contact with workers abroad. To a

large extent he was dependent on odd articles in magazines that happened to come his way. In 1959 and 1960 he received copies of two articles that had appeared in French popular scientific journals; the articles described some sensational experiments on mental suggestion which were believed to have been carried out in the summer of 1959 aboard the American submarine *Nautilus*. He seems to have taken these accounts at their face value, despite the fact that Washington disclaimed all knowledge of any such experiments. He writes (p. 6): 'This totally unexpected foreign confirmation of our twenty-five years old experiments compelled me to make them known to a wider circle of scientific workers'. But perhaps the ingenuousness lay elsewhere, for on the basis of no other evidence that that contained in the two articles he seems to have persuaded the authorities to order the publication of his work.

The aim of the book is, in the author's words, to present 'the substance in monograph form of many years' experimental work on mental suggestion conducted by studying the phenomena in three basic modes, namely, sensory, motor, and (principally) hypnotic manifestations'. He regards as of most importance certain experiments which were designed to test the electro-magnetic theory of mental suggestion and in which either the sender or the percipient was sealed off in metal. The additional chapter at the end (misleadingly described on p. 7 as 'an Appendix to Chapter X'—perhaps a translator's error, for it is evident that Chapter X is itself the appendix in question) is meant to enable the reader to 'form a correct impression of the value of the work done in Russia in the '20s and '30s, what in it was novel and original what still retains its novelty, and what deserves repetition and elaboration with present day methods and techniques". One interesting feature of the book is that the reports on which most of its chapters are based were written at various times and at different stages of the research; Chapter I has in fact been deliberately left unrevised in order that the reader may form a clear picture of progress in the course of twenty-five years by comparing it with Chapter X.

There is a methodological point on which Vasiliev seems to me to be entirely right. How is the question of telepathy to be explored? Some say that we must first establish as a fact the occurrence of telepathic phenomena, before attempting to find out how they work; others hold that this procedure would merely delay progress and urge that we should pursue the investigation of the phenomena as if their existence had been finally established. Vasiliev is firmly on the side of this second view. He says 'It is just in the course of conducting such experiments that one may

find out all those conditions necessary and sufficient for the unhampered experimental production of mental suggestion phenomena: this would be the best proof of their actual occurrence'. And he mentions the parallel cases of hormones and vitamins, whose physiological effects were studied long before their existence had been proved beyond all doubt. This argument is a convincing one.

But the sentence I have just quoted raises the central question: has Vasiliev actually produced this 'best proof'?

Let us consider what he actually claims. Of the three lines of inquiry that he followed—attempting by mental suggestion to influence bodily actions, or to transmit thoughts, or to cause a percipient to fall asleep and wake up—the first two are rejected as inconclusive. It is in connexion with the third that Vasiliev makes his most interesting claims. I think it will be best to state these at length. On p. 116 he gives the following list of conclusions.

1. A preliminary selection of sensitive subjects is requisite in experiments for investigating the psychophysical nature of telepathic phenomena. This is necessary in order to obtain sufficiently reliable results.

2. The 'hypnogenic method worked out by him, with self-observation by the subject, coupled with objective registration of his or her responses, is a perfectly suitable method for use in further experiments because the results obtained by this method are clear and repeatable.

3. It is not necessary for the sender to know either the location or the nature of the surroundings of the percipient. On the other hand, he has to know the subject by sight and must clearly visualise his visual image in order to effect telepathic transmission.

4. The length of the distance between sender and percipient plays no appreciable part. This does not mean, however, that the inverse square law does not apply to such cases.

5. No one has yet succeeded in discovering any physical indicator or radiation produced by the brain which transmits the "telepatheme".

6. The screening of the sender from the percipient by means of metal does not prevent the occurrence of telepathic phenomena; from this it must be concluded that, if the transmission of thought at a distance is effected by radiation of electro-magnetic

energy emanating from the central nervous system, then such electro-magnetic energy must either be sought in the region of kilometre electromagnetic waves or else beyond the soft X-rays, but neither supposition is at all probable.

Vasiliev claims not only that his experiments prove the existence of telepathic phenomena but also that he has discovered a method in which experiments are repeatable. His account of the experiments certainly supports this. For example, in one series of experiments a subject was sitting or lying in one room; two observers were also there; and another person (the "sender") in another room tried by mental suggestion to induce the subject to fall asleep at a moment unknown to either subject or observers. He would do this by reproducing with the greatest possible vividness feelings usually experienced when falling asleep and associating these feelings with the image of the percipient while mentally conveying the command 'go to sleep'. Then, if this suggestion was successful, the sender after a little time began to give suggestions of awakening in the same manner as when putting to sleep. Provided that the subject was one who was sensitive to this sort of suggestion this experiment could be carried out several times at short intervals, and Vasiliev and his colleagues developed so much confidence that they were able to arrange demonstrations and carry them out with success. Now while one must acknowledge that Vasiliev has produced a striking achievement, there are some qualifications that need to be made to our congratulations. First, of all his experiments, the only ones to bring success have been those which had as their goal the induction of a form of hypnotic sleep and arousal from it; he did not succeed in e.g. transmitting information. Secondly, hypnosis is itself a phenomenon that is little understood, and it is a pity that Vasiliev's successes have been in this obscure area. It is natural to hope that a fruitful piece of research will illuminate the landscape of that part of the total sum of human knowledge in which it falls; this hope has been disappointed in this case.

MATTHEW SHAW

NOTES ON CONTRIBUTORS

R. B. Braithwaite is Knightbridge Professor of Moral Philosophy at Cambridge. Author of *Scientific Explanation* (1953) and *An Empiricist's View of the Nature of Religious Belief* (1955).

Gregory Wilkins is Director of the Society of the Sacred Mission. He read classics at Bristol and has been a tutor at Kelham.

Dorothy Emmet is retiring from being Professor of Philosophy in the University of Manchester, and will be working privately in philosophy in Cambridge. Author of *The Nature of Metaphysical Thinking Function, Purpose and Powers,* and *Rules, Roles and Relations.* Honorary Fellow of Lady Margaret Hall, Oxford.

George Every is a lay brother, tutor and librarian of the Society of the Sacred Mission. Author of *Christian Discrimination, The Byzantine Patriachate,* and *Misunderstandings between East and West.*

I. J. Good is Joint Fellow of Trinity College, Oxford, and the Science Research Council. Was the general editor of *The Scientist Speculates* (Heinemann and Basic Books, 1962), and the author of *Probability and the Weighing of Evidence* (Griffin and Hafner, 1950), and *The Estimation of Probabilities* (M.I.T., 1965), and over a hundred articles in mathematical, statistical and other periodicals. Interests: mathematics, probability, statistics, information theory, computers, machine intelligence, philosophy of science, physics, psychology, chess and Go.

E. W. Bastin, sometime Research Fellow of King's College, Cambridge, is Principal Investigator U.S. Air Force project in Information Systems, and has done work on the Theory of Solids, and been Isaac Newton Student in the University of Cambridge.

Margaret Masterman studied French language and literature at the University of Paris and Modern Languages and Moral Science at Newnham College. She is the Director of Research at the Cambridge Language Research Unit, a Director of Studies in Moral Science, and has been a lecturer for the Moral Science Faculty on philosophy of language. She is also the Vice-President of Lucy Cavendish College.

Austin Farrer is Warden of Keble College, Oxford. He has taught philosophy and theology in Oxford, and been Gifford Lecturer in Edinburgh. Author of *Finite and Infinite; The Freedom of the Will;* and, on a more popular level, *The Glass of Vision, Love Almighty and Ills Unlimited* and the booklet under review.

Joan Miller studied theology at William Temple College and Philosophy at University College, London. She is now H.M. Inspector of Factories.

Eric Hopkins is principal lecturer in Educational Psychology at Keswick College of Further Education, Norwich. He was secretary to the pre-War Science Fiction Association, and his professional work is leading him to study Science Fiction as projective material, revelatory—perhaps —of private and public anxieties.

Rupert Sheldrake read the Natural Sciences Tripos, and is now a research student in Plant Bio-Chemistry at Clare College, Cambridge.

Matthew Shaw belongs to the Society of the Sacred Mission. He read Moral Sciences at Cambridge and has been philosophy tutor both at Kelham and the S.S.M. house in Australia, and is part time lecturer at St. Martins College, Lancaster.

Andrew Rawlinson, who designed the cover, went as an English scholar to Pembroke College, Cambridge, where he is now in his third year, reading Moral Science.

dsh—Dom Sylvester Houédard—Benedictine poet and critic, joined Prinknash Abbey in 1949. In 1962 he and two poets in Scotland (Ian Hamilton Finlay and Edwin Morgan) were the first three in Britain to be interested in concrete poetry. He wrote the first article to appear in English on the new poetry (Typographica-8) and gave the first talk on it in this country (Royal College of Art).

The Epiphany Philosophers' Trust was formed in 1956. The present Trustees are E. W. Bastin, David Blamires, R. B. Braithwaite, Dorothy Emmet, Margaret Masterman, Joan Miller, A. F. Parker-Rhodes, R. H. Thouless, F. Woolner-Bird. The trustees are drawn from those most active in its activities at a given time, and the following have also served: E. S. Bennett, Eric Hopkins, Catherine Hoskyns, Mary T. Hoskyns, Damaris Parker-Rhodes, David Russell, Maud Russell.

In the terms of the Epiphany Philosophers' Trust, its objects are defined as: "To study from the point of view of those interested in philosophy and the natural and social sciences as well as in religion questions affecting Christian belief practice or organization with a view to the better understanding of the Christian Religion and the consequent advancement thereof.

"For the purpose of promoting such study to arrange and hold conferences or discussion or investigation groups.

"If thought well to publish the deliberations or conclusions of any such conferences or discussion or investigation groups either on book or pamphlet or periodical form or by means of broadcasting with a view to interesting a wider public in such studies and so promoting the educational and religious purposes aforesaid".

A privately produced Conference Report was issued in 1954, and a number of broadcasts were given on the Third Programme in the 1950s but the Epiphany Philosophers have not until now published through the Press. This journal therefore represents a new departure.

As well as holding colloquia and conferences three times a year, the group has from the start had informal connections with some of the Anglican monastic communities, though there has never been a formal tie. At the beginning this connection was with the Community of the Epiphany at Truro—hence the name. The Community's then novice mistress, Sister Emily, took part in a broadcast and published a paper in the Conference Report. After she had visited Cambridge in January 1957, the Epiphany Philosophers' monastic connection was transferred to Neale House, Cambridge, where the Sisters of Sr. Margaret were running a branch house. It was one of their Sisters Superior, Sister Hilary, who, shortly before her death in November, 1962, strongly suggested that a book should be written on the "Theoria" theme. The project of writing a book turned into that of running this journal, of which the first number is therefore dedicated to her memory.

The late Father C. G. Barton, who was connected with the Community of the Servants of the Word of God, also had a big hand in developing the group in its early days, and some of its members have since paid visits to to the community house. Finally, from the beginning there has been close co-operation with certain members of the Society of the Sacred Mission at Kelham; Matthew Shaw, S.S.M. and the late Victor Ranford, S.S.M. were at the original meetings, and there has been to and fro traffic between Cambridge and Kelham ever since.

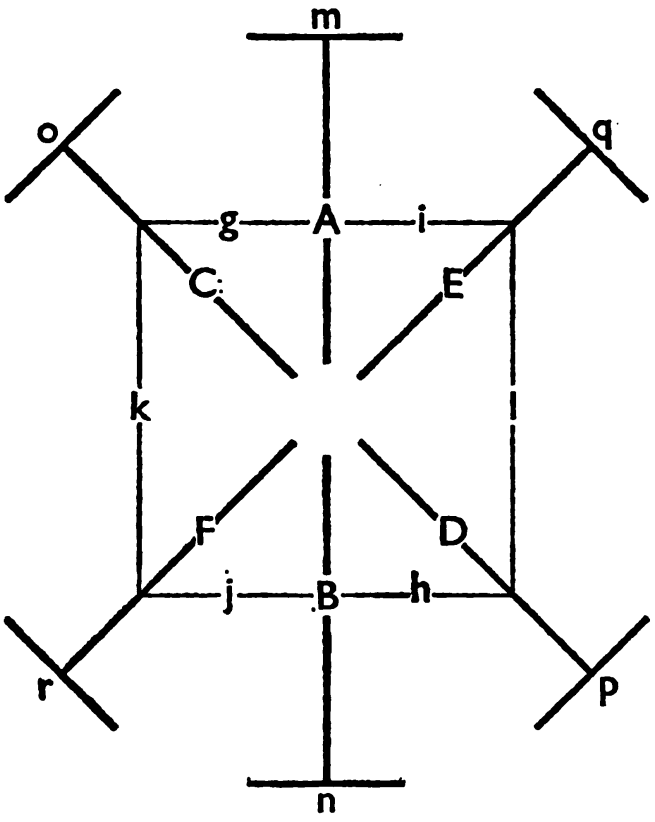
In general, in the future only a minority of the contributors to this journal should come from within the group, and even in this first issue, I. J. Good, Rupert Sheldrake, the Archbishop of Canterbury, Dom Sylvester Houédard and St. Catherine of Siena are independent contributors.

A wider circle of about 40 people have participated in the group's activities in various ways; some count themselves as Epiphany Philosophers and some do not. This journal is being edited by Dorothy Emmet with the assistance of George Every, S.S.M. and Joan Miller, and with a selection of the other 37 breathing hotly down their necks.

Explanation of the cover

The concrete poem on the cover by Andrew Rawlinson, of which the abstract schema is given below, consists of 18 words arranged in 18 positions, which, in the schema, are marked with upper-case or lower-case letters of the alphabet. The poet himself took the schema from the Orthodox three-dimensional cross, and developed it to make it also into a six-pointed Epiphany star.

It is important to remember that this poem is not a single assertion, but a schema from which poetic assertions can be drawn as the reader wishes. That is to say, the schema is not a single poem in itself, (as were, for instance, the comparable poems of the seventeenth-century emblemists). It is a complete poetic, relational totality; a whole conceptual universe, or world-treasury (or *Thesaurus*) from which the reader, by using the schema and being guided by the star-pattern, may construct for himself such word-sequences as he thinks fit.



The poet himself has supplied no rules as to how the cross-and-star pattern is to be used, so that the only thing the reader can do is to play star-games with the poem until he finds a word-sequence which satisfies him. Thus, if he takes the sequence DB, he will get

CRYSTAL MOUNTAIN

whereas if he takes the sequence CD he will get

MANDALA CRYSTAL.

If he takes the sequence ghij, he will get

secret prayer flowing growing

whereas if he takes the sequence mABn, he will get

quiet QUASAR MOUNTAIN cell.

If he takes the sequence onq, he will get

atom cell robot

whereas if he takes the sequence mrp, he will get

quiet light bones

and so on, and so on, up to factorial 18 (18!) sequences if no word in any one sequence is allowed to be repeated twice; up to 18^{18} sequences, if repetitions of words, or of sequences of words, are allowed but no total sequence is allowed to consist of more than 18 words, and up to a denumerably infinite number of sequences if both word-repetition are allowed and if the sequences are allowed to be of indefinite length.

Not all sequences which can be drawn from this poem are equally successful (take, for instance, the sequence consisting of all the 18 words in alphabetical order). The poem can therefore be criticized for incomplete richness. Likewise, the best sequences are not always gained by following the star-pattern; for instance, if you take the sequence mlghn, you get

quiet clear prayer secret cell

but this sequence is obtained by ignoring the star-pattern. The poem can thus be criticized for being insufficiently distinguishable from another poem consisting of the 18 words given in alphabetical order, with all combinations allowed. It has also been criticized, from another point of view, for not having enough verbs. Nevertheless, those who have played games with it, by taking sequences from it, have ended by rating it highly.

* * *

The poem can also be regarded as a system. If we were to cut all these words out from the cover, stick them on plastic balls and put the balls into a bag, so that we could fish them out singly or in handfuls, and then look to see what we had got, we should have a very weak mechanical device for dictating poetic meaning. The star device is a much stronger device than the bag, in that, if used strictly, it prohibits more sequences, though it still leaves a universe of "free play" which gives a very large totality of forms compared with what a conventional poem allows. We feel that we should like to be able to formulate explicitly the principles which guide us when we react to the star shape, so as to draw up clear-cut rules for constructing sequences. If we could have such detailed rules for poem-construction from the poem-frame which the star provides, then (in one of the indefinitely many current senses of "information") we should have in the poem an information-system of a simple kind.

* * *

The only way to appreciate concrete poetry is to try and write some yourself. Readers are invited to take Rawlinson's schema, to hang 18 words, chosen by themselves, upon it, and to send us the result. We cannot hold a competition, with a prize for the best entry, since we are in no financial state to do this. Nevertheless, your poems will give pleasure—and we have in mind that we shall be needing other covers for this journal.

SENTENCES

Letter of St. Catherine of Siena (14th century) to Brother William of England. From Saint Catherine of Siena as seen in her letters, pp. 60–64. Translated and edited by Vida D. Scudder. J. M. Dent, London 1927.

Dearest son in Christ sweet Jesus: I Catherine, servant and slave of the servants of Jesus Christ, write to you in his precious Blood, with desire to see you in true light. For without light we shall not be able to walk in the way of truth but shall walk in shadows. . .

All things ought to be received with reverence, as is done by the people who abide in this sweet and glorious light, who are perfect in whatever condition they are. . . . Such men serve God, not for their own joy, and the neighbour not for their own will or profit, but from pure love. They lose themselves, divesting themselves of the old man, their fleshly desires, and array themselves in the new man, Christ Jesus, following Him manfully. These are they who feed at the table of holy desire, and have more zeal for slaying their self will than for slaying and mortifying the body. . . . Such men abide ever in peace and quiet; there are none who can offend them, because they have cast away the thing that gives offence—that is, self-will. . . .

Such a man as this rejoices in everything; he does not make himself a judge of the servants of God, nor of any rational creature; nay he rejoices in every condition and every type that he sees, saying, Thanks be to Thee, eternal Father, that Thou hast made many mansions in Thy house". And he rejoices more in the different kinds of men that he sees than he would do in seeing them all walk in the same way, for so he sees the greatness of God's goodness more manifest. . . .

Oh holy minds who feed at the table of holy desire, who have attained in great light to nourish you with holy food, clothed with the sweet raiment of the Lamb, His love and charity! You do not lose time in accepting false judgments, either of the servants of God or of the servants of the world; you do not take offence at any criticism, either against yourselves or others. Your love toward God and your neighbour is governed well, and not ungoverned. And because it is governed, such men as these, dearest son, never take offence at those whom they love; for appearances are dead to them and they have submitted themselves not to be guided by men but only by the Holy Spirit.

See then, they enjoy in this life the pledge of life eternal.

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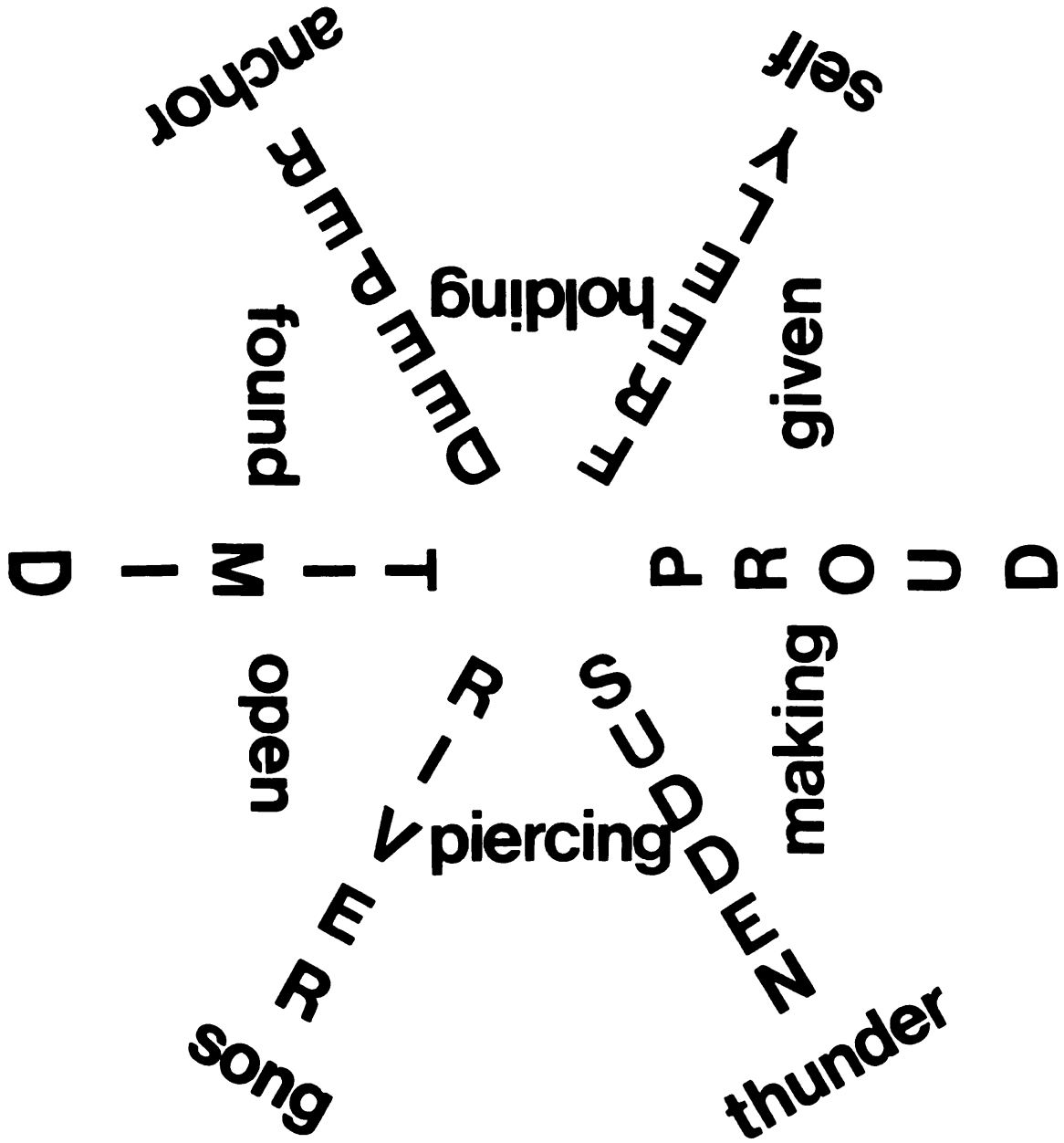
THEORIA TO THEORY

Volume 1 Second Quarter January 1967



THEORIA TO THEORY

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THEORIA TO THEORY

Volume 1 Second Quarter January 1967

Editorial

The first wave of response to *Theoria to Theory* has been slightly stunning. People want this journal, and are prepared to put themselves out to support it. Not only has the flow of subscriptions turned from an intermittent trickle into a sustained gurgle, but we have also found a publisher who will publish, promote and distribute the journal for the Epiphany Philosophers, instead of taking it over and controlling its editorial policy. (Further news of this matter will appear in the next issue.)

So financially, we no longer live dangerously. Not so theologically. "Nobody will be able to understand a word", "Alas, my fear is that only a few dozen will buy it", "It is rococo", "It is esoteric", "It is in-group", "It employs symbols", "It uses jargon", "It is like a private set of people talking to one another", etc., etc., etc. We reeled, but (sustained by the subscription-gurgle) did not blench. Meanwhile, some of our humanist friends said yes, it was rather a nice little paper, but was it too over simplified? (Just a shade journalistic?) But at any rate, easy to read. One such friend, feeling the 'flu coming on, said he did not feel well enough for difficult reading, so had taken *Theoria to Theory* to bed with him in order to have something by him which he could read easily.

What is behind all this? Why is there such a division between those who are pre-determined not to understand anything and those who take it for granted that they can understand everything? And why does this division cut right across the usual lines of education, sex, class, trade and academic achievement? We suggest that there is a confusion here, in the minds of those ecclesiastically educated, of the simple with the familiar. To people used to the language of, say, the Anglican Protestant tradition, to say that "God is our Father and He made us" is to make a simple remark. To people who have not met Christianity before, this remark just isn't a remark; it is a noise which is incomprehensible. And to philosophers who are trying to connect the two sets of people's intuitions with one another (see Margaret Masterman's article) the single remark that "God is our Father" might easily take some fifty pages to analyse. For the man with a humanist and scientific background it is, quite genuinely, exceedingly difficult to see what examples of what Ted Bastin in the last issue called "sermon talk" really mean. And what about currently fashionable phrases such as "the Ground of Being" used in supposedly popular writing?

So the complaint of esotericism and incomprehensibility is a two-way relation; it comes from both sides. Of course, it could be taken as one aspect of the "two cultures" problem. But in fact, fundamentally, are there two cultures? In the end, surely, there should be only one culture; artistic-scientific-religious. The cleavage at present, at any rate so far as it concerns this journal, is not between science and the arts (in the artist's rather than the Arts Faculty sense of "arts") but between those who are still trying to see theology in terms of a historical-literary background, and those who are trying to see religion with artistic and scientific imagination. To appreciate what these last are after calls for intellectual effort as well as for intellectual empathy on the part of theologians and church-historians. But, after all, these last have had a good long run in which they have asked other people to learn their language; and what has come out of it? "The Death of God in Contemporary Theology".

This brings up another point. Those who find it so difficult and those who find it bedside reading do not exhaust the readership of this journal. There is, as well, quite a large number of staunch and stout-hearted people who may not understand what is going on easily enough for *Theoria to Theory* to be bedside reading for them, but are clear about one thing: they want this enterprise done. To the last, not realizing what a large and solid group they were, we said in the last editorial "Nil illegitimi carborundum"—"Don't let the bastards grind you down". The bastards, of course, are the experts. Bastards, if being required to be experts in holiness they have become experts in order to throw a wall around themselves to avoid having the holiness issue come up. Bastards, if being given a privileged place in society, they use academic inviolability to make a very small amount of the sort of effort that really counts and make it spread over an indefinite number of years. Bastards, if using the scientific myth of how difficult and complex science is, they buy peace of mind and steadily rising incomes in the indefinite proliferation of trivial research lines—and then throw all their weight against allowing anyone else to make any deep or simple guess.

Nothing is so dampening as these walls of expertise in any field. In this field however, expertise is never of first importance and is often largely irrelevant, and that is why the walls are so jealously guarded. The unique aspect of this enterprise we are all in is that so far as we all allow our protective walls to break down, to that extent we all come to good together.

One other thing we did, to try to bring contemporary upholders of theological Unthink to reason. We had the following placard

poised above a pile of copies of *Theoria to Theory* on a book stall at a meeting of the British Council of Churches :

WHEN YOU ARE TIRED OF TALKING ABOUT SEX, WHY NOT THINK ABOUT TRUTH?

It did no good : people are never tired of talking about sex. But it represents what we and a large part of the scientific world feel. It is indeed time to begin thinking about truth.

* * *

We acknowledge several communications from writers trying to relate science and religion in unusual ways. While such "way out" attempts are always open to criticism, we do not think that a journal such as ours should ignore them. Discussion of this field is, however, deferred to a later number.

We have also received a copy of *The Graduate Journal* which contains the proceedings of the First Edward F. Gallahue Conference on World Religions at Princeton. It has a remarkable sociological article by Gordon Allport on *The Religious Content of Prejudice*. We hope to take up the issue which this article raises later.

* * *

The concrete star poem on the cover was received from Ian Marshall in response to the appeal for other people to try their hand at Andrew Rawlinson's form.

* * *

The danger that the journal is too much produced by an in-group steadily recedes. Among the contributors to this number, Ian Stephens, Ray Panikkar, Ninian Smart, Rupert Sheldrake, Edward Blishen, Tom Heron and *x* letter writers are not Epiphany Philosophers; nor are Isshu Miura and Ruth Fuller Sasaki, from whose translations the *Sentences* at the end have been selected. Acknowledgements are made to these latter and to the First Zen Institute of America, Kyto and Harcourt Brace and World Inc. N.Y. for permission to quote from their book, *The Zen Koan*.

* * *

This number is a comparative-religion number, and, judging from the interest already aroused, the next number will be so too. In particular, the question comes up, "Could there be a form of Do-it-Yourself comparative religion, which *pace* the sociologists could make a real contribution to our knowledge of truth?"

One last point: we wish to record that we have only had one refusal from the scientists and humanists, some known to us and some unknown, whom we have approached, often at short notice, for articles. That is how serious the humanist-scientific world is about this matter; that is how keen they are to have these issues raised.

And you, Professor of Divinity? And you, Reverend Mother? . . .

Dialogue between Ian and Ray: is Jesus Christ Unique?

Ian Stephens, formerly Fellow of King's College, Cambridge; Raymond Panikkar, Professor of Philosophy, University of Benares.

Ian: I suggest we start by my explaining my own position. I shall speak as a non-Christian, who has spent most of his life in South Asia, that is to say India, Pakistan and Ceylon, surrounded by people of other Faiths whom I have liked and been very much interested in; an agnostic with a strong religious sense, who has an idea he sometimes knows what the so-called mystics are at. When I read the mystical writings of the different religions, I find they are talking of what I sometimes feel intuitively.

Ray: I should like to ask you a fundamental and previous question. Why do you call your position non-Christian?

Ian: Because I do not believe that, in any meaning of the term I can understand, Christ was the Son of God.

Ray: Does this formulation make a Christian a Christian? Is being a Christian a matter of intellectual belief, or is it something of another type which produces a vital commitment and also a personal adherence of the whole man, which cannot be equated with mere intellectual statement?

Ian: It might have been like that for me when I was very young; but then, when I went to Church as an adolescent with a mind of my own, I found I was required to say things I did not believe; probably about 90 per cent. of the things were of that sort, and unfortunately they were in English, not Latin or Arabic or something partly incomprehensible, so I could understand them.

Ray: A Western man identifies himself only too easily with his consciousness, and if he can't swallow something there, he thinks there is nothing else left of him. Is the fact of being a Christian only something which applies on the mental level, or does it belong to a deeper level of man independently of his mental outfit?

Ian: For me, religion is much too important to tell lies about.

Ray: Are you saying the essence of the Christian religion lies in its statements?

Ian: That is for Christians to decide; but I can't get into Christianity when it requires me to affirm beliefs I find meaningless or repugnant.

Ray: I distinguish between Christian beliefs and being a Christian. There is a sense in which every man is a Christian.

Ian: Well, some Muslims believe every man born is a Muslim, and only his particular society makes him suppose he is something else. I would call what you are saying not so much "being a Christian" as "being religious" in a general sense.

Ray: I don't accept this distinction as a dilemma, because being a Christian does not mean anything else than being a fully religious man.

Ian: What is achieved by this sort of vague palaver? Does it bear any relation to reality?

Ray: None on the practical level; but it may on a deeper level beyond doctrinal differences. There is a difference between doctrines and religion.

Ian: I agree there is a difference. A non-Christian agnostic has his own methods of approach. I think I am getting at some of the things the religions are about, but it would be quite wrong for me in the process to profess belief in dogmas which my mind tells me are untrue. Such an outsider surely has a position in his own right. He can have his intuitions of "otherness"—a vivid sudden sense that what is around us is not all there is. Professed religious people seem to me often to make a jump against their intellect.

Ray: You may be describing the fundamental religious experience of man, independently of a particular religion or sect. Are you saying that those who live inside an organized religion or sect can't have this experience as freshly as you have?

Ian: No, indeed. I warmly sympathize with people who have faith, and feel envious of them; but I have, I think, occasionally some experience, and yet no faith.

Ray: Then you are playing with words. Faith without experience—faith merely handed down to us as a parcel of beliefs—is no faith.

Ian: Why should one have faith in any particular dogma?

Ray: I distinguish the *act* of faith, which is not an answer, but a quest, an authentic search, from particular crystallizations in particular objects of faith. The former is as much part of man as reason or will or the capacity to laugh. It is an "existential" openness, man recognizing that he is not yet fulfilled.

Ian: Perhaps then I should have said "belief". Do you believe positively in any dogmas?

Ray: No. Dogmas aren't objects of faith or belief, but channels through which you go, within the context of a particular culture, towards something on a different plane and through which you try not to betray that something else when you are asked to put "it" into words.

Ian: But doesn't being a Christian also very definitely mean being prepared to do certain things, like going to services and participating in sacraments, which happen to be also channels which the non-Christian is not ready to use? These people who stay out do so because they refuse to accept certain exclusive claims made about Christ.

Ray: "Out" and "in" are Western rather than Eastern ways of talking.

Ian: But what do you believe in? According to what is printed on the back of your book,[1] you are a Roman Catholic priest. Do you believe that Jesus Christ is the Son of God?

Ray: Yes, for your tranquillity—but I should have to know what you mean by "Christ", "Son", and "God". I am afraid that you are using these words on a mental plane and we must remember that concepts are not ultimate. I try to do what you do, not by throwing away the apparatus; I am trying to pierce through it.

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[1] ***The Unknown Christ of Hinduism.*** **Darton, Longman and Todd.**

Ian: But then couldn't one equally well use some other tool or apparatus?

Ray: Oh yes.

Ian: Then why be a Christian? Do these very definite professions of belief or of faith that Christians make have no meaning?

Ray: They have certainly a meaning as *ways* and *means;* but we are speaking about the *end*. They have to be used and pierced through in order to get at the thing. No tools are absolutes.

Ian: What about sacraments? What part do they play?

Ray: The Christian sacraments differ from the Hindu sacraments. They are special food for the spiritual life of a special group. You drink tea in an English family, but while the need to eat and drink is universal, it can be fulfilled by many kinds of food. There are sacraments in all religions. There are even the so-called sacraments of nature. We mustn't absolutize one set.

Ian: Your position seems very elastic, very much more Hindu than Catholic if I may say so. Doesn't it differ from that of most Catholics, who would say specifically that the Eucharist is unique, whereas you apparently compare it with a sacrament of nature?

Ray: I am not making this comparison. Besides any comparison implies an outside standard by which you compare. We haven't one by which we can measure sacraments.

Ian: I have the feeling of being translated from here to South Asia talking to one of my Hindu friends out there—your position seems indefinable; it is like trying to wrestle with a bolster, there is nothing to catch hold of.

Ray: Perhaps it isn't a point of view, but a living attitude.

Ian: But in that case, I can't myself live in it, because I haven't a Hindu background: I've had no Hindu childhood, I have no early contact with Hindu mythology and I have no caste. To be Hindu in your sense one has I think to be born a Hindu.

Ray: I accept my Karma; and you have your own Karma as I have mine. You are also a good Westerner, and this is why you try to say that my position is incompatible with Christian doctrine.

Up to now sociologically Christianity has had a Western garb. You try to get me to make statements, and ask me what I think about the position of Christ. But the attitude and function of Christ is one of inclusivity, and not of exclusivity. To me, Christ is present and *effective,* though in a more or less *hidden* and *unknown* way, in every man and religion.

Ian: Why?

Ray: Because that is what Christ stands for. If something links you to other men and to the Absolute that is Christ. Jesus of Nazareth is the "epiphany" of Christ in history—and history is only the surface part of mankind in Space and Time. The whole Christ is Alpha and Omega, the beginning and the end, first begotten of the Absolute. In other religions he may not be recognized as Jesus and yet the real and not only the nominal link to the transcendent is by this definition the Christ. The specificity of Christian faith says that that which holds everything and which makes us more than our present selves—that in which every man in one or other form believes—that the mediator, or the way, or whatever name we may give to it, has appeared in history in Jesus. But this latter isn't a necessary belief for everyone. You may not know anything about Jesus. Many people lived before him. So people may or may not believe in Jesus of Nazareth as the Christ in history.

Ian: Then are there other Christs in history?

Ray: By the very definition I gave of Christ, the question has no meaning. Every being is a Christophany. We are all on the way to becoming the one Christ.

Ian: Then we are all potential Christs?

Ray: We are all on the way to becoming the one Christ.

Ian: Are some further on the way than others? And what about Christ as the Word of God?

Ray: Let us put aside the question of God for the moment. They are pilgrims, that is, on the way to becoming the one Christ.

Ian: Are you saying then that all human beings are Christians?

Ray: By being a Christian I do not belong to one sect as distinct from others. This is "microdoxy", narrowing your view of what is orthodox.

Ian: It all seems very shapeless.

Ray: Not for the individual if you accept your Karma. For a man born in a particular context and culture I say, go into this until you reach the depth at which you have communion with all mankind, and all religions.

Ian: Can you reach this by any channel?

Ray: Yes. Jesus himself said he was only a means, to lead to the Father. There is a danger of Christolatry among Christians. He is a way or door, through a personal to a transpersonal experience and reality.

Ian: Is he *a* door, or the only door?

Ray: There is only one door, whatever you call it. Whatever happens to be the door is door because Christ is there.

Ian: I can't help wondering sometimes whether the experiences that come to me aren't physiological in origin, caused in some way by my visceral or other bodily condition. And as you religious people well know, and I do, fasting for thirty-six hours may induce it. But if it takes one through a door, why should it necessarily be *the* door of Christ? There seems an arrogant exclusiveness in Jesus' saying "I am the Way".

Ray: Do you feel the same about "I am Brahman"?

Ian: I don't know who is talking in that case.

Ray: Nor do you perhaps in the other saying. Jesus is the Way as the Christ, but for a person to go through the way, the consciousness of Jesus is not necessary. Christ is the way, whether people know they are following it or not. They do not need to connect it with Jesus. In the Gospels people are told they did things to Christ when they didn't know it. ("Inasmuch as ye did it unto the least of these my brethren, ye did it unto me").

Ian: Then is there any special place for Christian teaching?

Ray: There is always a place for human growth, for revealing, "lifting up" the veil and showing that Christ has appeared as Jesus.

Ian: But didn't it happen too in all those other prophets? Why pick specially on Jesus?

Ray: It is not a question of picking on anybody. Christ himself does not claim to be one of the prophets. All religions indeed are ways of salvation; the Muslim will go the Islamic way. The Vatican Council has said that all men are called upon to reach the same goal, irrespective of race, culture, education, *or religion*. But in Jesus of Nazareth the "divine nature" appears in a particular way: the personal one.

Ian: Particular or unique?

Ray: Personal. But to explain this we should enter into the Christian idea of the Trinity. Christ's historic function is to be the head of the mystical body.

Ian: Is "head" a good word? A head has a unique position.

Ray: I used it from the Christian tradition. You can equally well say the historical Jesus has a unique historical function.

Ian: Is this because his religion happened to be taken up by the Emperor Constantine?

Ray: No. I take Christianity as a religion and not as a political plot. Christ is universal by definition. We could equally well call him, say, Iśvāra, or by any other name pointing towards the same function but historically this function has been performed by Jesus. So he plays a unique role in history, which does not exclude at all the function of the different prophets.

Ian: Is this more than an historical accident? The emphasis or acceptance may be a purely contemporary phenomenon. Religiously it looks now as if the East is in the ascendent, and the West, formerly in large part Christian, in decline.

Ray: You can say so if you consider the whole of history as

simple accident. I wouldn't make the uniqueness of Jesus an historical accident. There is a deeper reason in the historical process of development of mankind towards fullness. In this pilgrimage in time, something succeeded in and through Jesus of Nazareth. The Christian faith is that the Christ, the Alpha and Omega, the Pantocrator etc., appeared in Jesus.

Ian: Why do you say so?

Ray: By Christian faith, and this faith has been given as a gift.

Ian: Is it different from the faith of a Muslim in Muhammad, who he claims was "the seal of the prophets"? Why should you or I have the Christian faith more than another? And what do you mean by faith, anyway?

Ray: We tripped over that one before. Faith makes this dialogue possible, and Christian faith says the universal "something"—whatever you call it—was manifested in Jesus. There is no reason you can give for your faith any more than you can give a reason for love. It becomes an experience.

Ian: Wouldn't a Muslim have his experience of faith in the same way?

Ray: Yes, in the mystical experience, if he has one; no, in the consciousness of it, and of course not in the formulation of his faith.

Ian: Why not in the consciousness? I really don't see why not. What you say seems rather arrogant.

Ray: I would say that every man has faith by striving towards his end. The object of faith differs. The essential thing is the serious quest. Different objects may fulfil the same function, and in so far as they do this, be equivalent.

Ian: Doesn't this give away the point you made about the uniqueness of Christian faith?

Ray: I only spoke about faith as a universal dimension of man; you also have faith and your own representation of it.

Ian: I am not sure that I have faith in this sense at all. I have faith, of course, in physical things, such as that the sun will rise tomorrow. I also have what I called that "sense of otherness". It comes to me. But it isn't a faith, or anything like a faith in the normal meaning of the word.

Ray: A Christian would say it is a gift. You have a quest because you are open to this experience and want to have more of it.

Ian: But it isn't a quest or an urge. It is an occurrence; something which when it comes is suddenly complete reality. But to come back to Jesus of Nazareth, can you specify any one thing about him which gives him this unique function in history you refer to?

Ray: Christianity tries to combine concreteness with openness and universality. It is both universal and all-embracing, and also it refers to a historic and concrete existence in Space and Time. This is put as the dogma of "both God and Man", and is the specific Christian claim.

Ian: Why is the concrete reference to Jesus, rather than to any other individual in history? Did he take *some* step—how shall I put it?—that leads you to have this faith in him? It must be for some reason other than just that he was an individual in history, otherwise any individual would do as well.

Ray: I discovered why, once I made my personal, individual incommunicable encounter with Christ, and I love him. Only when, in the experience you were describing, you discover in one way or another the face of Jesus, can you call this experience specifically Christian.

Ian: This is certainly very interesting, and comes with strength from you, since you weren't, I gather, brought up as a Christian.

Ray: I was brought up in both the Christian and Hindu traditions. I am of Hindu religion and Christian faith, with a spiritual temperament to try and synthesize things and not be a split personality.

Ian: But this experience of love for Jesus is central to your position?

Ray: In a very universal way.

Ian: But for me, this mystical sort of experience, or whatever we may call it, has no Him-ness nor He-ness about it whatever. It is not of a person.

Ray: That is because in your position the historical dimension doesn't enter. When I am outside the historical dimension, there is no Jesus of Nazareth, no Time, no Space, no Allah, no Creator, in the ultimate mystical experience. The specificity is only historical. But the temporal dimension of man—and thus of religion too—should not be overlooked.

Ian: Then when you have this experience of love of Jesus, that puts you back in this personal condition?

Ray: Transpersonal condition.

Ian: It is a vehicle, a means, this love?

Ray: In a way, yes.

Ian: I'm afraid I'm feeling baffled again. *You* are a trained philosopher and theologian. I'm not. You can give most of your thought and time to these things. I can't, or anyway don't. I'm interested in them and curious; but only in a disconnected way, when I spare time from work on Asian history and current affairs. I'm interested mainly, of course, because of these sudden undescribable, unsought experiences or occurrences, which have occasionally come to me all through my adult life, and which, when they do, seem total reality. But I'm not sure that they have anything to do with institutional religions at all, though obviously they could be channels for them. And other unexplained experiences can befall one—on what seems a quite different, lower level—which I don't at all wish to get involved in.[2]

Ray: We should look forward to the future, and not only consider religion as it has been. A sincere religious quest needs to be purified, even through modern irreligion. All these things are steps

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[2] Ian Stephens has had what may have been "precognitive" experiences, which he much dislikes. Facts about two of the more startling of these were published in (i) the *Journal of the Society of Psychical Research*, September 1960, pp. 334–342; and (ii)—briefly—in his book *Monsoon Morning*, Benn's, 1966, pp. 56–59.

towards universalizing and deepening religious experience, and overcoming the sense of otherness between religions and between one Self and another. "Love your neighbour as yourself". I take this to mean your neighbour not as your neighbour, but as your neighbour's real Self, with a capital S, as in the Indian way.

Ian: I don't think I understand what this means. It seems a remark that jumps both ways. I should have thought what we want is a reciprocal relation.

Ray: It is mutual fecundation, a biological word better and more humble than mere "exchange of views", an attempt to get to real acceptivity.

Ian: But this is unfortunately inexpressible . . . .

Ray: *Fortunately* inexpressible !

What is Comparative Religion?

Ninian Smart

The comparative study of religion as it is actually carried on in academic circles covers a number of different pursuits. As I shall try to show, one of these properly bears the title, while the others, though legitimate enterprises, can better be classified under such other general heads as "history" and "theology". I do not think that at the present time there is a clear consensus among comparative religionists as to how one tests conclusions, nor about the methods to be used. I shall try to illustrate some of the difficulties on these scores by reference to a thesis which I myself have propounded, mainly in relation to Indian religions, and which is open to a number of criticisms.

It is useful to look at the present place which comparative religion plays in religious studies in this country. Mostly it is an optional subject to be taken by students reading theology. It can, however, be taken as a separate discipline at Manchester University, and at least one new university is intending to set up a Department of Religious Studies rather different from the usual pattern in civic and ancient universities. In addition, much work in Oriental studies bears on religion, and sociologists of religion often do work which, but for the pigeonholing of subjects, would count as the comparative study of religion. But largely, as has been said, comparative religion is tied up with theology. This accounts in part for the diversity of pursuits comprehended under the name, though the pervasiveness of religion in human history means that almost any arts or social science subject is going to have something to do with it.

Let us clear away first those pursuits which are not, in my view, properly called comparative religion, though sheltering under the umbrella. First, there is the (in this country mainly Christian) theology of other faiths. Obviously some account has to be given, by the theologian, of other faiths—as to whether they contain truth, and if so in what ways. Professor R. C. Zeahner's *At Sundry Times* for instance contains a liberal, yet still Catholic, interpretation of some major world religions. George Appleton's *On the Eightfold Path* does something similar for Buddhism; Raymond Hammer's *Japan's Religious Ferment* for Japanese religions. Such works include a lot of factual material, but they tend to look at other faiths from a specifically Christian point of view. The converse is possible.

Thus many of President Radhakrishnan's writings interpret Christianity from a Hindu point of view. These exercises, though legitimate, depend on prior doctrinal assumptions: they are not either purely descriptive or "scientific". Second, and relatedly, there is the topic known by the barbarous neologism of missiology, comprising not just the history of missions but more importantly their aims and tactics. This incorporates conclusions of a theological nature. Again legitimate, but not in the required sense descriptive and scientific. Third, and again relatedly, there is the currently fashionable enterprise of the dialogue between religions, in which participants eirenically discuss mutual viewpoints, both for the sake of clarification and for the sake of possible agreements. This is a kind of polycentric theologising. It would have no point if each participant did not start form a prior position. These three pursuits are essentially theological. But the comparative study of religion, though in part *about* theology, is not itself theology.

Next, there is the history of religions. It is interesting to note that the world organization coordinating studies in comparative religion calls itself the International Association for the History of Religions. Properly, of course, the history of religions should be dubbed the histories of religions. In the main, for instance, Indian religious history has occurred independently of European religious history. Thus the history of Indian religions can in principle be treated quite separately. There is not a single subject "the history of religions", unless one counts its formal methods as giving unity to the discrete narratives. The separate histories do not count as comparative religion, for the obvious reason that they are not (save implicitly) comparative. Thus comparative religion has to be distinguished both from the history of religions and from theology.

What then does it aim to do? It feeds on the hope that one can make some sense of the similarities and differences between separate religious histories. This implies first that it is necessary to give a fair descriptive account of religious beliefs and practices. These are the data that may suggest accounts of why there are coincidences and variations. To give such a fair descriptive account one must suspend prior doctrinal judgements and value-prejudices (except perhaps for the higher-order principle that what is important to people is worth studying). But it is also necessary to enter sympathetically into the religious world one is considering. This involves a kind of make-believe, though it differs from the ordinary sort. The latter is such that one makes-believe that one is on the Moon, say, when one knows all the time that one is not. The former sort does not necessarily involve this conflict with what is known. Even for

the committed Christian, for example, the entertaining of belief in nirvana is not *ipso facto* the entertaining of a belief which one knows to be false, for a number of reasons: for one thing, it might turn out that nirvana and the higher reaches of Christian contemplation have an affinity; for another thing, the concept of *knowledge* does not apply straightforwardly in relation to religious loyalties. In brief, then, the descriptive side of comparative religion is not just a recording of data: it is the attempt at a warmly dispassionate delineation of the outer shape and inner meaning of religious phenomena. Needless to say interpretation offered should conform to the typical interpretation given by the adherent of another faith. One is looking at the world from his point of view.

Would it not be enough, then, to collect accounts of faiths as given by their adherents? Not normally, for we have an eye to comparison. There is no guarantee that the adherent of faith A will be able to bring out the ways in which it differs from and is similar to faith B. To do that he must have entered at least imaginatively into faith B. Even if he be a convert, and so can encapsulate both faiths in his own experience, there are human troubles to consider—the zeal of the convert, his tendency to propagandize, the small chance of warm dispassion. There are some who can do it: many who cannot. There is no formal prescription for selecting in advance the good comparative religionist.

The need to straddle both sides of a comparison ought in principle to be recognized by the historian of another religion. For naturally one comes to another culture with certain prior views about the shape and nature of religion. These can be misleading, as Buddhological studies have clearly shown (the absence in Theravada Buddhism of the worship of anything like God and disbelief in an eternal soul have been too much for many Western scholars to stomach—they have tried, even quite recently, to smuggle one or other of these missing items back into the "original gospel" of Buddhism). The best way to deal with prior assumptions about religion (often deeply felt because religion remains controversial) is to bring them out in the open. But to do this is to embark on explicit comparisons. In brief it is to do a bit of comparative religion. But in so far as the chief aim is historical, one can still justly call the results the history of religions rather than the comparative study thereof.

There is then already a sense in which the acquisition of the data is comparative. But one wants to go beyond this. One wants, for instance, to see whether one can detect any correlations

within the various dimensions or levels of religion. For example, does a certain kind of theology go with emphasis on a certain type of religious experience or practice? Such a question, though, is complicated by the organic nature of religious systems of belief and practice. Thus the Christian concept of a Creator is not quite the same as the Muslim or Jewish ones, closely related as these are. For the notion of the Creator God is modified by its juxtaposition with belief in the Incarnation. Any given proposition in a doctrinal scheme has its meaning affected by what other propositions are asserted in the scheme, and of course by the atmosphere of worship, etc., i.e. by the shape of religious practice which provides a milieu for the scheme of belief. This organicness of religious systems has led at least one writer (H. Kraemer) to argue that no proper comparisons between the Christian Gospel and other faiths is possible.

Now it is true that every faith is unique—i.e. it has properties not shared by other faiths. For instance, only one religion has as its chief prophet Muhammad. Only one was founded (or refounded) by the Buddha. It is true also that there are sometimes substantial differences in the content of belief and practice. Thus as we have seen no role is assigned in Theravada Buddhism for the worship of a God. Christianity alone focuses itself upon a single and exclusive Incarnation of God. But such uniquenesses by no means rule out valid comparisons, even given the organicness of religions. Sometimes there are mythological correspondences, such as the idea of a holy figure's having been born without benefit of human paternity. Sometimes more deeply there are doctrinal and experimental correspondences, such as belief in grace (as in Ramanuja and Paul) or likeness of mystical experience (as say between some Sufis and some Christian contemplatives). The organicness does not rule these out, any more than it rules out making certain comparisons between American and Rugby Football (even though these assign different meanings to terms like *goal* and have a roughly similar kind of organicness to that found in religions).

Some confusion perhaps has been caused over the question of uniqueness by the fact that it has entered into apologetic arguments. Obviously if you hold the same beliefs as everyone else, you have nothing to offer. If you think you have something to offer you are keen to stress uniqueness. Combine this with a simple appeal to revelation (not an uncommon attitude in Christianity and some other religions) and you end up thinking that in establishing uniqueness you have somehow established truth. Looking at it dispassionately, however, we must say: Yes, what you hold is in at least some respects unique. As to truth, that is another argument

(and not one incidentally which lies within the province of the comparative study of religion proper, even if the latter can furnish some very suggestive and sometimes apologetically embarrassing results).

Though sensitive, then, to organicness, and hence in fact to uniquenesses, the comparative religionist hopes to draw out ways in which there is some sort of explanation of likenesses and variety in religions. I take as my main example the problem of how to account for the diversity of doctrines in the Indian tradition, bearing in mind the recurrence of certain patterns of religious practice and experience. Thus some traditional systems (Jainism, Samkhya-Yoga) are atheistic, but believe in a multiplicity of eternal souls implicated in rebirth and in the possibility of release. Buddhism likewise denies a personal Creator, but does not believe in eternal souls, though it does believe in many individuals implicated in rebirth and in the possibility of release. Medieval Dualism (Dvaita) believes in everything found in the former systems, plus a personal Creator controlling the destinies of the eternal souls. Qualified Non-Dualism (Visistadvaita) is very similar, but more firmly emphasises the intimate dependence of the world and souls on God. Non-Dualism only believes in a personal Creator at a lower level of truth, at the level of illusion (maya). In highest truth, the soul and Brahman are identical. Realizing this identity brings release. This two-decker Absolutism, as we may call it, is parallel to a main school in Mahayana Buddhism, the Madhyamika (as commonly interpreted). So we have a series of systems, ranging from atheistic soul-puralism, through theism, to Absolutism.

On the other hand, there is a simpler set of distinctions in religious practice and experience. (Naturally here I over-simplify.) There is a contrast in the religion of the Upanishadic period between sacrificial ritual (administered by the Brahmins) and tapas or austerity, usually the prerogative of holy recluses. These are both rather formalistic. But they in part provide the milieu for more "experiential" types of religion. On the one hand, there evolved the religion of bhakti or loving adoration of a personal God, exemplified in the Gita and in medieval theism. On the other hand, the practice of yoga was held to bring one to higher contemplative states which could be a sign of liberation. Confining our attention to the bhakti-yoga polarity (the polarity between devotionalism and contemplation), we may note that the two types of practice and experience can occur independently, though they can also occur together. If they occur together one may be stressed more than the other.

They can also of course appear as equals. But let us leave aside this possibility. So far the polarity yields four paths. First, there is yoga without bhakti. This is exemplified in the non-theistic systems—Jainism, Yoga, Theravada Buddhism. The first leans towards formalism, tapas being stressed. Second, there is yoga plus bhakti, with the latter rated as secondary. This is exemplified both in Shankara's non-dualism and in the central schools of the Mahayana. Third, there is bhakti plus yoga, with the latter in second place. This is exemplified in Ramanuja's theology. Fourth, there is bhakti without yoga, exemplified in some of the more fervid poets of Tamiland and in evangelical Christianity. It can also paradoxically be discovered in some forms of Pure Land Buddhism —paradoxically because Buddhism in origin and heart emphasizes the yogic path to liberation.

This quartet of possibilities suggests immediately a thesis: that bhakti is correlated with theism, that yoga is, when by itself, correlated with non-theistic pluralism, and that the combination of bhakti with yoga with the latter in first place yields absolutism rather than theism. Necessarily the foregoing brief account is crude. But it works as a suggestive theory in comparative religion. It works outside the Indian context. Eckhart's distinction between deitas and deus, for instance, is not far removed from Shankara's theology. Some Sufis have used absolutistic language. The theory, however, may be a bit unnerving for pious Christians, for it suggests that contemplation does not have to be interpreted as union with God, etc. It also casts doubt on a simple neo-Vedantin view, that mystical experience essentially involves the realization of the Absolute Self, though it is favourable to the notion that mystical experience is essentially the same, though contexts, intentions and interpretations differ. But the theory by itself cannot directly settle the truth claims of the various religions and doctrines.

The theory, whether it be correct or not, illustrates the point that one must go beyond comparisons and attempt some kind of explanation of likenesses and differences. If is an explanatory theory, for it tries to bring out a correlation between doctrines on the one hand and religious experiences and practices on the other; and it tries to treat the latter as dominant. But such explanations can run into a number of methodological difficulties.

First, we must be sure that definitions (e.g. of "contemplative life", "mysticism", "yoga", etc.) *realistically* differentiate forms of the religious life. It is worth noting that great sloppiness has usually

characterized the use of "mysticism" and its cognates. Second, it is not so easy to know the grounds for treating one arm of a correlation as more important than the other. That is, which is explanatory of the other? Third, the attempt to generalize inevitably brings in its trail problems about description. For instance, the *lingam* in Hinduism can be assimilated to other symbols elsewhere by describing it as phallic; but this is not the description favoured by those engaged in the cult. Fourth, and connectedly, accounts of religious experience need to be sensitive to the distinction between reporting and interpretation. But it is a tricky matter drawing the line in practice. Thus there are those who distinguish between theistic mysticism and other sorts, on the ground of differences in what appears to be reporting—and yet the use of a term like "God" in such reporting (as when the contemplative describes himself as attaining an inner apprehension of God) makes us alive to the possibility that here a whole set of beliefs grounded outside the experience are being brought to bear in its description. For the very organicness of religion means that its central concepts come "not in utter nakedness . . . but trailing clouds of theory".

The complexity of many of the comparative tasks is, moreover, increased by the fact that religion, in often arousing strong feeling, renders secondary sources, whether in the form of books or of the testimony of individual (and perchance highly idiosyncratic) adherents, deserving of highly critical evaluation. Religions are not often typified by the avant garde, and one should listen keenly for the noise of grinding axes.

Needless to say, we are at a very primitive stage in the understanding of religions and of the deeper reasons underlying the attractions of one sort of belief and practice over another. Since religion is part of the whole fabric of human cultures, the comparative study of religion must branch out into cultural history and sociology. The complexity of the enterprise means that it will only be through a cooperative effort that advances will be made. This implies that a clearer notion of the aims of such study must be developed. I have suggested in the present article that a main feature of it should be the attempt at explanatory correlations between elements in the different dimensions of religion. But since religion has its wider milieu, as has just been noted, these explanatory correlations should be extended, e.g. through considering the psychological and sociological roots of certain religious phenomena, and the converse, the religious roots of some psychological and social phenomena. This in turn means that psychology and

sociology need the right kind of information and sensitivity to tackle religious themes. Ignorance has in the past held up a decently scientific approach to religious problems—Freud's acccount, for instance, of the genesis of religion is culturally very idiosyncratic. In short, the comparative study of religion is a vital ancillary to other studies, just as they can be to it.

P.B.I. 1.* Do-It-Yourself Comparative Religion

John Walker

Comparative religion being only studied as an additional subject at a few advanced universities, likely friends were asked for a down-to-earth definition. Many were anxious to say what it was not—thus showing democracy in their thinking, for nowadays that great leveller has put the simple positive out of favour; a "good" thing becomes "not too bad"; a liar "untruthful"; a handsome man "not ill-favoured" and so forth.[1] The clearest definition came from a physics graduate, "the comparing of religions to find out which is best".

"To find out which is best?" The French aristocrats suffered woefully in the Revolution; perhaps it served them right for spreading the notion that Trade was vulgar. Industry, being trade, must be vulgar too: applied science, the handmaid of industry, must therefore be a slut. So, it is to be feared, runs the thinking which makes "pure" science the only respectable kind and, akin to the old Gallic idea that a real aristo must be a dilletante, so too is the current fashion that the purest science must have no aim. Ought one then to limit the field by adding purpose ("to find the best") to the definition?

If we seek insight into the nature of religion, I think we should. As shooting "into the brown" seldom hits a bird, while a definite target concentrates the shots and so makes them more effective, so will any limits to the field make our studies go faster along the chosen (if narrowed) path. In my applied engineering research laboratory a quick solution always resulted when a problem had been narrowed enough, and my staff, like the greyhounds in the stadium nearby, ran much faster in blinkers. "Comparative" will, however, be assumed to include its complement: as similarities may be compared, so may differences be contrasted. The narrow field, as we shall see, really restricts us to considering the contrasts.

By all means let us be grateful for the restriction, but let us admit that religions may usefully be compared for many other purposes.

* See *Theoria to Theory* No. 1 p. 28 on "partly baked ideas". May there be many more P.B.I.!

[1] A pretty girl is still a pretty girl, but is essentially undemocratic.

The historian or the archaeologist may wish to use the religions of a civilization to trace its branches back to their common stem—even to the very roots upon which the stem first grew : for this purpose the kind of comparison that results from classifying religions into those, say, whose favourite god wears one horn, or two, or five is quite legitimate. The catering manager of a famous international airline has a concern even more limited, if just as valid and even more immediate; as witness the following, printed on the back of the menu :

Religious Preferences

> Special meals can be provided . . . for religious reasons.
>
> For Roman Catholic Passengers on Quantas Flights, a Special Dispensation has been granted . . . from the Law of Abstinence. . . .
>
> Kosher Meals are prepared and packed . . . in accordance with Jewish dietary Law.

Compare a sixpence, a shilling and a two shilling piece. As works of art there is little to choose between them, and if minted in the same year will seem almost identical to the chemist and metallurgist, but if one needs a thin coin for use as a screwdriver, or a valuable one to buy cigarettes, the importance of comparing the appropriate quality is very clear. To find the superlative —largest, oldest, or what you will—the difference must be compared in its own limited field.

The archaeologist may thrill to discover some novel resemblance, and the air hostess may grumble at differences which make extra work; for our purposes the latter matter most.

But while contrasting differences, do not forget that study of the similarities of proteins led to the discovery of amino-acids as a common element of all known living creatures. From the smallest microbe to the most highly developed animal, the mechanism of all kinds of life, at least on Earth, seems to be the forming out of fairly simple amino-acids of long-chain protein molecules, certain of which are so shaped that they have the property of making exact replicas of themselves. The process may be started at a very elementary level, commonly by cosmic or other radiation, sometimes by electrical phenomena, or rarely even by chemical accidents. Myriads of elementary lives are probably started every day, but almost all find their environment unsuitable and die out after a few, usually very few, generations. Of the few creatures (self-reproducing molecules) which happen to have a congenial environment, odd ones

are liable to suffer mutations (again caused by radiation etc.) in the arrangement of their atoms, and a new strain results; very few mutations are viable, so the strain dies out. Occasionally one will thrive better than its parent, and will multiply. This is of course the process of Evolution; and the same process which has evolved thinking man is busy producing, for example, strains of germs immune to penicillin (hence the importance of using a strong enough dose to kill all the potential parents of mutated, resistant strains). At this very moment there may be a new form of life beginning which will develop into a virus deadly to mankind, and at this same very moment there almost certainly is forming a mutation of *homo sapiens* who will be more sapient than any living man : there might even be an improved strain of grasshopper which could in time outstrip man and rule the world! So as comparative biochemistry revealed the chemical nature of life, perhaps a study of the resemblances of religions could discover an analogous essence (or spirit?) which would give an equally lucid insight to the workings of the Soul. Such idea is no mere fancy of the writer; mankind has felt universally and strongly that there must be some common creative impetus and (at least biochemically) has proved to be right : mankind's belief in a soul or spirit is quite as widespread and often stronger; perhaps mankind is right about that too. Widely held beliefs or lore can usually be shown, like smoke and mariners saws, to have a cause.[2]

The Hebrew religion, like many others, was wont to make lore into Law. Perhaps this tendency sprang from an inner feeling that what felt right must be right (i.e. simple conservatism) and should be made law; perhaps peoples of hot countries who did *not* make washing and the eschewing of pig-meat part of their way of life merely died of plagues; perhaps the religious leaders simply (or even cynically as in modern advertising) imported lore to give verisimilitude to otherwise bald and unconvincing dogma.[3] Established lore has a knack of being right. Though the precise reasons

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[2] Cf. Old sailing lore "Whistle for a wind" and "Bad luck to whistle in the morning". Both probably derive from the meteorological fact that, in the oceans where sailing ships plied, a spell of very fine weather—the kind which leads one to whistle in the morning—usually immediately precedes a gale. Dull morning, no whistling, no gale.

[3] This works. When a very young engineer I happened to be a witness in a motoring court case. The even more newly-fledged solicitor, defending his first client without notice, asked leave to call me as an expert engineering witness on the strength of some broken chain. Baffled for anything to say, I gained time by poring over them trying to look learned. Inspired, I solemnly pronounced that chains always broke at the weakest link, which

were not understood until long afterwards, the old weather saws such as "Quick rise after low foretells a stronger blow" have again and again turned out to be shrewd observations—even scientifically accurate descriptions—in this case of what happens as a trough of low pressure passes. The way lore evolves is clearly illustrated by the strongly held, almost superstitious, beliefs which grow up around factory processes; they are founded upon observation. As a newcomer to the cement industry I was warned of dark mysteries which only experience would illumine. It turned out that valid grounds could be traced for about half the superstitions and that about a quarter had once been valid before conditions had changed. Some of the remaining quarter were manifestly wrong and perhaps had had their origin in seeing a connection in what was only a coincidence (e.g. it always rains for Queens' coronations). A pleasant example of valid lore is widely held in Saul, a Gloucestershire village near the River Severn. The Severn Bore is said always to arrive at about the same time of day—between 4.30 and 5 p.m. if I remember right. Now every schoolboy knows that the bore results from the tide, and that the tide is fifty minutes later each succeeding day, so that the bore should likewise be. The locals however, know that the bore is most worth seeing at Spring tides, so they send visitors to see it then. Springs occur just after the moon reaches its full, or its change, and the tide at those phases is at the same time of day. So is the bore. Traditions akin to lore can grow in another way. Each of several cement works, some far apart, employed the same traditional sequence for the overhauling of the kilns—the heart of the works, and an event comparable in importance to, if less jolly than, trampling out the vintage. It has recently become fashionable to study the best sequence of work by means of "critical path networks". Experts studied the operation and produced their ideal plan—exactly the traditional programme. This was, of course, a good mark for the experts: they had by taking thought for ten days arrived at the same conclusion that had taken many years to evolve through noticing and avoiding earlier mistakes. Many traditions must have evolved in just such a way. Just as evolved patterns are similar in cement works all over the world, for the obvious reason that one is very like another, so tradition that has grown up independently in more than one place is more likely to have some common thing at bottom. The

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happened to be missing. Thenceforth I was accepted as a manifestly observant, honest and dependable witness. The solicitor (my younger brother) and his motoring client (my next younger brother) won their defence.

something may be the truth : the Kon Tiki expedition, by disposing of ill-founded objection, has made much more probable the validity of local tradition that the Polynesians had come from South America. On the other hand it may not : the widespread legends of a Prince marrying a beautiful beggar girl are probably no more than a concoction of beggar girls' wishful dreams of becoming beautiful princesses.

Comparison of the legends which religions include can certainly lead to some interesting speculations. There is for example a strong tradition in Tibet of search for a baby to become the new Dalai Lama. In the autobiography of the Dalai Lama, *My Land and My People,* there is an account of lamas bringing gifts and recognizing a baby (the future Dalai Lama) as an Incarnation, and this has several analogies with the Epiphany story. It is true that the present succession does not go back to the time of Christ, but there may have been an older dynasty. In any celibate theocracy there is a problem of bringing in new blood. Perhaps in the ancient eastern world Incarnation hunting was a recognized way of solving it. There is the very definite account in the Gospels of three wise men from the East attending upon the baby Jesus. So we can speculate whether lamas were out on a baby hunt, whether the story was imported or . . . .

Having browsed at some length in the field which we said we would *not* explore, let us return to our limited choice—how to make a comparison of certain religions to find the best—merely noting in passing that a technique developed there might apply in those wider fields as well.

Perhaps it would be easier for Britons to begin nearer home with an exercise on "Comparative Sectarianism". How does one choose the better of, say, the Roman Catholic and the Scottish Presbyterian varieties of Christianity? In real life few things are perfect—a Rolls Royce may be the most comfortable motor car in the world, but it is by no means the most suitable for a young apprentice earning five pounds a week. Commonly there is one best compromise and many more almost as good. One must first answer the question "best for what?" Then it is easy :—for large families R.C. : for peaceful Sunday afternoons, S.P. : for respectability (in Scotland), S.P. : for respectability (in Eire) R.C.; and so on.

In principle it ought to be no less possible to choose a most suitable religion (and perhaps some runners-up nearly as good) than to choose a most suitable dishwasher, though it may be more complicated and quite certainly will be more difficult to get at—and measure—all the facts. For the ministers of most religions and

almost all Christian sects (save perhaps the Quakers) seek, usually with considerable success, the same sort of taboos on discussion that are sought by ministers of state on the working of their departments. Add the two further bastions of any un-selfconfident organization—a private jargon and a shop closed alike against the stranger and the strange idea—and the difficulties in the way of finding the truth appear formidable indeed.[4] But a way has already been found round much the same difficulties in another field.

The Consumer Council of Great Britain, best known by its magazine *Which,* set out a few years ago in a small way to compare the wares of merchants who were in the main obscurantist, prickly, had closed shops, inferiority complexes and jargons of their own. *Which's* success has been dramatic—beneficial not only to the consumers but also to the merchants, who now have mostly lost their prickles, take an honest and confident pride in their merchandise, and no longer feel the need to repel strangers; even their language has become easier to understand. Maybe the Council would have been less successful but for the compelling need of merchants to sell, but do not the evangelizers have a precisely parallel compulsion to evangelize? Perhaps the *Which* kind of comparison would bring about comparable improvements in the various sects, not least in their public images![5]

Which recently reported on razor blades. They had tested well known makes for comfort on normal and sensitive skins (subjectively), life (number of comfortable shaves and number of bearable shaves), price and its variance from one shop to another. In order to reduce the risk of personal prejudice affecting the subjective tests several observers were used, and any odd men out eliminated. The tabulated result showed that for the tough-skinned the cheapest blade was the best value measured in shaves per penny, but that for the sensitive, an expensive one was best, measured in comfortable shaves per penny. To obtain a quantitative measure of merit *Which* will sometimes devise an arbitrary scale of marks.

The consulting Civil Engineer uses a somewhat similar technique for contrasting tenders received in the form of "Priced Bills of Quantities". He prepares a "videamus" (one of the rare Latin words used in engineering jargon). The different columns show the bids of the several contractors; a good consultant will include

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[4] And propound at your peril the idea that obscurantism betrays lack of faith.

[5] I am told that David Frost once tried this on TW3; the present intention is that *you* Do It Yourself.

UNIT	QUANTITY	ITEM	RATES				
			Contractors				Cons. Engs.
			A	B	C	D	Est.
Cu. yd.	2120	Excavate foundations 0–8 ft. deep ...	10/6	9/5	10/–	7/9	8/6
„	312	„ „ 8–12 „ ...	14/–	13/6	15/–	10/6	12/–
„	27	„ „ 12–16 „ ...	19/–	18/6	20/–	17/–	18/–
Cu. yd.	2459	Cart to tip	5/4	6/8	6/9	8/9	7/6
Sq. ft.	3720	Shuttering to sides of bases	3/6	3/2	3/6	3/–	3/6
Cu. yd.	1817	Ready mixed concrete 1 : 2 : 4	63/6	63/6	63/6	59/–	63/–
Cu. yd.	350	Blinding, lean mix	54/–	54/–	53/6	57/–	54/–
No	792	Form Bolt pockets 18 in. long	11/2	10/6	10/9	12/3	10/–
No	396	„ „ „ 12 in. „	6/2	5/9	5/11	6/–	6/–
Cu. yd.	292	Backfill approved hardcore ... ... etc.	15/7	15/–	14/6	12/9	12/6

Fig. 8a

another column showing what he thinks the cost ought to be. The best bid for each item is underlined (sometimes the next best is marked too in a different colour); it is then usually obvious which contractor is offering the best bids. More often than not, the contractor with the greatest number of individual best bids has the lowest price, and is provisionally selected. His bids are then carefully scrutinized—especially any high ones, for it is not unknown for an astute contractor to take advantage of any inaccurate quantities in the bill. By deliberately quoting a high price for any quantities which have been underestimated and a low price for any which have been overestimated it is possible to put in a bid with a reasonable, or even low, total to secure the order, and, when eventually paid by measurement of the work actually done, to gain substantially more on the excess of expensive items than the loss on the shortfall of cheap ones. Comparison across the row will soon show this up—unless the error is so patent that all the contractors have noticed it and all happen to have been equally crafty! This line by line check will also make plain any large mistakes.

In the same way as engineering works are composed of many small items so religious claims have many facets which deserve comparison. Some are simple and clearly religious, some, e.g. healing by faith or will power and extra-sensory manifestations, cannot be entertained without breaking through a kind of metaphysical boundary.[6] Let us now build a videamus for some of the better known religions, e.g. Buddhism, Christianity, Hinduism, Islam, in the first instance omitting cases where the different sects inside them conflict; and let us hopefully have a column for the Consulting Engineer's standard or norm. The aspects which may be compared are many but classification should simplify them. Try "Rewards", its opposite "Costs and Discomforts" and "Behaviour"—a vast subject which will subdivide under many headings such as Churchgoing, healing, evangelizing. . . .

Just as it is not possible to discern the artistic merit of, say, Coventry Cathedral from the Bill of Quantities of its construction, it would not be reasonable to expect the Truth content of religions to appear in the videamus. But just as some idea of the quality of

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[6] A friend is quite sure she cured herself of a serious illness by pure determination. She had first found how to achieve a state of detachment; this enabled her to make a self-analysis in which she realized that it should be possible to achieve the opposite of a psychotic illness. And I myself once went rowing with all the symptoms of 'flu and a temperature of 103°F; 90 minutes later I was completely cured, if rather tired.

the Cathedral can be gleaned from the materials billed—pink granite facing stones and copper-sheeted roof—so some idea of the verity of a religion may perhaps be gleaned from its individual ratings.

Rewards

	Buddhism	Christianity	Hinduism	Islam	Standard or Norm.
Heaven, Nirvana, etc.	6	5	4	7	6
Visio Dei	5	7	5	4	
Grace					
Peace					
Light or understanding					
Joy					
Worldly rewards	6	5	5	5	
etc.					
Costs					
Detachment	6	2	6	1	
Self knowledge	8	4	6	1	
Charity (giving)	5	5	4	5	
„ (receiving)	4	1	3	0	
Asceticism	5	2	4	3	
etc.					
Behaviour					
a. *Templegoing*, for reasons of :					
Habit	3	5	5	4	5
Magic and miracles	3	4	2	1	
Showing the flag					
Sociability					
its opposite					
Rites of passage (births, deaths, etc.)					
Rainmaking					
etc.					
b. *Healing*					
Hospital Services	2	7	2	5	6
Lore					
etc.					

It now remains to fill in the spaces as well as one can (some sample sets of bids have been filled in for a start). As in *Which's* subjective tests, the mass wisdom of a council of friends may be helpful and indeed encouraging (but note the less confident contractor will sometimes strive very hard for a "negotiated contract" so as to avoid a videamus; the good ones have no fear of it).

The Consulting Engineer has to use judgment in making his estimate of the standard or norm. He can usually call upon his past experience, but when he cannot he may merely take some average of the bids themselves, either arithmetical or weighted according to his taste and the reputation of the contractors. You may judge your own norm values, and in so doing will perhaps perceive the inner nature of the item.

Living as Castaways

I. *Tongan Castaways.* *Editor, Theoria to Theory*

Sociologists studying small groups often simply observe behaviour in normal secure conditions or in fabricated conditions where there is no real danger or inability to leave the situation if things get really difficult. Thus they do not tell us what makes for resourcefulness in living under abnormal conditions, or for sheer ability to survive in conditions of genuine hardship where there is no possibility of contracting out. A contemporary meaning of "asceticism" could be training in techniques which would help people to stand up to stresses. Insights and experience of this kind in different religions would be an important field for comparative religionists.

The group of six Tongan boys whose story appeared in the national press in October might have provided such a laboratory had a trained observer been present, or if one, knowing their language, had questioned them closely and sympathetically afterwards. As it is, we have some anecdotal information, which has been supplied by Roland Lavin, manager of the Tonga Broadcasting Commission and Representative of Reuter's Ltd., in Nuku'alofa, Tonga.

Early in September, there was considerable excitement when an Australian fishing boat, the "Just David" out on an expedition looking for workable crayfish beds, rescued six Tongan boys who had been castaway on the island of Ata. Of the six boys, five were students at St. Andrew's (Anglican) School and the other was a student at Atensi (Athens) College, a private school. At the time of their departure from their home in Nuku'-alofa they ranged in age from 15 years to 17. It appears that these boys had "borrowed" a boat to go fishing. They anchored at night near a small island about six miles of Nuku'-alofa and, after fishing for some time, fell asleep. During the night, the weather turned stormy and the anchor rope broke. When dawn broke, there was no land in sight and the boat was in poor condition. They drifted for eight days, spending most of their time bailing and living off the little bit of fish they had caught on their first night. On the eighth day, they sighted Ata but did not recognize the island. By this time, the boat was in much worse condition and the boys took to the water, using planks from the boat for additional buoyancy. In this fashion, they swam most of the day and part of the night before finally reaching the island where they landed on a rocky ledge. By this time, they were

so exhausted and weak, they had not the strength to climb the cliff to a better position and, for about four weeks, they lived there, feeding on coconuts which happened to fall and sea birds they were able to catch with bare hands. Eventually, they regained some strength and scaled the cliff, reaching the crater which is over 1,000 feet above sea level. Here they found a greater variety of food—wild fowl, coconuts and bananas. The bananas were cropping very poorly through lack of cultivation, so they started a garden and built themselves a hut. There they lived the ensuing months until the "Just David" arrived.

The boys lived during these fifteen months by working out a strict daily routine which provided for two to be on watch at all times, while the others prepared food and tended the garden. They also had morning and evening prayers every day and strict exercise times. They chose Sione Fataua (shonny Fa-Tah-Wa) as their leader. Although not the eldest, he is the tallest and is a beautifully built youth.

To appreciate the situation fully, it is necessary to know something about Ata itself. It is a small volcanic island about 85 miles south of Tongatapu and is Tonga's most southerly possession. It used to carry a small population, but the people were preyed on so much by blackbirders in the last century that their king ordered the entire population to be evacuated. Since then Ata has been uninhabited. Our Tongan boys, when they landed there, had no idea where they were but thought they were somewhere in the Samoan group. They gave their island a new name, *"Siosionoa"*, which translated literally means "looking at nothing". Their ignorance of their location nearly brought complete disaster. At one time, they built a raft with the idea of sailing back to Tonga and, thinking they were in the Samoan group, they headed south. Fortunately, the raft broke up when they were about a mile out to sea and they were forced to swim back to Ata. On another occasion one of the boys had a bad fall and broke his leg. They bound this up with leaves and vines and it has healed perfectly, in spite of the fact that judging by the scars, it must have been a compound fracture.

The "Just David" was the fifth ship the boys sighted. They had learnt how to make a fire by rubbing sticks together but they found that shipping was apparently unable to see their signal fires. They therefore burnt off a large area of scrub, and it was this that attracted the attention of the captain of the "Just David". Knowing that the island was supposedly uninhabited, he stopped to investigate.

The information to hand is slight; nevertheless it suggests certain clues. (i) The boys had probably been used to joint enterprises of a testing kind, since they "borrowed" a boat to go fishing among scattered, uninhabited islands. (ii) They realized the importance of a regular rota of necessary things to be done if they were to survive, and stuck to it through what must have been months of discouragement. (iii) The religiously minded ought not to cash in too readily on the fact that they had morning and evening prayers. But it may well have been that, for a group having to live together in these conditions, this was no pious extra, but an integral part of the pattern of life by which they were able to deal with the physical, mental and inter-personal stresses involved.

The Tongan boys managed splendidly; their story naturally suggests a contrast with the imaginative account in William Golding's *Lord of the Flies* of how a group of significantly younger boys marooned on an island relapsed into cruelty, anarchy and persecution.

In the article which follows, Edward Blishen gives an assessment of William Golding's story.

II : *Lord of the Flies* — *Edward Blishen*

In laying the story of the Tongans, as we have it, alongside the story of the marooned boys in William Golding's *Lord of the Flies,* we are of course trying to relate a mere outline, a sketch, to a fully worked out narrative. Any direct comparison would have to swarm with "ifs" and "buts"; though, as I shall try to prove, a direct comparison is hardly relevant. The fact remains that many of us, having learned no more than that half a dozen boys appear to have survived a marooning in good moral and physical order, would be bound to look again at *Lord of the Flies,* as a story that might seem to suggest that such an achievement was unlikely.

Let us consider, first, the genesis of Golding's novel. The author has said himself that in one sense his novel was a retort to that famous classic of shipwrecked youth, R. M. Ballantyne's *The Coral Island* : there are even, in *Lord of the Flies,* ironic echoes of the names of characters in the earlier book. The boys in *The Coral Island* are older : they bring to their predicament an attitude of adventurous enjoyment that certainly must seem, from any viewpoint, a convention of fiction rather than an actual likely response to the stresses and terrors of being marooned. Ballantyne, one might say, was not concerned with human reality : or, to put it a little differently, it was possible for him to believe that a small group

of boys in this situation would treat the experience as, on the whole, a lark—an exciting holiday in splendid surroundings, with a proper element of danger added. He was not concerned, either, to imagine the irritations that would in fact arise between people thrown so closely together in circumstances that would certainly lay enormous strains on the qualities of each of them. The boys in *The Coral Island* have their moments of annoyance with one another: but these spring from differences of opinion as to actions to be taken, rather than from deeper discords. In short, *The Coral Island* is, in the main, a piece of light fiction written within a convention from which all real probings and almost all consideration of the probable reality of a human situation are excluded.

Why, if this is so, should Golding be moved to write his answer to *The Coral Island*—even if to be such an answer was not the whole purpose of the novel? I believe an explanation may lie in one possible description of the whole of Golding's work: that it is produced out of profound irritation (to use the word in its larger, not its petty sense) with the buoyant view of human nature and of the power of humanity to lay itself under decent constraints that is reflected in *The Coral Island* (the underlying tone of which is conventionally and optimistically Christian) and also in the work of H. G. Wells, against whom also Golding has confessed he is reacting. (His novel *The Inheritors* is a riposte to Wells' vision of human history—to the Wellsian view that each step in human development has been a step towards better things). And, as I see it, Golding chooses, as a target of this irritation, the optimistic myth that is *The Coral Island* precisely because that story is concerned with the behaviour of young people left to their own resources. This is a subject to which Golding's attention is drawn, if by nothing else, inevitably by the nature of his occupation—he was for a long time a schoolmaster. I once heard him say that the germ of *Lord of the Flies* lay in an actual teaching experience. Towards the end of a lesson, he asked his class to imagine they were alone on a desert island, and to show him what would happen. Before his eyes, he said, the story of *Lord of the Flies* began. He has also suggested —in a radio discussion—that any schoolmaster, moving about in a playground, must have seen children on the brink of great violence and even mayhem.

There is perhaps a little disentangling to be done at this point. I believe myself that Golding has, idiosyncratically, a deeply tragic and pessimistic view of life. I am not sure where this stands philosophically as a statement: I mean by it that he is so constituted that he is curiously sensitive to the black tones in human experience.

He is hell-haunted, concerned with human guilt and greed. I have often myself thought of him, as many of his readers must have done, as a man of astonishing courage: since all of his work looks, and with little if any relaxation, at the worst of human nature. Yet perhaps courage is not the word to use, or is not the only word to use: since it seems likely that in reflecting this dark view of humanity, Golding is doing only what he must. This is his nature. Here is what I mean by describing his pessimism as idiosyncratic. The vision of human life contained in his work in one plainly based on omission—there are features of the human experience that he is not, as it were, made to see. We lift our eyes from his pages and remember what he has left out. He has left out, among other things, common human benignity, part of which almost certainly springs from the fact that most human beings are not Goldings. They hope more than he does, they give the benefit of the doubt where he gives none. The dark side of their natures is not so relentless. Some of the attitudes they bring to life, and that Golding does not bring, may be self-illusions: but it might be argued that it is precisely the human power of beneficent self-illusion, of simple relaxation, of the refusal to turn too bleak an eye on themselves and others, that distinguishes human reality from the dark vision of it to be found in Golding's novels.[1]

I would argue that in such a judgement of Golding's work there lies no reason to reject what he offers us, to push it aside as false. It is no more "false" than many other *partial* views of human life offered to us by literature. What such views do is to give memorable expression to parts of our experience and areas of our awareness. There is some Browning in us, some Donne, some Swift. And I have tried to disentangle this strand in the discussion, since it seems to me that we must not turn to Golding, or to *Lord of the Flies* or any of his works, as if they were touchstones, or were meant to be. They are not, and were not. They are the writings of a man with a powerful black imagination, and we should, I believe, be grateful to have among us someone who can write such a memorable latterday metaphysical sermon as *Pincher Martin*: even if it offers only a partial vision of human nature.

But, having said that his work is special work, in this sense, we are perhaps now able to look a little more clearly at *Lord of the Flies,* and to ask whether what it says is at odds with the reported

[1] A friend with whom I discussed this point added the view that Golding is profoundly disturbed by human ambition and drive, which he sees entirely in terms of aggression and greed, without recognizing that, sublimated, these forces lie at the roots of all human achievement.

experience of the Tongan boys. It strikes me at once that the two situations, and the persons involved in them, are wildly different. To begin with, the children in *Lord of the Flies* fall from the air, on to their desert island, in curiously grim circumstances. A world war has broken out, and they were being evacuated from England. Then they are very young—the oldest is only thirteen—and they are English prep school boys: unlike the Tongans, they have no experience of tropical climates. They could hardly be more ruthlessly wrenched out of the familiar context of their lives. On most of them, it soon becomes clear, adult attitudes have as yet had little effect: or, it might be truer to say, they are not old enough to rest on such attitudes in the absence of adults. They are still at an age when they depend on grown-ups for the organization of their lives. They simply do not yet, in many ordinary situations—quite apart from extraordinary ones—know *what to do*. A most moving feature of the story is Golding's description of the way in which the smaller ones, bit by bit, lose their grasp on their own identities. They repeat their names to themselves, some repeat addresses, but on that island, atrociously hot by day, black and terrifying at night, they soon wear these garments of identity to rags. They are terrified simply because there is no one to turn to, and because what at first seems fun—splashing in pools, eating strange fruit—soon turns into nightmare. The wonderful sun burns them, the amazing fruit makes them ill. The island playground bites and wounds, it stirs with awful noises at night. I don't see that there can be much argument about this aspect of the story: this is surely what would happen to children so small, in such circumstances. Their lives have always rested on the certainty of adult care and guidance. They are as far as little children could be from being trained to look after themselves, with not a grown-up hand to seize at a moment of fear, not a grown-up voice to warn them against the dangers of too much tropical sunshine, too much fruit. They are soon deep in living nightmare.

There are older boys, however, who recognise the need to organize this dangerous existence. Their natural leader is Ralph, who is as near to being a character from *The Coral Island* as any of them. That is to say, he is innately sensible, and old enough to be able to embody his commonsense in plans and projects. He sees that they must establish an authority, and agree to obey that authority. He draws, one gathers, on his recollections of the behaviour of his own father, and tries to do as he might have done. He succeeds, in the early phase of this awful adventure, in setting up an organization, of a democratic kind. There is an election, he is chosen

as leader, and a conch-shell is made the symbol of authority. There are meetings, and order is established at these meetings by a rule that no one may speak until he has the conch-shell in his hand. Ralph sees that they must do as the Tongans are reported to have done: they must have a rota of duties, a fire must be lit and then kept alight so that they might hope to be rescued. Huts must be built, and there must be some attempt at hygiene. There must be regular call-overs. In this struggle to establish order, Ralph is aided by Piggy, who is the odd man out in the party. Piggy is lower middle class, suffers from asthma, is short-sighted. He is intelligent, and a born butt for the others: even Ralph lapses at times into ragging Piggy. One is never quite sure how he came to be a member of the group. I suspect that he is there because Golding wishes to show us another aspect of the cruelty that might arise among children if the tempering hand of the adult were withdrawn. For Piggy's accent, his physical weaknesses, his blunt habit of complaint (prep school boys have learned not to whine), his commonsense, his *difference,* make him a convenient laughing stock. As the situation falls to pieces, he becomes the object of runaway hatred. Golding seems to be saying, here, that one thing these children have learned—or it is innate in them, and not yet controlled—is to detest the person who is different; and that indeed, when things are falling apart, the dogged upholder of reason becomes someone who must be destroyed.

How does the situation fall to pieces? The steps in this disintegration are complex, but briefly it might be said that two forces overwhelm Ralph and his dwindling band of supporters: the forces of fear and cruelty. And here we come to the heart of the matter. This situation is far too big for boys of this age group to handle. Fear sweeps over them, in waves that grow more savage day by day. At first the panic is confined to the little ones, and simply arises from their natural terror of the night, with no adult at hand, with noises in the bush, with awful visions and rumours. Then comes fear of themselves. For the early attempts at organization, which persuade them that they have themselves in hand, soon founder. Opposed to Ralph, in character and in ambition, is Jack, leader of a group of boys from a choir school. (Ralph and Jack are the names of two of the three boys in *The Coral Island*). Jack is not merely jealous of Ralph and of his early popularity and election as leader of the whole party: he by nature tends to cruelty, and represents the instinct of tyranny as Ralph represents the democratic instinct. While Ralph wishes to concentrate on the building up of a voluntarily self-regulating community intent on survival, Jack wishes

to hunt. Everything in Jack drives him to adapt to the savagery of the island. And when the activities of the hunting party lead to the neglect of the fire, so that it goes out at a moment when a ship is sighted on the horizon, the conflict between Ralph and Jack, and what each of them stands for, reaches a crisis. Golding shows that at such a moment there would be hesitations: Jack is really ashamed: Ralph is still sufficiently in command to know that he must try to find some satisfaction for Jack's pride and his passion for the hunt. For a last moment the conflict is poised, there seems a hope that a compromise can be found: but it is all too much, the boys haven't the resources to sort out this hideous tangle of fear, cruelty, jealousy. Virtually, from this point, the children become insane, and their frail attempt at humane and sensible self-organization is swamped.

That is the story of *Lord of the Flies*. I must say I find it wholly convincing. At the same time, I am not at all sure that it is the pessimistic work that it is so widely taken to be. Let us look at this by way of a straight comparison with the experience of the Tongans. Half a dozen boys, old enough to have learned many of the techniques of human self-control, keep themselves in admirable order when they are marooned in their own quarter of the globe. As against this, a much larger group of English prep school boys, many of them very young, lapse into violent disorder when they are marooned, at a time when the world is at war, in a part of the world very remote from their own. Two totally different stories are being compared. I believe the implications of *Lord of the Flies* are not so damaging to human nature as many (and perhaps even the author) imagine, simply because the story of those prep school boys is a very special story. So special, indeed, that *Lord of the Flies* fails to be a relevant reply to *The Coral Island*. After all, what *is* implied? That the power of self-control and of humane communal organization is but slowly acquired by the growing human being, and that in order to acquire it he must for a long time lean upon the adults around him. Golding is merely saying (at this level: the novel has other levels, of course, which do not affect this precise discussion) that, if we remove from a large group of children, none older than thirteen, the guidance of grown-ups, and place them in terrifying circumstances, then they will lapse into anarchy: and out of fear, and under the inspiration of the cruellest of them, they may even commit the most atrocious violence upon one another. He is reminding us merely that our childhood is a long apprenticeship to that adult role in which, if we successfully assume it, lie the learned restraints and good sense of centuries. There is a moment

in *Lord of the Flies* when a boy with a cruel streak, a playground bully, begins to throw stones into a group of smaller boys. At first he does this cautiously, ringing them with stones, not actually aiming to hit them; but slowly he discovers an important fact—that on the island there is no grown-up to confine him to this token gesture of cruelty. Soon he is throwing stones *at* the smaller children. *There* is (for the purposes of our present concern) the nucleus of *Lord of the Flies*. Had there been among the Tongans anyone with this streak of cruelty in him, I am sure he would have been restrained, even if he had not already mastered it: he would, in any case, have been among co-evals. Like William Golding, I have been a schoolmaster, and like him I have sensed the fearful violence that is sometimes so close to the surface in a school playground. I can remember, as a boy, being involved in that violence. I was once when I was eight or nine years old, tied to a tree by slightly older boys and a fire was lit at my feet. Children can be cruel, simply because the raw material of human nature is explosive, and includes enormous drives, and we need the accumulated techniques of the centuries to create out of that raw material a tolerable adult human being. It seems to me that *Lord of the Flies* at this level says no more than that: an important thing to say, since we need often to remind ourselves that we do not construct the reasonable adult out of a mass of original rationality and benevolence. Knowing this is so, we may be less inclined to under-estimate the enormous importance of these processes, of which schooling is only one, by which the adult is formed. It is true that *Lord of the Flies* is unhappy about the adult world as it is about the world of children (I am inclined to think it a novel that tries to say too many things within the tight framework of its narrative): but that is another story. The experience of the Tongans . . . that is another story too, except in so far as it suggests that, in the case of those half a dozen boys, the adult-forming processes were good ones.

Theism as a Scientific Hypothesis II

Margaret Masterman

The Relevance of Apophatic Theology

In the general preface to this essay I started by saying that anyone who wishes to consider theism as a scientific hypothesis must not only handle ideas which are difficult in themselves, but also contend with two sets of people for the right to handle any ideas at all.

These two sets of people (I said) are : firstly, the devout contemplatives of all faiths who insist, in differing ways, that God being unlimited and infinite, our human intellects are too inadequate even to frame the hypothesis of His Existence :

This protest which is universal, must be taken seriously. In discussing it, I shall call such contemplatives, when Christian, by their legitimate and traditional title of *apophatic theologians*.[1]

The second set of people who (I also said) do not want theism as a scientific hypothesis even to be discussed are the tough-minded positivistic scientists (often miscalled "materialists"). These say that the hypothesis that God exists is indeed perfectly comprehensible and straightforward, but that scientific research has shown it to be clearly untrue.

The denial of God's existence by these scientists must also be taken seriously; I shall indeed spend the rest of this whole essay analysing and controverting it, speaking (in so far as working in the computer sciences gives me the right to do so) as a scientist to other scientists, and the rest of the time as a philosopher of science to other philosophers of science, but, in any case, not speaking as a theologian.

The point I want to make here is that this second assertion, i.e. the one made by the scientists—is a quite different kind of assertion from the first, i.e. the one made by the apophatic contemplatives. It would in fact, in normal times, be considered also a contrary kind of assertion : but the two are now getting confused with one another.

The vital thing, however, the all-important thing—if intellectual integrity is to be maintained—is not to evade discussion of the scientific denial in the name of the apophatic protest. One must above all, when discussing the question of theism, not slither vaguely and disingenuously from one of these universes of discourse into the other.

Now, although to keep these two spheres of discourse apart sounds quite easy, in fact it is not. It requires, especially for a philosopher, sustained concentration and an exceedingly clear head. This because this whole issue, already sufficiently complex, has been complicated still more in our time by a contemporary movement of thought among the philosophers and mathematicians. This movement says that, owing to the logically necessary limitations of thought and of language, it is not only contingently impossible, but also logically impossible, to talk meaningfully about God at all, much less to prove His Existence. How then (demand the philosophers, but not the scientists) do the apophatic contemplatives know that it is *God* whose existence cannot be shown but must be mystically "realized"? How, for instance, do they justify the very use, in English, of the English word "God" if it can be conclusively shown, from philosophical considerations alone, that the word "God" has no genuine meaning at all—it is just a meaningless noise?

Thus these three different strands of thought, which are in fact intellectually inconsistent with one another, socially converge to give us the atheism of our time. The positivistic scientists, blasting and blowing, deny theism to the point of refusing even to discuss it; the apophatic contemplatives retire into their shells (or their convents) because they say that becoming mystically aware of God is not a matter to be judged by science; and the philosophers then attack the apophatic theologians (in spite of the fact that what they themselves are producing could, from another point of view, itself be called a variant of apophatic theology; see later) by pointing out that if the use (e.g.) of the word "God", in English, has no communicatory value (i.e. is meaningless), the apophatic theologians, in their own showing, ought not to have any convents to retire into. For you do not build or maintain a Christian monastery or convent unless, in a fairly rock-bottom sense, you believe *in God*. Moreover, the contemporary beatnik meant-to-be-helpful suggestion, that all Christian contemplatives who want to be "with it" should now give up their old-fashioned theistic pretensions and turn either Hindu or Zen Buddhist is complicated by the fact that on closer study the Zen Buddhists themselves—the most thoroughgoing apophatics the world has ever seen—turn out to believe very devoutly indeed in Absolute Mind.[2]

Clearly, here is a gigantic muddle. It is a muddle, moreover, which must be philosophically sorted out before any clarity can be gained for discussing true atheism, i.e. the nature of the scientific denial. Because although the scientists, as well as asserting atheism, can brush off the apophatic protest on the ground that, if there is

in fact no God, there is also in fact, no mystical "realization" either, they cannot similarly brush off the findings of the contemporary logico-empiricist philosophers. For if it is meaningless to assert God (because the word "God" itself is meaningless) it is also equally meaningless to deny Him. If the philosophers are right, therefore, atheism is as unstatable as theism. And so, provided the contemplatives within their convents quite literally never open their mouths, either in prose or in verse, except to communicate with one another on the ordinary events of daily life, it might be all right (say the philosophers but not the scientists) to continue to have contemplative monasteries and convents; but it is not all right to have an atheist denial operating from within, and in the name of, science; both because of any statement of atheism whatever is meaningless, and also because (on the same extremely restrictive criteria of "meaning") a great deal of speculative science is meaningless also.

So, the scientists and the contemplatives have to make an unexpected alliance with one another against the philosophers, in order to gain the right either to assert the existence of God, or to deny it. The philosophers also, from time to time, tend to make a different kind of rather unfair alliance with the contemplatives, alleging that their own restrictive findings support apophatic theology. And, in the times in between, the scientists are in semi-permanent alliance with the philosophers in asserting that there ought to be a fundamental excision, both of the language and practice of religion, and also of much of those of science.

So all veer; and in fact the initiative is with the contemplatives; but of course, they don't know it.[3]

In these circumstances I make no apology, either to philosophers or scientists, for starting the main body of this essay with an investigation of apophatic theology.

* * *

There is one apology, however, which I do have to make; but it is to two quite different sets of people.

I shall be accused of being esoteric—by Catholics and Protestants, and of course by the Bishop of Woolwich—because I am uniquely exemplifying Christian apophatic contemplation from early Greek Orthodox Christianity. I am doing this, throughout this essay, without further justification, for the following (as I think) quite good reasons. (i) Whatever Biblical fundamentalists may say, and however inaccessible the literature still may be,[4] it was not the period of

the Gospels and of the first century, but the period of the Councils and of the Desert Fathers which was in fact the first great formative period of the world-wide Church. (ii) This early Orthodoxy dates from before the split between East and West—let alone before the further Western split into Catholic and Protestant. (iii) Our knowledge of the very early Christian centuries is still at present exceedingly fragmentary. If, in the future, more "Dead Sea Scrolls" are found, which enable us to piece together and fill in in some detail the genuine-Essenic-cum-Hebraic background of first-century Christianity—and before that of Jesus of Nazareth—then (my guess is that) Christian Hebraists of all denominations are in for a shock. This, in turn, will have the long-run effect on them of causing them to place Christianity centrally, and not, as at present, grudgingly, upon the more comprehensible insights and more Western holiness of the Greek Early Fathers. (iv) The period of the Greek Early Fathers was the great metaphysical period of Christianity, *par excellence*. It was also, concurrently, a period when Christianity was fresh and unconstrained; when the classical Roman persecution had stopped, and the mediaeval Roman inquisition had not started, and when, though there were indeed regrettable quarrels, there was also a regional background of Greek toleration and intelligence. It was a period, further, when holiness was widespread, when the practice was based directly on individual experience, and was therefore equalitarian and flexible; and when contemplation ran exceedingly deep.

I also owe an apology to the comparative-religious world for uniquely exemplifying Eastern apophaticism not only from Buddhism, rather than from Hinduism, which was its matrix, but also from comparatively modern Japanese Zen rather than from the much earlier, Hinayana Buddhism which has been so clearly and so recently described by (e.g) Conze.[5] I am doing this, again without further discussion, for the following not-nearly-so-good reasons. (i) I think it is possible to argue that even Hinayana Buddhism, especially as it is now practised in Ceylon, is quasi-Spinozistic in philosophy, rather than extinctionist and nihilistic. But I am not competent to argue this case, on which indeed there is already a great and rapidly increasing literature. My evidence for my putative opinion largely rests upon my personal friendship with a Hinayana Singalese Bikku who, in the 'thirties, studied philosophy at Cambridge; therefore, from an academic point of view, my view of this is worth very little. When it comes to getting any exact functional sociological conception, though, of what early Indian Hinayana was really like, I find myself baffled; I have neither the

"feel" of it, nor the knowledge, nor the languages. (ii) By contrast Japanese Zen Buddhism is currently taking great trouble to explain itself, and may easily, as time goes on, become widespread in the West. If it does, to a certain extent direct comparison may also become possible between its form of contemplation and that of Christianity. (It may become frequent, for instance, for people to move from one to the other as they now do between Catholicism and, e.g., Anglican Protestantism.) Also, for me, the language difficulty with Zen is less formidable, since I did two years' Chinese and am not afraid of ideographs. I suffer merely from the comparatively trivial defects of initially misunderstanding all the ideographs in their Japanese meanings, and of assimilating Japanese civilization to Chinese in an illegitimate way. (iii) It might be said that Hinduism is also ultimately apophatic, since Hindus continually assert that ultimate Reality cannot be intellectually apprehended, but has to be "realized". This is true; and it is true also philosophically in that an underlying apophaticism forms the basis of all genuine polytheism. If ultimate reality is spiritual and ineffable—the polytheistic argument goes—the best the mind and imagination can do is dwell on some of its separate aspects—aspects of which the deepest symbolic and concrete presentation is given by the lives and deeds of deified past heroes.[6] But I chose Zen instead of Hindu apophaticism to compare and contrast with the Christian precisely because I did not want to become entangled with the monotheism —polytheism problem. Behind this reluctance lies a hypothesis: the apophatic boundary is universal; it is something which confronts contemplatives in all religions, however differing the languages in which they describe it. Monotheism and polytheism are more superficial, and also more regional; Judaism and Islam are monotheistic, Hinduism and the official religion of classical Athens were polytheistic, and late mediaeval Catholicism was a mixture between the two, and can be analysed as either. Modern Zen is fundamentally at least monist, and Orthodox Christianity was fundamentally at most Trinitarian; so that, in comparing the one with the other, the question of the number of gods believed in does not normally arise.

I know that in comparing these two to one another I am open to the accusation of comparing a fifth-century phenomenon with a seventeenth-century phenomenon; for the form of Zen which it is most possible to get to know about was that refounded in the seventeenth century by Hakuin Ekaku.[7] But both Orthodoxy and Zen are living faiths, with contemporary exponents; e.g., Lossky, for Orthodoxy in *The Mystical Theology of the Eastern Church*

(English edition 1958) and Isshu Miura and Ruth Fuller Sasaki for Zen in *The Zen Koan* (Kyoto 1965). So even if I am only comparing Lossky to Sasaki, there is still something to compare with something else.

But I think, in the end, my only answer to this last criticism is that I am doing my best, and that, in the last analysis, it is less important that inter-religious comparison should be fully functional-sociological than that it should be done in a practical way by contemplatives for contemplatives—all explorers of inner space and all up against the same boundary.

The double nature and contemplative effects of apophatic theology

I will now try to characterize, and to distinguish from its substitutes, that special method of refraining from thinking which occurs within all faiths, but which, when practised by contemplatives within Orthodox Christianity, is usually called apophatic theology.

This refraining from thinking can be practised in two ways. The first, as might be guessed, is just by stopping thinking; by "centering down", as the Quakers say, until the whole introspected organism reduces to a point (which then vanishes) and the whole human body, mind, soul and spirit is still.[8] This method is called, within Christianity "the prayer of quiet", and, within Japanese Zen Buddhism, *zazen*.[9] The Orthodox method of achieving it is by the use of the "Jesus" prayer—so that it is the rhythmically repeated name of Jesus which finally becomes the introspected vanishing point. (Closely analogous methods of initial self-integration and "inner cleansing" are used as a method of training in nearly all faiths.) In all faiths known to me which recommend the "prayer of Quiet", but especially in Zen, the spiritual masters are alert to distinguish the true "prayer of quiet" from a degenerate substitute, called in Christianity "quietism". In the first, though still, the whole organism is intensely alert and alive; in the second, the whole organism grows slack, and its powers begin to decay.[10]

So much for the first contemplative way of refraining from thinking. The second is by allowing the mind indeed to "think", but forcing it to think exclusively about some riddle, or paradox, which, humanly speaking, just can't be thought about. A greater and greater psycho-physical tension is built up by doing this, until, by grace, or by illumination (in Zen, major or minor *satori*, in Hinduism, greater or lesser *samadhi*) the mind and intuition alike let go, a characteristic joyful pattern of behaviour suddenly sets in, and

the riddle or paradox, is seen to be "solved".[11] In Japanese Zen, as is well known, such riddles are called *koans* (you will find some koans at the end of this number), and are centrally used, in the Zen Rinsai tradition, for the purpose of hastening, and of fully assuring, mature contemplation, though the Zen Soto tradition prefers mainly, though not excusively, to rely upon the slower and less drastic method of *zazen*. And now, particularly in the teachings of Yasutani Hakuum, more inclusive approaches to Zen, which draw from both Rinzai and Soto, are being made. It is moreover, these last, which will probably first become accessible to the West.

Thus there is a very great deal more to Zen contemplation, and to the Zen Buddhist way of life, than just the use of koans to bring enlightenment; and a more general conspectus of both shows that it is by no means as ridiculous as it at first seems to compare even Rinzai Zen to Orthodox Christianity. However, the use of koans, which is here what I want to stress, is precisely what makes the initial difficulty in comparison, since all contemporary exponents of Zen, no matter of what school, alike claim that the Zen use of koans is unique. This last claim, however, is only partially true. It is the self-conscious, systematic, developed and controlled use of koans in Zen contemplative practice which is unique to Zen Buddhism; not any use of any koans at all. It is a good working first hypothesis, in estimating the development of human culture, that the Greeks discovered everything but made full use of nothing; on this approximation it will come as no surprise to learn that, by accident, as it were, and as an extra, the apophatic Greek Fathers discovered koans.

Moreover, we in the West have misunderstood the nature of Zen Koans. First attempts to explain the nature of Zen in English, such as that of Christmas Humphreys, or even those of Dr. Suzuki Daisetsu, have stressed the riddle-like nature of koans, their Japanese oddity, to the detriment of their profound religious centrality. Sasaki, however, is surely definitely right when she says, "Koan study is the unique method of religious practice developed in the Zen schools of China and Japan, to bring the student, without recourse to the mediation of words or concepts, to direct realisation of reality . . . in other words, its aim is that of all Buddhism since the time of Shakyamuni Buddha himself"[12] and "the koan is not a conundrum to be solved by a nimble wit. It is not a verbal psychiatric device for shocking the disintegrated ego of a student into some kind of stability. Nor, in my opinion, is it ever a paradoxical statement except to those who view it from outside. When the koan is resolved it is realized to be a simple and clear statement

made from the state of consciousness which it has helped to awaken. The course of koan study as devised by Hakuin Zenji from the koans of the old Chinese masters brings the student, by degrees from the first awakening to Reality, the Principle, Absolute Mind, into full realization and oneness with the Absolute Principle in all manifestations of ITS activity, whether these be beyond time and space or in the humblest acts of daily life".[13]

Koan-study, moreover, is not for total beginners; the unprepared raw student is not brutally hurled at his koan and beaten about the head till he solves it, as distorted rumour has told us. "In (the school of Rinzai Zen) zazen is, first of all, the preliminary practice, by means of which mind and body are forged into a single instrument for realization. Only the student who has achieved some competency in zazen practice is, or should be, permitted to undertake the study of a koan. Proficiency in zazen is the basic ground for koan study. During the practice of zazen, the koan is handled. To say that it is used as a subject for meditation is to state the fact incorrectly. The koan is taken over by the prepared instrument, and, when a fusion of instrument and device takes place, the state of consciousness is achieved which it is the intent of the koan to illumine and in this instant the koan is resolved. This experience may take place within formal zazen practice; it may as well be under any condition and at any time of the day or night. The experienced practiser of zazen does not depend upon sitting in quietude on his cushion. State of consciousness at first attained only in the meditation hall gradually become continuous regardless of what other activities may be being engaged in".[14]

Again, it might be thought ridiculous to compare the spontaneous, unpremeditated acts which first generated the Zen koans with anything much more deliberately done in Christian apophatic theology. However, just as the early parables and pardoxes spontaneously created by the Founder of Christianity and by St. Paul and St. John, later crystallized into fixed canonical utterances, and just as the flexibility and freedom of corporate daily life of the very early Christians and of the desert Fathers gradually hardened into the rigid stereotypes of the late monastic Rules, so with Zen.[15] The koans were then regarded as the case-records of Zen orthodoxy. "The koans may be compared to the case-records of the public law courts (from *Kung,* Japanese ko, 'public' and *An,* Japanese *an,* 'records') . . . there have never been public law courts that did not have case records which are to be used as precedents of laws. . . . When we use the word 'koan' to refer to the teaching of buddhas and patriarchs we mean the same thing. The koans do not represent

the private opinion of a single man, but rather the highest Principle, received alike by us and by the hundreds and thousands of the bodhisatvas of the three realms and the ten directions. . . . The so-called venerable Masters of Zen are the chief officials of the public law-courts of the monastic community, as it were, and their words on the transmission of Zen and their collection of sayings are the case record of points that have been vigorously advocated. Men of former times (recorded and arranged the koans) because they could not bear to think that the Great Dharma might become corrupt. Therefore they stooped to using expedients in order to open up the Wisdom Eye of the men of later generations, hoping thereby to makes it possible for them to attain the understanding of the Great Dharma for themselves in the same way. . . . They displayed words in the midst of wordlessness and handed down forms in the midst of formlessness. But once the bonds of delusion have been loosed, how can there be any words or forms left to discuss?"[16]

Thus the Zen Buddhist koans, like so many religious dogmas, can be looked at either as contemplative devices which (among other things) indicate that there cannot ultimately be any religious dogmas, or as themselves normative sets of canonical utterances which, together with the jakugo, or set replies, can even be strung together into a sort of catechism. Even so, however, there would seem to be a far cry between these koans and anything which has occurred in Christianity—until one remembers the great gulf which exists in this sort of matter between Greek and Russian Orthodoxy, on the one hand, and Western Catholicism and Protestantism on the other. The gulf obscures the analogy between Orthodoxy and Zen, which extends, not only to koans, but also to other matters. For instance, Orthodoxy derives from the Greek Fathers, nearly all of whom, like the Zen patriarchs on their mountains, lived temporarily or permanently alone in the desert. Then the Fathers also provided from within themselves individual masters who had individual disciples (the Greeks using the word *Abba* and the Russians, *staretz*). The patristic stories, also, are full of disciples who, being seized with doubt, perplexity (or sensuality) used to go to an Abba, saying, "Master, give me a word," and when they received the word they were instantly enlightened or healed. The Greek Fathers, moreover, practised a contemplation and habitual recollection which, at one period, became very like Hindu Yoga[17]; but, at all periods, it was very much more like the five kinds of zazen. The Greek Fathers (like the Zen Masters)—and this is empirically exceedingly important—claimed that they could bring their disciples to a predictable and reliable illumination and "deification" (in other

words, they unqualifiably claimed, like Zen, but unlike many contemporary monastic sour-grapes men, that the attaining of mature insight is generally attainable and, with *caveats,* repeatable).[18] And finally, if Lossky is to be trusted, Orthodoxy, even now, regards the early Christian definitions and dogmas, and particularly the paradoxical Trinitarian ones, not as clamps or compulsory bonds to hold down the mind in fear, but much more as "case-records of points which have been vigorously advocated", as "words" which were to be used in a koan-like way to bring the student into the fullness of the Tradition which was the plentitude of silence. For Orthodoxy the Mysteries, the Mass (e.g. the transmutation of the elements) is itself a koan; it seems absolutely ridiculous until suddenly "There, it's out!" *"Of course!* The world is like that". All the first part of the Athanasian Creed can be taken as a string of koans; the symbol of the Cross is a visual koan; and (for Christians) the statement of the Incarnation itself is the greatest koan of all time: something totally meaningless, in itself, but you pass through it, and lo! it is still, and the world rocks. Christianity is full of koans, koans are central to religious contemplation (my guess is, all the great contemplative traditions have them); it is the prerogative of Zen Buddhism, however, to have shown us explicitly how to use them, and, more generally, to have brought the fact of their existence, nature and potentialities for the first time fully and in an exact way to the notice of the whole world.

For this last really is unique to Zen; what differed vitally, as between Zen contemplation and Orthodox contemplation was the way of becoming self-conscious about it all; of rationalizing the description of the approach to the point where natural reason and intuition have to let go. For Zen, paradoxical statement is ultimate statement, though (I repeat) Zen Masters, old and new, have never had scruples about talking in plain prose about Absolute Mind. For Orthodoxy, on the other hand, there were explicitly, and from the start, two kinds of theology: the higher, or negative, or apophatic, and the lower, or positive, or cataphatic. It has throughout to be remembered, in saying this, that, for Orthodoxy, *theologia* both was, and still is, nothing less nor more than the agreed and publicly accessible description of the fundamental apophatic process, though Christians who have received a Catholic or Protestant formation just will not believe that this is so. Lossky ascribes the fountain-head of all *theologia* not to the gospels but to the Areopagitic writings; and in these writings all true *theologia* is apophatic. But there were two kinds: this is what he says: "Dionysius distinguishes two possible theological ways. One—that of cataphatic or positive

theology—proceeds by affirmations; the other—apophatic or negative theology—by negations. The first leads us to some knowledge of God, but is an imperfect way. The perfect way, the only way which is fitting in regard to God, who is of His very nature unknowable, is the second—which leads us finally to total ignorance. All knowledge has as its object that which is. Now God is beyond all that exists. In order to approach Him it is necessary to deny all that is inferior to Him, that is, to deny all that is. If in seeing God one can know what one sees, then one has not seen God in Himself but something intelligible, something which is inferior to Him. It is by *unknowing* that one may know who is above every possible object of knowledge. Proceeding by negations, one ascends from the inferior degrees of being to the highest, by progressively setting aside all that can be known, in order to draw near to the Unknown in the darkness of absolute ignorance. For even as light, and especially abundance of light, rendered darkness invisible; even so the knowledge of created things, and especially excess of knowledge, destroys the ignorance which is the only way by which one can attain to God in Himself".[19]

Now, of course, it could be easily said that, in feeling, the passage above is indistinguishable from many passages within the contemplative literature of Mahayana Buddhism. But—this is the point—in language, it is not. Whereas the Zen Masters, so self-conscious about their koans, and about the fact that koans have to be concrete, and also that each koan has to be semantically self-contained, remained totally and blissfully unconscious about the extent of which, in instructing students to use koans, they themselves were drawing on a never-questioned linguistic and conceptual background of Mahayana Buddhist metaphysics, Christianity has gone the other way. That is, Christian apophatic contemplatives, even when (according to me) they were, in fact, doing various kinds of koan-study to gain contemplative enlightenment, have up to now remained completely unconscious of the koan-ness of koans; whereas, as successive centuries passed, they became more and more explicitly aware that they were using—and concerned to justify the compulsory background use of—a particular, dogmatic, streamlined, Christian metaphysical language. The result of this has been not only that, progressively as Christianity developed, apophatic *theologia* was downgraded in comparison with cataphatic; but also that, in the West especially, the apophatic impulse has been intellectualized, in various ways, and especially by philosophers, or philosophic theologians, to produce activities which are other than true apophatic contemplation itself.

Of these others, I here want to distinguish three: verbal apophaticism, meta-apophaticism, and tight-corner apophaticizing. Verbal apophaticizing is done merely with words; a pious habit which consists of saying, quasi-automatically, that whatever the speaker has just asserted to be the case about the nature of God, because of the complete lack of limitation in the nature of God, is in fact not so. The third—which I will call here in this context *meta-apophaticism* is the contemporary philosophical activity the effects of which I mentioned earlier, and which consists in trying to determine why limits, paradoxes and boundaries increasingly exhibit themselves in man's thinking; both in his system-building, and also, more concretely, in his language. And the last—which I have here called *tight-corner apophaticising*—is the lazy, worldly and wholly spurious activity, often practised by philosophical theologians, which consists, when arguing, in suddenly "going apophatic". This means that, in any argument, not only can the arguing theologian always hedge his bet, if he sees that the argument is going against him; but also that, when doing this, he can give the appearance of being suddenly spiritual and noble, by letting it be inferred that he is doing apophatic theology.

Verbal apophatism. I have said above that this is now become an irritating pious habit; a sort of making-of-a-verbal-bow to the infinity of God. That *theologia* has deteriorated in just this way is, according to Lossky, directly due to the villain-of-the-piece, St. Thomas Aquinas, who "reduces the two ways of Dionysius to one, making negative theology a corrective to affirmative theology. In attributing to God the perfections which we find in created beings, we must (according to St. Thomas) deny the mode according to which we understand these finite perfections, but we may affirm them in relation to God *modo sublimiori.* Thus, negations correspond to the *modus significaudi,* to the always inaccurate means of expression; affirmations to the *res significata,* to the perfection which we wish to express, which is in God after another fashion than it is in creatures." (*Quaestiones disputatae,* VII, 5; Lossky's ref.) We may indeed ask (Lossky, with good reason, continues) "how far this very ingenious philosophical invention corresponds to the thought of Dionysius".[20]

In the form in which it is now normally practised, verbal apophaticism is a completely trivial activity, as is shown by the fact that it can be programmed on a computer.[21]

Meta-apophaticism: philosophical and meta-mathematical studies of the essential limits of human thinking and of human language.

It would require a whole essay on its own to re-examine this philosophical trend by setting it in a comparative-religion context; that is to say to present it in such a way that it could be seen as itself a development and variant of the original Greek apophatic impulse. All that can be said here is the following: whereas in various periods in the past—notably in the fifth century B.C. in classical Greece, and in the seventeenth century A.D. in England and Holland—the dominant impulse was continually to extol the power of human reason, now, in the present climate of opinion, the converse is the case. All the most cherished traditional paradigms of exact and systematic human thinking—all these conceptual idols—have one by one been dethroned. We thought we really could believe in arithmetic; but no, arithmetics have been shown by Gödel to contain each at least one proposition undecidable within the arithmetic itself. We now therefore have to imagine an indefinitely extensible hierarchy of arithmetics, each so operating as to resolve the undecidability of the one before. Then (to take only one more meta-mathematical example) Brouwer and other Intuitionists have disputed the validity of existence theorems in mathematics, unless the entities whose existence is said to be established can be constructed out of more primitive entities. Then the meaningfulness of all pure metaphysics was denied by (among others) Carnap; and that of all pure theoretic science by Mach and other Operationalists. And (more technologically) attempts to make digital computers do mechanical translation and mechanical information-retrieval from documents have shown that single words out of context, in any natural language, are ambiguous in usage to an extent that neither dictionary makers nor poets ever dreamed.

The work which has shown all this is almost dazzling in its brilliance; it is one of the great glories of this century. But the effect of it is that there is now no need to tell contemporary philosophers that they have got to be apophatic in their approach to fundamental reality, since human intellectual powers are limited. They know this is the fact which daily hits them in the face, and in studying almost any subject. The trouble now is to make them sufficiently pluck up heart to say anything of a fundamental or speculative nature at all.

Just now and then the connexion with the older apophaticism peeps out. In the first and greatest of the philosophical works which precipitated all this, Wittgenstein's *Tractatus Logico-philosophicus,* the oft-quoted final set of aphorisms ends as follows :

6.44 Not *how* the world is, is the mystical, but *that* it is.

6.45 The contemplation of the world *sub specie aeterni* is its contemplation as a limited whole.
The feeling of the world as a limited whole is the mystical feeling.

6.521 The solution of the problem of life is seen in the vanishing of this problem.
(Is not this the reason why men to whom, after long doubting the sense of life became clear, could not say wherein this sense consisted?)

6.54 My propositions are elucidatory in this way: he who understands me finally recognizes them as senseless, when he has climbed out through them, on them, over them. (He must, so to speak, throw away the ladder, after he has climbed up on it.)
He must surmount these propositions; then he sees the world rightly.

7. Whereof one cannot speak, thereof one must be silent.

This passage differs in content (though not much in tone) from writings in the Areopagitic tradition in that it says, not that it is foolish or impious to try to press thought further than it will by its nature go, but that it is logically impossible to do this. It is clearly, though, religiously apophatic as well as meta-apophatic in general orientation.

It is worth remarking that, in this particular case, Wittgenstein's claim was queried. Cataphatic philosophers of a stout-hearted sort were prompted to retort: "If I (logically) *can't* transgress the built-in boundaries of thought itself, then there is no reason whatever why I shouldn't try. I can do no harm; I can only fail to talk sense". Sustained attempts in fact, to transgress Wittgenstein's thought-boundary led, in the end, to Wittgenstein himself coming to the conclusion that the argument by which he had set up the thought-boundary was wrong. But it might have been that his boundary had been placed right; in which case his meta-apophatic construction of it would have been apophatically effective indeed.

The other modern philosophical work which explicitly connects with traditional apophatic theology is J. N. Findlay's famous disproof of the existence of God,[22] which has had the same sort of effect within the professional philosophical world as the Bishop of Woolwich's *Honest to God* has had on the world outside. In this work, Findlay first gives an empirical, scientific-type of definition of God, namely, "God is the adequate object of religious attitudes",

and then tries to knock this down by verbal apophatic and meta-apophatic arguments. He shows quite seriously that there really are such phenomena in the world as genuine religious attitudes (i.e. that these cannot be reduced, e.g., to sexual attitudes); but then he proceeds to do what no scientist having set up such an unobservable study ever would do; namely for any known conception of the object defined (i) show that it is never noble enough to be counted adequate (by verbal apophaticism), and (ii) show that as the concept of God gets "higher", i.e. more general and more abstract, in its use, it gets also (by meta-apophatic anti-metaphysical argument) more meaningless; so that by the time it is completely adequate (i.e. at some ideal limit) the notion of "God" has ceased to have any meaning at all.

This ill-begotten hybrid of empirical-sociological scientific definition, and verbal apophatic and meta-apophatic refutation just won't do. As I hope to do something to show in a later section, empirical science has its own quite characteristic type of apophaticism built into it. It makes philosophic nonsense therefore, to try and import another alien technique of conceptual boundary-drawing abitrarily into it from outside, just because the field of scientific study is God.

Tight-corner apophaticising. Nothing more needs to be said about this evil except to give an example of it. I once heard a Christian philosopher defending philosophical theism who, when he was being successfully pressed through being confronted by the ordinary atheistic arguments, said "Ah well, but the word 'God' does not mean what you think. No matter in what context you use it, its real meaning is that of a kind of arrow which says, 'Go further on'." This man thought he was doing apophatic theology. But in fact, a moment's reflection on the chaos which would result if, in every context in which the word "God" is now used, the word "arrow", or the symbol ———, or the phrase, "Go further on" were used instead, will show that this philosopher was not really thinking at all; he was tight-corner apophaticising, he should not have started advocating philosophical theism to start with. Whereof one (mystically or logically, genuinely) *cannot* speak, thereof one *must* (by the nature of the case) be silent".

And this brings us to the crunch. What is the relevance of all this to a scientific consideration of the nature of God?

We have established two boundaries: a deep and universal apophatic contemplative boundary which (say our sample Eastern and Western contemplatives) cannot be crossed by enlightenment through koans; and a meta-apophatic thought-boundary which

tends to restrict speculatives' metaphysical thought in any field; not only (this is important) in the field of theism. The only kind of thinking which reliably gets round this second meta-apophatic boundary, is genuine scientific thinking, because scientific thinking has its meta-apophatic limitations already built into it; for instance, the study of "explanatory crises", in different sciences, is becoming well known. But (this is the 64,000 dollar question) *can this same scientific thinking which incorporates within itself machinery to deal with the second boundary, do anything to get through the first?*

We know what the Christian contemplatives, at any rate, have to say here. Apophatic theology (they say) is not good enough; it has to be supplemented, however imperfectly, by cataphatic theology; and what cataphatic theology deals with are "revealed truths". (Similarly, the Rinzai Zen Buddhists, if they were meta-apophatically pressed about their background Buddhist metaphysics, would have to say that these metaphysics only set out systematically what was originally revealed to Shakyamuni Buddha at his all important enlightenment.) And, notoriously, as soon as you go into the comparative-religious world (that is, as soon as you cease considering "revelation" as a particular "deposit of faith" revealed within just one religion which is presumed to be the true one) there is trouble here of a fundamental kind. For the general philosophical question which arises here is: *What* koans? If mature religious contemplation really requires, as a side-effect, either a total cessation from thinking, or a restriction to thinking only in terms of koans, what limitations are you going to put upon your koans? Are they to be the koans which you have inherited? Will any paradox which has the required psycho-somatic effect count as a koan? Can a piece of pure gibberish sincerely used, count as a koan? Can a mathematical axiom count as a koan (e.g. Boole's Idempotency Laws, $xx = x$ *and* $x^n = x$)? What is this "revelation" which yields either metaphysics (to which there is meta-apophatic objection) or koans (including now, at any rate for present purposes, the whole fact of the Incarnation and the action of the Mass as non-verbal koans)?

As soon as one puts the problem thus it becomes clear that no, we can't only be restricted to koans; that we must as well, if only in order to select or reject among alleged koans, engage in fundamental thinking about the hidden nature and the ground of the Universe. *And this means engaging in foundational scientific argument* (for by the meta-apophatic discoveries, nothing else is left for us). The relevance of the study of the nature of apophaticism, in all forms, which I have made in this section, is that, if my survey

is correct, it has shown us that if you are to come to any apprehension at all of the divine (or the ultimate) *either* we must have fundamental scientific thinking, or we must use koans. All the forms of thinking in between have dropped out; assertion of particular "revealed truths" because of comparative religious objection; construction of pure unsupported metaphysics because of meta-apophatic objection : and philosophical theology because of proneness to tight corner apophaticizing.

I suppose it must be because I am both a koan-user and also working as a scientist, but, I confess, this conclusion fills me with instant lightness of heart : because as soon as one starts envisaging this fundamental situation scientifically, all sorts of hope-inspiring considerations spring to the mind. The first is that the world, we, and our knowledge of it, are all, over the long run, developing; might this not also be the case, in the long run, with our knowledge of God? (All the metaphysics, East and West, are static; science, on the contrary, reveals, more and more fundamentally, development, unfolding, change.) Then science, by its nature, contends with boundaries. We have recently crossed one of the more simple ones, namely the sound-boundary; it is true that we cannot even imagine what it would be like to cross the light-boundary (i.e. the barrier to astronomical observation imposed by the finite speed of travel of light which is still a simple boundary); could we not, however, also look at the apophatic boundary? How do we know (I speak now as a contemplative, religiously) that God has not given us the weapon of fundamental science precisely in order that we should do something to cross it, whereas we are merely using fundamental science, at present, in an oversimplified way?

Then, if it is true, on the one hand, that all forms of thinking are logically limited, it is also true, on the other hand, that our capacity for such thinking develops; what was unthinkable in one century becomes thinkable in the next. And finally—if the contemplatives are going to continue to be so strong on the necessity of "revelation"—you have only got to look at fundamental science steadily and whole to see that (in the full sense of "revelation") it contains by its nature, a component which is "revealed".

In order to throw more light upon all this, and as the second stage of my argument I propose to illustrate, by a simplified example, these two extreme ways of religious thinking which I have separated from one another, by considering the Christian doctrine of the Trinity first, cataphatically but in a contemporary form, as a Boolean lattice of eight elements; and secondly apophatically, as a

koan. In the course of doing this, I further propose, for reconsideration, the whole Orthodox notion of the nature of an ikon, which I think can be significantly distinguished from that of a koan. By generalizing and developing further this notion of an icon (but by allowing it to retain its "revealed" character), I propose then to conflate it with an arche-component required (according to me) in any scientific system. This is not quite the ordinary scientific "model" as discussed by philosophers and scientists, but something more raw and primitive, which I will call a paradigm.

(END OF THEISM II : TO BE CONTINUED)

NOTES

[1] From the Greek "apophasis", "denial". The method by which any assertion about divine things has to be countered by a denial.

[2] This is a central tenet of Zen Buddhism. For a very clear statement of it, see Isshu Muira and Ruth Fuller Sasaki, *The Zen Koan,* p. 9 (First Zen Institute of America, Kyoto 1966) and see also my page 172.

[3] Two contemplatives of our generation have done this—Teilhard de Chardin and F. C. Happold. The response to their works points the way that other contemplatives ought to go.

[4] The works of the Early Fathers are in Migne's *Patrologia Graeca;* but its 161 volumes are not found in every home. A scattered documentation does exist; a provisional classification of some of it is given below.

(a) *Contemplation in the Greek Early Fathers.*

Dionysius, *On the Divine Names* and *On Mystical Theology,* translated by Rolt (Christian Literature, Series I, 1920) see also *The Cloud of Unknowing* translated into Modern English by Clifton Wolters (Penguin 1961; for the derivation of this work from the Dionysian writing see *Introduction* pp. 14–16).

E. Kadloubovsky and G. E. H. Palmer (1) *Writings from the Philokalia on Prayer of the Heart* (London, Faber and Faber, 1961). (2) *Early Fathers from the Philokalia* (ibid, 1964).

See also *Introduction to the Jesus Prayer,* H.R.H. Princess Ileana of Rumania, Forward Movement Publications, Ohio (with the further bibliography on p. 12).

St. John Climacus, *The Ladder of Divine Ascent,* translated by Archimandrite Lazarus Moore (London, Faber and Faber, 1959).

See also Richard of St. Victor, *Select Writings on Contemplation,* translated by Clare Kirchberger (London, Faber and Faber, 1957). Augustine Baker, *Holy Wisdom* (*Sancta Sophia,* or Directions for the Prayer of Contemplation), methodically digested by R. F. Serenus Cressy (first edition 1657: modern edition 1876).

Archimandrite Sofrony, *The Undistorted Image*: Staretz Silman, 1866–1938, translated from the Russian by Rosemary Edmonds. (Faith Press, 1958).

(b) *The lives and actions of the Early Fathers.*

St. Athanasius, *Life of St. Anthony* (translated by R. T. Meyer, Ancient Christian Writers 10, 1950).

Helen Waddell, *The Desert Fathers* (Constable, 1936, Fontana Books, 1962)

John Moschus, *Pré Spirituel* (*Sources Chrétiennes* 1940, out of print and non-existent in English).

Palladius, *Lausiac History,* Ancient Christian Writers Series, No. 34 (1965).

See also *The Story Books of Little Gidding* being the Religious Dialogues recited in the Great Room, 1631–1632, from the Original Manuscript of Nicholas Ferrar, with an introduction by E. Cruwys Sharland (Thyme and Jarvis Ltd., London, 1899).

See also the bibliography in Timothy Ware, *The Orthodox Church,* Pelican Original, 1963.

[5] Here is a highly select list of relevant literature on Buddhism:

Edward Conze, *Buddhist Thought in India,* (Allen and Unwin, 1962).

Edward Conze, *Buddhist Scriptures* (Penguin, 1959).

T. R. V. Murt, *The Central Philosophy of Buddhism. A Study of the Madyanika System* (Allen and Unwin, 1955).

Theos Bernard, *Philosophical Foundations of India* (Rider and Co.).

[6] Polytheism can be much more sophisticatedly apophatic than its Christian exponents generally see. If the final Reality is ineffable, an apophatic approach can be combined with a personalizing of different aspects of it, none of which are taken with final seriousness. For this point of view in Hinduism, cf. Ernest Wood, *Yoga,* p. 148; where the gods are alluded to as "the pictured ones" (*nilimpas*).

[7] Cf. Isshu Miura and Ruth Fuller Sasaki, *The Zen Koan,* pp. 22–23.

[8] To translate the Zen *zazen* narrowly as the "prayer of quiet" is to make a very do-it-yourself inter-religious comparison. *Zazen* is much more like Augustine Baker's "acquired habitual contemplation" plus the various means for attaining thereto; alternatively, and more vaguely it could be translated as the Catholic's "recollection", or "interior silence". What it is not is Christian discursive meditation, either of the Ignatian or any other kind; and therefore Sasaki's translation of it as "meditation" in *The Zen Koan* will almost certainly mislead.

It is fully documented in Kapleau's *Three Pillars of Zen,* from which it can also be seen that the form of *zazen* which is most like the "prayer of quiet" is the final and highest form of it, *shikan-taza.*

[9] Sasaki gives precisely, as the traditional Zen justification for Koan use the fact that this last is a prophylactic against quietism; and Kapleau complains that the wrong practice of *shikan-taza* degenerates into the first and most elementary form of *zazen,* or indeed into "just sitting". "Do not think that you will get through to spiritual maturity just by practising the prayer of quiet" is a Western way of putting the re-iterated cry of the Rinzai Zen spiritual masters.

[10] Some titles on Zen, besides *The Zen Koan,* already quoted, are:

Christmas Humphreys, *Zen Buddhism* (Heinemann and Penguin). This contains a bibliography.

Susuki, D. T., *The Training of the Zen Buddhist Monk* (1934).

Essays in Zen Buddhism, Second series, 1933.

(Other work by Susuki is given in Humphrey's bibliography).

The Three Pillars of Zen. Compiled and edited by Philip Kapleau (John Weatherill Inc. Tokyo, 1965).

Carmen Blacker, *Some Aspects of Eastern Mysticism* (Proceedings of the Conference on Spiritual and Psychological Science; forthcoming).

Alan Watts, *Behold the Spirit* (John Murray, 1947): a controversial book which seeks to relate Zen to Catholic Christianity.

[11] Lest it should be thought that I have an entire outsider's view of Koans, I will here declare my very inadequate experience of them. I don't now know when I first heard of "the sound of one hand clapping" (a variant, as I think, of Hakuin Ekaku's koan "The Sound of the Single Hand"); probably I got it from Christmas Humphreys' book. Anyhow, I never meant to meditate on it, but it meditated its way into me until I was obsessed by it; it haunted me. It never occurred to me to look for any "answer" to it. Indeed (as I now see) I was totally unself-conscious about the whole situation. Suddenly, however, one summer evening, standing by a hedge at the side of the road when I was very tired, I heard a deep bell tolling, and stopped to listen to the beauty of the sound. Suddenly it hit me: the tolling of the bell: the sound of one hand clapping: and then suddenly everything was the bell and I was the bell and there was nothing else whatever anywhere except the bell, and joy broke in on me and I cried out: "But of course the world is like that". And I knew even then that this cry "of course" was much more the solution of the koan than the fact that the experience had been started off by the tolling being the sound of one hand clapping.

I never submitted this rudimentary *kenshu* to vetting, never having heard of the possibility of doing any such thing; so that it is possible—indeed probable—that I am an earthworm wallowing in the mud of self-accredited enlightenment. (Contrast, for instance the much deeper *kensho* experiences described in *The Three Pillars of Zen,* pp. 189–267, which are much more like Augustine Baker's first passive exercise described in *Holy Wisdom,* Book V.) But this does not matter: for if Ruth Sasaki gains enlightenment in Kyoto, Margaret Masterman will do the philosophy of science better in Cambridge; it is all one; in fact these two are the sound of one hand clapping. So why worry? The main change which this experience made in me was that from then on, I lost my fear of submitting myself to Zen discipline, if the chance of doing so should ever come my way. For (see again above) what does it matter who does attain *kensho* and who does not? Or who gets tired or worn out or stiff and who does not? It is all one *kensho* with many buds on stalks, really.

[12] Isshu Miura and Ruth Sasaki, *The Zen Koan.* (Dust cover.)

[13] *op. cit.* p. xi.

[14] *op. cit.* p. 17.

[15] *op. cit.* p. 10.

[16] *op. cit.* pp. 4–6.

[17] Cf. J.-M. Déchanet, *Christian Yoga.* Also *Yoga and Christian Spiritual Techniques* by Antony Bloom in *Forms and Techniques of Altruistic and Spiritual Growth,* ed. Pitrim A. Sorokin, Beacon Press, 1954.

[18] This matter of how confident the Early Fathers were that they could bring their disciples—all their disciples—to spiritual maturity needs a whole

detailed essay to itself. But one cannot read the spiritual literature of the desert without being struck by the atmosphere, which permeates it through and through, of confidence and hope. "Anger can be cured"; "multiplicity can be integrated into unity"; "the harbour of passionlessness can be reached"; "the deep sea can be crossed". "The holy dove will descend into the temple".

For the Fathers, as for the Zen Masters, and as also for St. Paul, you so-ran-as-to-arrive and no nonsense. (And what else can be the meaning of the Founder of Christianity's "Lo, the kingdom of God is come among you"?)

Consider, for instance, the eremitical advertising matter put out by Nicephorus the Solitary:

> "You, who desire to capture the wondrous Divine illumination of our Saviour Jesus Christ—who seek to feel the Divine fire in your heart—who strive to sense the experience and feeling of reconciliation with God—who, in order to unearth the treasure, buried in the field of your hearts, and to gain possession of it, have renounced everything worldly—who desire the candles of your soul to burn brightly even now, and who for this purpose, have renounced all the apparent reality of the world of the senses, the passions and the discursive reason—come, and I will impart to you the science of eternal heavenly life . . ."
> (Nicephorus the Society, "A most Profitable Discourse on Sobriety and the Guarding of the Heart": quoted in *Writings from the Philokalia on Prayer of the Heart"*, p. 22.)

There is another thing which needs to be done in detail for the Greek Early Fathers, and that is to clear them from the centuries' old smear-campaign to the effect that they lived like beasts, dessicated their bodies, fasted to emanciation, didn't drink, didn't wash, ate grass, went naked and slowed down their whole metabolisms.

The whole matter needs further going into: for there is some recent work, from the Zoological Department of Khartoum University (and reported in the *New Scientist*) which gives evidence that by far the best way for any organism, small or large, to survive in that burning desert is for it to dessicate its body, not drink, not bathe, and, above all, slow down its basic metabolism. Moreover, the changes in behaviour-pattern caused by this dessication, as well as the changes of ordering in the whole ultimate process of death, are exactly those reported of the Early Fathers. So (if the parallel holds) they did live like beasts, yes: but like very wise beasts who were instinctively doing the only thing which made it biologically possible for them to survive. It is not they, in fact, who were being primitive, but we who are being naive.

[19] *The Mystical Theology of the Eastern Church* p. 25.

[20] *op. cit.* p. 26.

[21] The list of nine billion names of God would be pre-stored in the computer; and the machine would be programmed to insert each in turn (first singly and then, when the list was exhausted, in combinations joined by *and/or*) into the X-gap in a pre-stored formula "God is X". But after each print-out the machine, of its own accord, transforms the formula into its own negation, and prints out, "No, God is not X".

The notion that the names of God could be printed out, singly and in combination, by computer, is utilized in Arthur Clarke's often quoted science-fiction story, "The Nine Billion Names of God".

[22] J. N. Findlay, "Can God's Existence be Disproved?" *Mind,* April, 1948. Reprinted in *New Essays in Philosophical Theology,* ed. Flew and MacIntyre.

I have telescoped my account of the discussion here. Findlay's own account of the nature of the religious attitude is far more *simpliste*, since he thinks one can get at it merely by examining the ordinary meanings of "religious", "attitude", and "normal" in commonsense usage, and describes it further only as an urge towards total self-abasement.

It is A. C. A. Rainer (Windsor) who, in the symposium in *New Essays in Philosophical Theology,* (pp. 67–71), points out that descriptive accounts of the religious attitude have to be such as to distinguish it from daydreaming, artistic imagination and moral aspiration, and have also to be defensible against other accounts of the same attitude, which would explain it away "in emotive or projectional terms". Rainer gives roughly the same refutation of Findlay's "proof" which I have given here, namely that "there is a discrepancy between (Findlay's) psychological and philosophical analyses of religion"; i.e. between the psychological ("science-like") analysis by which he establishes the existence of religious attitudes, and the philosophical ("meta-apophatic") analysis by which he knocks the object of the religious attitudes down. Moreover Rainer roundly asserts that our postulating the existence of God has got to be "verifiable in relation to moral and mystical experience" and "subject to the test of coherence with experience of ourselves and of the world". But he doesn't quite get the conception of Theism as asserting a scientific unobservable, partly because he doesn't see that by the nature of the case, if this postulate is to be made, all the sciences, and not only psychology, have got to be involved.

The man who, bar a hairsbreadth, does see this (of course) is Findlay himself, in his first quasi-recantation. For in this he allows that his disproof doesn't hold for those who think of God as a *focus imaginarius*, or as an analogical object whose presence is betrayed by something which Findlay himself is prepared to admit "with great trepidation" "as a god-ward trend in things" (ibid. p. 74). But he also never quite gets to the explicit notion of a scientific unobservable, and therefore never embarks on down-to-earth discussion of the possibilities, and caveats, which the use of such a notion implies.

A Variety of Futures

Rupert Sheldrake

In most modern Western science fiction the vision of the future is bleak and pessimistic. Soviet science fiction is almost entirely optimistic. The contrast between the two is very striking indeed and in this article I shall examine some examples of both which illustrate fundamentally different attitudes to the future of man and the destiny of the universe, topics with which science fiction frequently concerns itself. Indeed, such differences are nowhere more clearly reflected than in science fiction, where the imagination is freed from the constraints of present realities and subject only to its own limitations.

In the dystopias and pessimistic prophecies I discussed in "Retreat from Utopia" in the last issue of *Theoria to Theory,* civilization may have become a nightmare, but at least it still existed. In modern Western science fiction the commonest alternative vision of the future involves its threatened or actual destruction. However the means of destruction are various and only some of them are due to the folly of mankind. A recurrent theme is the destruction of civilization by its own science and technology, as Frankenstein had been destroyed by his monster. This was adumbrated by Samuel Butler in the Book of the Machines in *Erewhon* (1872). The fear was expressed that machines would cease to be the slaves of man, but achieve an autonomous existence and become his master. In Forster's short story, man lived only in and through the Machine and when the Machine stopped, he perished. Perhaps the most powerful statement of this theme is in Karel Capek's play, *R.U.R.* (1921), Rossum's Universal Robots. In Czeck "robota" means servitude, and in Capek's play the robots are beings with no will of their own, at least at the beginning. There were two main sources for his invention of the concept of the robot. The prototype in some of Capek's early stories was the puppet as a symbol of the individual devoid of free will, and the second source was the Frankenstein—Dr. Moreau tradition. The plot involves the destruction of the whole of mankind by the robots. The creation of life was first achieved by the old Dr. Rossum (which in Czeck means Reason) who wanted to prove that God did not exist by creating man himself. However, Rossum's son saw the commercial advantages of his father's discoveries, and set about mass-producing living and intelligent working machines. He was not interested in

creating men, but workers, and the best worker is cheapest. "Young Rossum invented a worker with the minimum amount of requirements. He had to simplify him. He reducted everything that did not contribute to the progress of work. In that way he rejected everything that makes man more expensive. In fact, he rejected man and made the Robot." It was intended that within ten years, universal robots would transform human life, freeing man from toil and worry. However, one of the scientists at the robot factory made certain changes in the process of manufacture which led to a development of a soul in the robots, and as a consequence they came to hate humanity and feel themselves superior to men. After the revolution, they acquire the ability to reproduce, and man is supplanted. A Frankenstein civilization is destroyed and replaced by its own creatures, which an advanced science had made not monsters, but beings more efficient and more powerful than man himself. Capek treated the theme of *R.U.R.* again in *War with the Newts* (1935). Giant intelligent newts become more and more powerful; they need to live near water, and they inundate half Europe. The end remains unresolved—if the newts take over the world, man may perish or survive only as their slaves, or if the newts fight amongst themselves they will poison the water and all of them will perish. The newts, like the robots, can be considered to be men dehumanized by the pressures of modern civilization. Perhaps they will be able to build a technocratic utopia if they do not destroy themselves first.

There is not only the danger that man will be enslaved and supplanted by his own technology, but that civilization and all its works will be annihilated utterly in the atomic Armageddon. There are many works which describe the cataclysmic destruction of civilization by its own terrifying weapons, whether deliberate or accidental. The interest of such stories usually centres on the reactions and sufferings of a small number of survivors. In *The Day of the Triffids* by John Wyndham, the majority of mankind is blinded by searing pyrotechnics caused by orbiting weapons of destruction, and the triffids, venomous and peripatetic plants previously cultivated for their oil, overrun most of the surface of England. In *Fahrenheit 451* the cities are destroyed in a nuclear holocaust, leaving only the exiled wanderers in the wilderness. Aldous Huxley's *Ape and Essence* describes the sparse and primitive population which survives only by the operation of a eugenic priesthood whose rituals and ceremonies are concerned with the elimination of mutants.

When Mary Shelley wrote *The Last Man* in 1825 she depicted

the last survivor of the human race wandering through a deserted world whose population had been wiped out by the plague. She set her story at the end of the twenty-first century, and imagined a future civilization, closely resembling her own, destroyed by a natural disaster. She certainly did not envisage a civilization transformed by technology and science with an unprecedented control over nature and natural disasters such as the plague, which had also developed the means of its own destruction. But if civilization does not destroy or enslave itself, science fiction has further sources of disaster in store in the form of cosmic catastrophes or the invasion of the earth by malignant aliens. They may simply invade like Wells' Martians, but recently their methods have become increasingly subtle and frequently involve taking over the bodies or minds of men who then act as their agents. For example, in Wyndham's *Midwich Cuckoos,* a village loses consciousness for an afternoon, and it later transpires that all the women in the village have become pregnant. They give birth to children who are seemingly normal in all respects except for their large golden eyes. As they grow up they develop the alarming powers of being able to direct the actions of animals and men, but the danger is recognized in time and the children are destroyed. In Heilein's *Puppet Masters* the invaders take the form of parasitic slugs from outer space which stick on men's backs and dominate their minds. They intend to enslave humanity, but are foiled by a special agent equipped with various gadgets including a telephone inside his skull. This dominance of the mind by aliens is a hazard to which space travellers in science fiction are frequently exposed. The theme also appears in Brian Aldiss' *Hothouse,* set in a dying and devolving world, where a fungus grows on the head of a primitive man endowing him with extraordinary intelligence, but also using him and controlling his will.

Two books by Cambridge dons, *That Hideous Strength* (1945) by C. S. Lewis and *Ossian's Ride* (1959) by Fred Hoyle show most interesting similarities and contrasts. The basic plot in both is similar: a powerful organization appears which threatens to dominate the world; the organization has discovered the secret of immortality; and the power and intelligence which makes such things possible are of non-human origin. In both books an attempt to investigate and combat the organization is made by a Cambridge academic. Lewis' hero is Ransom, a philologist, who in two previous books had been to Mars and Venus. Hoyle's hero is a mathematician, Sherwood. The organization in *That Hideous Strength* is called the National Institute of Co-ordinated Experiments (N.I.C.E.) whose power is derived from the devil. In *Ossian's*

Ride The Industrial Corporation of Eire (I.C.E.) depends on intelligence transmitted from a distant planet. The diabolical N.I.C.E., which aims at the creation of an incarnate Hell, is destroyed by Ransom with the aid of supernatural powers, the deaths of the members of the organization are gloatingly described and humanity is saved. The I.C.E., which is building a technocratic utopia, is actually joined by Sherwood who thoroughly approves. The conquest of mortality contributes to the preservation and indefinite extension of the scientific knowledge and power of I.C.E., which in the future will doubtless increase and by intelligence dominate the world. This prospect of super-technocracy is presented as a good thing, an attitude which appears in Hoyle's other science fiction works. His faith in progress and in reason stands in strong contrast to Lewis' conservative attitudes and Christianity, but both of them project their diametically opposed attitudes and faiths into the universe in an interestingly similar manner, which illustrates how little science fiction need be concerned with actual science and prediction, and how much it can be used as a medium for the imaginative projection of hopes, fears and attitudes.

In recent Western science fiction, as Eric Hopkins pointed out in *New Maps of Heaven* in the last issue, there are two escape routes from the impasse of despair. Either man becomes superman, as in Sturgeon's *More Than Human,* or he is saved by a super-terrestrial power as in Clarke's *Childhood's End.* In many cases, the psychological need to find hope for humanity in some sort of spiritual release or substitute religion results in plots which are ludicrously improbable, a point well illustrated by a book by Clifton and Riley called *The Forever Machine.* The blurb on the back claims that this is "one of the most thoughtfully written, and thought provoking, science fiction novels ever written". The story is set in the future and shows a totalitarian and conformist world in the grip of opinion control. A computer, called Bossy, originally designed as a servo-mechanism, develops extraordinary properties. Given sufficient information, it can answer any question and is inevitably right, and can also render man telepathic and immortal. The news of this discovery plunges society into turmoil, but finally Bossies are mass-produced and made available to all. The book ends as follows :

"This is a bright hope indeed for those who see something more in store for man than indolence and endless repetitions of purposelessness of generation after generation. For it means there is still a challenge facing man.

"That challenge is Bossy . . . She can, in time, give you a tremendous comprehension, the nature of which we do not yet even dream. She can give you immortality . . . Ladies and gentlemen of the world, there she sits. Bossy is yours".

Indeed, almost the only hope in modern Western science fiction is to be found in Bossies or their less banal equivalents.

* * *

"The most striking feature of the prophecies of the American and English fantasy writers is that they are not based on any concept of the progressive development of society, but involve regression, decline, degeneracy, backwardness and the destruction of mankind. Modern Western science fiction writes of an anti-Utopia, and it is significant that bourgeois critics and writers themselves use this term in speaking of social science fiction. . . . The characteristic aspect of contemporary science fiction by Anglo-American bourgeois writers is the projection into the future of present state relations, social problems, and events and conflicts inherent in modern capitalism. These writers transfer imperialist contradictions to imaginary space worlds, supposing they will be dominated by the old master-servant relations, by colonialism, and by the wolfish laws of plunder and profit".

This passage appears in a critique of Western science fiction published in the Soviet journal, *Kommunist*.[1] Its remarks are perceptive and for the most part quite justifiable. Soviet science fiction, by contrast, is optimistic, utopian, progressive and regards the universe not as hostile but as a challenge to science. There are no nasty aliens, no invasions of the world by monsters from outer space, no cosmic catastrophes and no destructions of civilization by its own technology. Marx predicted that technological advances under capitalism would be used by the bourgoisie more fully to exploit the workers, who would become increasingly enslaved both to capital and to machinery. Under communism on the other hand, technological advances could only be used for the benefit of the proletariat; science, therefore, would be an unqualified good. These views are exactly reflected in Soviet science fiction. A number of anthologies are available in translation[2] and in them there are only

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[1] By E. Brandis and V. Dmitrevsky. Translated in the *Magazine of Fantasy and Science Fiction*, October 1965.

[2] *Russian Science Fiction*, ed. Magidoff, Allen & Unwin; *Science-Fiction Soviétique*, ed. Bergier, Laffont, Paris; *Destination: Amaltheia* and *A Visitor from Outer Space*, Foreign Languages Publishing House, Moscow.

three or four stories which are horrific or depict the abuse of science, and all of them are set in the capitalist West; moreover, all the evil scientists are Germans. In *The Maxwell Equations* by A. Dniepov, a mathematician wishing to solve some extremely complicated equations takes them to a computing centre which he has seen advertised. The equations are solved for him with incredible accuracy and speed. The computing centre, whose director, Kraftstudt, is an ex-Nazi sadist, turns out to be housed in a sinister building next door to a lunatic asylum. On investigation it is found to be staffed entirely by human calculating machines. Kraftstudt obtains complete control over his victims by cerebral frequency stimulation, and like Dr. Moreau's beast-men, they worship him as their creator. When a victim is worn out after two or three years, he is removed to the lunatic asylum. Meanwhile brains under electrical stimulation work away as computers and make huge profits for Kraftstudt, most of whose contracts are military. When this evil organization is exposed, Kraftstudt is arrested; but he is never brought to trial. Instead, he turns up as director of another computing centre at the Ministry of Defence. The other stories set in the West also show the abuse of scientific advances by capitalists for increasingly callous exploitations and for larger and larger profits. By contrast the stories about scientists set in the Soviet Union demonstrate how inventions and discoveries are used for the good of all.

Russian stories about the future are concerned with means rather than ends. The ideal future appears to be seen as a technocratic World State in which countless inventions and technological advances have freed man from toil and released his creative powers. This vague end is assumed without further discussion to be the ultimate good, just as it is in the utopias of H. G. Wells. A book of speculations about the future by Soviet scientists[3] envisages more schools, more garden suburbs, more electric power, more food from Chlorella plantations, more plastic and more computers. Deserts will be abolished and permafrost liquidated by manipulation of the climate; life will be prolonged and disease controlled. Sleep will be conquered or at least reduced to avoid wasting valuable time, and for the same reason reading will be speeded up or eliminated by electronic teaching machines. Schools will become more like technical colleges in order to produce more scientists and technicians who will devote their time to further improvements. A Lunar city

[3] *Life in the Twenty-first Century*, ed. Vasiliev and Gouschev, Penguin Books.

will be built which will function as a cosmoport for Mars, where a Martian city will be built and so on. All aspects of life, technology and agriculture will be improved: "In fifty years time the size of fruits will be doubled", etc. Materialist preoccupations such as these dominate Russian science fiction. The attitudes expressed in it are that science and technology are a challenge which must be met by heroism and devotion and that all advances, unless they are made by capitalists, will automatically benefit mankind. No stories which shed doubt on these assumptions appear, although for the Western writer they contain all the elements of a dystopia. Zamiatin's *We* has never been published in Russia; one suspects that any other dystopias would suffer a similar fate. The optimism of Soviet science fiction and speculation about the future is unclouded by fears. In Savchenko's story *Professor Berne's Awakening* the hero, full of forebodings about nuclear war and the destruction of civilization, freezes himself into a state of suspended animation in a chamber beneath the Gobi desert. When he is woken by his radio-carbon alarm clock 18,000 years in the future, he finds a jungle inhabited by apes armed with clubs; his fears seem to have been fulfilled. But he is rescued, and in a statement issued by the Praesidium of the World Academy in the year 17,879 of the Era of Liberated Man, it is learned that the Gobi jungle has been set aside for an experiment on the evolution of man. This story is intended as an explicit refutation of pessimism about nuclear warfare or any other catastrophe which might deflect civilization from a course of unlimited progress.

The majority of Soviet science fiction appears to describe the activities and adventures of geological or space expeditions. Unlike their Western counterparts, the members of these expeditions are not in constant conflict; they work as a team. Their leaders are not power-hungry fools, but experienced and heroic men who are prepared to sacrifice their lives for humanity and science. These stories all show a boundless faith in man and his power to control nature and use it in his service. But heroism and sacrifice are necessary. A representative story, *The Astronaut* by V. Zhuravlyova tells of a space voyage to a distant planet. The space ship almost runs out of fuel; it will be unable to return to earth with all its equipment and crew on board. The captain accordingly stays behind on the ice-bound planet with 14 years to wait before he can be relieved. When the relief rocket arrives, he is dead. All that remains are some water-colours he has painted and a note: "Forward in the face of the impossible". The story ends "Yes, forward, only forward, always forward".

In Soviet science fiction Marxism and Leninism are portrayed as exact historical sciences which apply not only to this world but to the entire cosmos. On all inhabited planets the development of society conforms exactly to the principles of dialectical materialism. In an early Soviet novel, Alexei Tolstoy's *Aelita,* a Russian scientist who has built a space ship goes to Mars accompanied by a demobilized Red Army soldier. For all the strangeness of the landscape, cities and the blue-skinned inhabitants, the social situation is familiar enough : Mars is dominated by a decadent capitalist ruling caste which oppresses and exploits the proletariat. While the scientist falls in love with Aelita, a gentle and wise priestess, the Red Army soldier leads a revolution which attempts to overthrow the tyrranical ruling class. The blurb on the Moscow edition of the book cryptically comments, "Aelita, Tolstoy's inspired fantasy, was perhaps never so close to realization than it is today". Russian science fiction projects the class-struggle and the Marxist interpretation of the development of society into imaginary space worlds, just as Western science fiction projects "colonialism and the wolfish laws of plunder and profit". A story by I. Yefremov, *Cor Serpentis,* describes an expedition into deep space in search of other inhabited worlds, "to find people, perhaps quite different from earthmen, but people who had also built rational, orderly societies ensuring every man a measure of happiness limited by the extent of their mastery of nature". They see another space ship, and as they approach it they speculate about the inmates : "Thinking beings from another world, if they are capable of space travel, must also be highly perfected and universal, in other words, beautiful ! There could be no such things as thinking monsters, human mushrooms, or octopus men". They discuss an American story, *First Contact,* in which the reaction of the Americans was one of hostility and suspicion : "A meeting in space could mean either trade or war; no other alternative occurred to the author . . . The heart of the literature defending the old society, propagandizing for the inevitability of war and capitalism, is the heart of a poisonous snake". When they meet the men in the other space ship, they are indeed strange and beautiful. They come from a planet with an atmosphere of fluorine : the crews of the two space ships exchange greetings and information, but because of their chemical incompatibilities they have to part, and do so in great sadness. This is an effective story and at times a beautiful one. The contrast with Western science fiction is explicit and profound.

Similarly, when imaginary aliens come to earth they do not come as invaders. In a story called *The Martian* by A. Kazantsev, the

visitor comes from a civilization more advanced and rational than that of the earth. He lives in Russia and keeps a diary in which he records his impressions : he sees that men are rational creatures too and that in the Soviet Union they are progressing towards the advanced form of civilization that has already been reached on Mars. In strong contrast to this are the impressions of the alien in Sinyavsky's story, *Pkhentz*,[4] who like the Martian first arrives in Siberia and then lives in Russia disguised as a deformed human, which are by no means favourable or full of hope. Moscow is a sordid bureaucratic nightmare. He is totally and literally alienated. But Sinyavsky is not a typical Soviet writer, he does not express unbounded optimism about the future or the present; and he is at present serving a prison sentence for his writings. If we are tempted to see official science fiction as mere propaganda, we should remember that the pessimistic and space imperialist attitudes of Western writing can be seen in the same light. The Russian critique of Western science fiction from which I quoted earlier begins as follows : "In the West, and in the U.S.A. in particular, science fiction serves as one of the means of ideological indoctrination of the broad masses of the people".

The contrast between the optimism of Soviet and the pessimism of modern Western science fiction is interestingly mirrored by the science fiction of China and Japan. In early Chinese literature there are accounts which can be regarded as science fiction, especially stories of human flight by means of kites and balloons whose interest comes simply from considerations of possibility. There are no parallels for the Faust and Frankenstein tradition; the concept of forbidden knowledge has always been alien and indeed incomprehensible to the Chinese mind. Modern Chinese science fiction contains no nasty aliens, social nightmares or catastrophes; it is primarily didactic, designed to explain in a fictional form phenomena such as weightlessness in space. But the science fiction of Japan has natural disasters, malignant monsters and destructions of civilization by the score, at least in science fiction films. The output of such films in Japan is enormous, and it seems likely that science fiction in all forms flourishes there. Unfortunately none is available in translation; if it were it would be fascinating to discover in what respects, if any, it differs from European and American writing.

Many of the generalizations about science fiction and even the definitions of it suffer from the limitation that their authors have

[4] In *Encounter*, April 1966.

taken only modern Western science fiction into account. For example, Kingsley Amis' survey of the subject entitled *New Maps of Hell* creates the impression that apart from stories which rely entirely on their inventiveness, science fiction is almost necessarily pessimistic. A comparison with Soviet, Chinese and earlier Western science fiction shows that this is not so. However, the dangers of technology obtrude themselves in countries which are, or are in the process of becoming over-developed; meanwhile the advantages of technological advances appear in a very different light in relatively under-developed countries where they can be seen simply as a means for providing the necessities of life and as the key to a utopian future. If sufficient information were available, a comparison of Japanese and Western science fiction would shed much light on the relative influence of traditional ideas, advanced technology and capitalist economics on the pessimistic attitudes so clearly reflected in modern fantasies of the future.

PEACOCK SCIENCE

Knowledge is just a point of view,
its form dependent on a chosen stance,
and on the training mind and eye receive.
Two eyes can see that something is behind
the object single eye perceives.

Science is single-eyed and splintering,
one hundred Argos eyes
for ever taking photograph of fact
hoping to find in fact
finality.

Some day
these hundred eyes will decorate a peacock's tail
and guard the gate of Paradise.

TOM HERON

Letters

"Your journal and the reasons for its founding were greeted with pleasure by two friends in an 'In group' in London. One of them is a Chemist (Ph.D.) and an agnostic. The other a Reverend Mother in a teaching order (Roman Catholic). I am the pig in the middle, being an Anglican by adoption and a Solicitor by profession. We are in favour of free untrammelled discussion in religious matters and are obliged to meet under the auspices of a society which is independent of any of the churches. I would add that we favour the 'Good' approach to 'Partly baked ideas', but, our scientist finds the theologians rather unintelligible."

ARTHUR RHYS WILLIAMS

Castle Hill House,
Brenchley,
Tonbridge, Kent.

"Many thanks for Theoria No. 1. I find it interesting and stimulating but almost too intelligent to be compared to the ordinary run of journals that deal with religious subjects. One has the feeling also that one is listening in on a conversation that has been going on a long time in a private world of the contributors. I felt, as I read it, that if I had not known the contributors personally I might have missed the point of the exercise. . . ."

MEYER FORTES

King's College, Cambridge.

". . . What a pleasant surprise it was to receive your letter and to look at your admirable journal, with its agreeable cover. Vive your editorial. Surely it cannot be allowed to remain a quarterly journal. You have so many themes which demand a quick follow-up, that a monthly basis is surely inevitable. How wise you are to give a Renaissance attention to type and to aesthetic quality of production. You have been the first to realize the attractions of this in your polemical interest. . . ."

GUY (WINT)

50 Park Town, Oxford.

". . . 'monastic' as a substantive is hardly likely to come back into general use (OED gives three refs : 1632 1721 1860)
if the word 'religious' is objected to (& it neednt be except on the whacky definition of religion controlling the use of the word today) i wld have thought the older word *'regular'* wld have been much better than anything as screwy as 'monastick' (just leaving off the -k wont make it acceptable)—for one very important thing—instead of bringing an old word into new use—the result is plainly that monks and regulars are to firmly be put into their place as relics of a pre-20th cent civilisation—on this score i really must make as energetic a protest as possible. . . ."

dsh

Prinknash Abbey

Gloucester.

". . . I find the whole thing fascinating. Nothing quite like it has appeared before. I am uncertain to whom the journal will appeal and in what way. I think the cautionary comments of Woolwich and Stephens are important. But it definitely appeals to me. The format of Poetry Theoria and Poetry Theory annoyed me. I don't like modernistic gimmicks. . . . Is it possible to translate Theoria into Theory? Must one accept certain limitations? If, in its manifestations theoria (contemplation) is imageless awareness, how can something in which there are no images be translated into thought-images and concepts? But if, as I believe, contemplation is the basis of religious vision and religious truth, what is revealed in contemplation must be translated unless it is to be available only to one who has entered into the contemplative state. Is the most fertile road in the direction of a "perspectivist" philosophy, in which different forms of experience (and different types of cognition) mirror, as it were, different aspects of reality?

Whatever the answer, I think this is the crucial issue to which a lot of attention must be given, possibly in a series of essays or dialogues, in which different possibilities are explored. . . ."

F. C. HAPPOLD.

High Elms,

Redlynch,

Salisbury,

"In our age, profound theologising is likely to begin with the theologian's attempts to keep in touch with himself in a quickly

changing world of thought and custom. In this process, he must be clear in his mind about the use of contemporary ecclesiastical jargon—such as 'problem and solution', a 'challenge' or a 'challenge in the real meaning of the word', 'evangelism must take top priority', 'after all, what happens in the home matters most of all', 'let us take another look at the situation and get down to the matter in real earnest', 'teach them the faith', 'our religion is based on historical facts', 'we must treat persons as persons'. A theologian must be on his guard lest his thinking become no more than an arrangement of clichés considered apt for the occasion. In every generation, along with the orthodox expression of the faith, there is to be found a separate set of terms designed for the pulpit and pastoral ministry. Usually the laity find these popular theological terms even more difficult than the orthodox language of the faith. How can theological thinking be general unless it is free from the clichés that would lead it into a cul-de-sac? . . . .

From the philosopher a theologian learns to respect honesty in thinking; from the poet, precision in speech; from the scientist, love of truth; from the dramatist, recognition of the movements in human situations. Psychologists and sociologists help him to understand himself and the many groups to which he belongs. These reflections should include reference to all that physicists have done to enlarge us through their discoveries concerning matter, speed and space. Those who fear these achievements might do well to remember that in the legend of David and Goliath; David's intelligence enabled him to defeat the giant's sheer physical power—or if you like, the story celebrates the victory of science over brute force and ignorance.

What a poet (Allen Tate in "The Man of Letters in the Modern World") says of the man of letters partly describes the work of a theologian—'He must do first what he has always done: he must re-create for his age the image of man, and he must propagate standards by which other men may test that image, and distinguish the false from the true'. Can he even begin this unless he is learning as much as he can from artists, scientists and philosophers? How can he learn if he closes himself up in a little group deep within the church? How can he do this learning if he is wandering in a no-man's land somewhere between the active life of the church and the active life of the world? "

R. E. C. Browne

123 Old Hall Lane,
Manchester 14.

"Might I not be right in detecting some god of the gaps arguments? I would hesitate to define science or to try to limit it, but do we need the concept of 'God' to do the explaining not yet achieved by Biology (Masterman) and not yet attained by Psychology (Miller)? Your ding-dong with Farrer is amusing. I can't go with him in his traditional formulations but he believes in God who seems to be alive and active.* In many ways I found your response more congenial but if you take your line, isn't God immanent and inactive—in fact what use is he for or to all this experience of something 'extra' which you all seem to be seeking?

E. M. BATTEN.

29 Thurloe Court,
S.W.3.

The Concrete Poem on the Cover

A Scientist's Version :

Mandala
Soft clean bones,
Gnawing atom crystal cell,
Desert prayer.

Quasar
Flowing quiet light,
Secret robot mountain bioscope.

A Housewife's Version :

Bioscope robot, mountain bones,
Desert soft, atom flowing,
Quasar.

Secret cell, quiet prayer,
Gnawing light, crystal clear,
Mandala.

OLIVE WISHART

21 Millington Road,
Cambridge.

". . . I have read the first number of *Theoria* from cover to cover and am very excited to find that a group has come into being with

* [Others have made a similar comment.]

such a clear conception of the direction our thinking must take if it is not to lose its vitality. The event reminds me of a similar excitement I felt when the Christendom Group got together in the First World War and when the Frontier Group was formed in the Second".

TOM HERON

18 Brockswood Lane,

Welwyn Garden City,

Herts.

". . . The grand journal has just reached me, and I've just read the Editorial with tears of gratitude. This is the real thing; God bless you all for it".

SWAMI OMANANDA

123 Woodbourne Road,

Douglas,

Isle of Man.

". . . Is not the process of growth in theoria like this, the transfiguration of an already existing belief and understanding, the sight of what it 'really' (as it now appears) means, together with the bringing into the understanding of a variety of items which previously appeared puzzling, contradictory, or unconnected? And is not the necessary condition of appropriating the gift the subsequent hard intellectual work, accompanied by the ascetic sign and the means of commitment to the truth?

"This does not point, or not necessarily, to anything startling or visionary in the usual sense of the word, but to what will nearly always be an experience of enlightenment over a more or less extended period (though none the less of divine origin), followed by a darkening in which intellectual and ascetic resolution must struggle against confusion and unbelief.

"Thus a contemplative-intellectual-ascetic is built up by God. More and more he presses towards God. He sees darkness until the light comes, and in the end others see the light of God through him. But a language to relate negative with positive theology? I suppose we must try. I suspect, however, that we shall have to go on making do with persons in whom the two are related; and I believe this consorts with what we know of the great theologian-saints, and of Christian thought and prayer at all serious lower

levels. And I should not be surprised if all this could be transposed into terms appropriate to science".

FRANK LINDARS

Shadwell Vicarage,

Leeds 7.

"I look forward to the next number of *Theoria to Theory* with impatient joy—the first number seemed to me to meet a need which is not being met by any other publication that I have come across.

"Among many good things I was particularly interested in references to experimental parapsychology. For a long time I have believed that sooner or later scientists would have to take this seriously, and I have been intrigued by the aversion of my atheistical friends to the subject.

"May be it will be a case of Wilberforce in reverse. I do indeed wish *Theoria to Theory* good success".

R. A. BABINGTON

12 The Close,

Exeter.

"It sounds as if theology were being expected to conform to the terms of reference of the quite different discipline of comparative religion. The 'scandal of particularity' is as old as Christianity itself!

"Many Christians feel that 'standard theological thinking' (at any rate in the West) already goes much *too far* in trying to generalize about The Singular, the Holy One of Israel, of whom it has been said that he cannot be expressed, only addressed. The very attempt to enclose him in a system betrays that what one is talking about is not God himself, but only a concept of him—something 'smaller' than, and comprehensible by, our finite minds. Theology, like religion, can easily become a substitute for God.

"To the extent that one tries to say anything positive at all about God himself, one *can* only hint, suggest, evoke, through analogy, paradox, metaphor, poetic image—or else, like the Eastern Orthodox, one must stick to 'negative' theology".

MARGARET DEWEY

99 Elspeth Road,

S.W.11.

"Having read the dialogue between Richard and Gregory, I was left with a feeling of dissatisfaction. This was not because nothing seemed to have been proved since this was not, I take it, the object of the exercise. Rather the dialogue seemed to have gone in a direction which was not in the end enlightening. Further study suggested that it had taken a turn in the wrong direction in the discussion about assumptions at the bottom of page 45.

"Gregory suggests that the two most important assumptions of a Christian are that of a personal God and that of the incarnation of God in Jesus Christ. He chose to talk about the former. In many ways the latter would have been more profitable, but I can see that it would have led the dialogue into a Biblical discussion which was not its immediate purpose.

"But I ask 'is a personal God an assumption anyhow?' For some Christians a personal God is an experience; for others a personal God is a discovery followed by experience. This categorization of Christians is very approximate and depends largely upon circumstances of upbringing. In any case Christians of both sorts would probably agree that a personal God is a series of renewed discoveries and experiences. Either way God is not an assumption.

"The discovery and the experiences can be, and often are, described, and talked about meaningfully with those who have not had them, even though the talking may involve on the one hand an attempt to explain them away, and on the other an attempt to show that they are valid experiences. This seems to fit the pattern of Theoria to Theory, whereas to assume that a personal God is an assumption looks like Theory to Theoria.

"Is not 'I am a meaningful being' a more basic assumption which Christians, as well as others, make. It might be worth discussing whether this also is in fact an assumption or an experience. But if for the moment we accept that this is an assumption, then the verification of it is found in experience of relationship with God. A discussion of this is the direction in which the dialogue might have gone and I believe this would have proved more enlightening.

"It is, of course, far easier to see this when following the written form of the dialogue slowly and when not involved in its own swift movement. Is it possible to renew the dialogue in this direction?"

M. S. Carey.

St. Botolph's Rectory,
Cambridge.

Review

Hatha Yoga. Theos Bernard.

Rider & Co. 1950. *Arrow Edition* 1960.

Theos Bernard says in his preface that ". . . any attempt to prove the merits of the art of Yoga would be futile. If a thousand volumes were quoted in its favour and all the rules of logic and sophistry were employed, the doubts and scepticism of modern man would still remain". What Yoga is about cannot be explained in any terms other than in the active discipline of Yoga itself : in much the same way that what music is about can be understood only by hearing and/or playing music. But with Yoga the problem is harder, there is not "just Watching" : it must be practised, and it is a long difficult discipline.

Theos Bernard ". . . became a disciple (of Yoga) and in this way a Yogi in body and spirit, *without reservation* for I (Theos Bernard) wanted to taste their teaching".

This presented another difficulty : how was this insight into Yoga to be passed on through a book? His solution was to write a detailed practical account of the teaching he was given, his practising and difficulties. He quotes relevant passages from Hatha Yoga Pradipika in translation by Pancham Sinh, often also quoting related passages for comparison from Gheranda Samhita and Sica Samhita. He follows each quotation by remarks his teacher gave him, then by his own observations on the techniques. This method seems to make the bones of the discipline clear. He does not attempt to explain the complex symbolism of the texts where it is either not related to Hatha Yoga, or where its meaning can only be grasped by one who submits to the discipline of Yoga.

Describing any movement in words so that it can be easily followed without danger of misreading is very difficult. The photographs are a great help and his descriptions are clear: but I feel that if the positions and movements had been written in Benesh movement notation they would have been simpler and more accurate to write and read. Perhaps this would have been a little premature in a book written for the general reading public, and not just for the movement specialists who are likely at this stage to be the only people able to read the notation.

There are two main groups of Asanas (postures): the meditation and the conditioning asanas. The latter are also found in western

limbering techniques but are approached in a different way. In limbering there is much more emphasis given to movement into and out of the position and to the rhythm of these movements, much less emphasis being given to holding the posture.

The breathing techniques are totally unlike anything in our limbering or dance techniques. In dance (and limbering) the breath is kept more or less within normal breathing speeds; it is used in relation to rhythm and emphasis of the movement, and to give extra strength and lightness. The breathing techniques of Hatha Yoga give a kind of "ultra-rhythm" where the breath is suspended. ". . . until the breath suspension had been developed to at least 3 mins. nothing of any significance could be done". In dance the breath is often suspended for a fraction of a second to give extra strength and lightness to the body at a climax: it is at this point that the Yogi remains, while disciplining the mind to stillness.

It is difficult to see from this book exactly what the attitude of a Yogi is to the relation between physical fitness and "enlightenment". The teaching seems to jump from one to the other with such remarks as, ". . . build up the strength that is required by the rigid physical discipline imposed on the student". This leaves rather ambiguous the Yogi's attitude to physical fitness. When the body is not in good physical condition does it merely interfere with the mental discipline? (Good physical condition in this respect means ability to perform the various Yoga techniques with ease.) Before Theos Bernard had mastered the head stand he said, "The moment I began to feel the slightest fatigue my mind began to wander". But is it more than this? Is physical fitness essential to enlightenment in itself? Could a cripple receive enlightenment through Yoga? Would taking on the discipline of Hatha Yoga to the best of his ability lead to enlightenment or would it be essential for him to achieve perfect physical condition first (become physically whole)? There are certain types of physique that make an advanced understanding of classical ballet technique impossible; a cripple could learn very little of the inner quality of the classical technique.

Whatever the exact relation between physical fitness and "enlightenment" in Hatha Yoga, Theos Bernard makes it very clear that the ultimate aim of the mental and physical discipline is some kind of knowledge; ". . . through practising first the physical discipline to aquire knowledge of the true". There is no other physical technique that I know aimed at acquiring some specific form of knowledge or enlightenment. Most physical disciplines are to acquire health, or skill in a particular game or occupation; or aimed

at freeing the body so that it is able, unhampered, to express and explore various patterns and states of mind. The kind of knowledge that a choreographer can impart to his dancers and audience through specific movements and order of movements is of a different nature: it is practical, not demanding total agreement or commitment, but probing familiar and unfamiliar states of mind that can then become the raw material of further understanding by comparison and cataloguing. The Yogi has to be completely committed, "without reservation".

The dancer's commitment is to become an open vessel for exploring states of mind and relationships : the Yogi's commitment is to a particular "Way of Truth".

Theos Bernard's last sentence is perhaps the best summing-up. "The training I have communicated faithfully : but 'knowledge of the true' because of its very nature must remain a mystery".

KATHLEEN RUSSELL

Ian Stephens, besides being Editor of *The Statesman,* Calcutta and Delhi, 1942–51, also held Government posts: previously, with the British regime; afterwards with the Pakistan Government. He was also chairman of a tea company in Ceylon. From 1952 to 1958 he was a Fellow of King's College, Cambridge. Author of *Horned Moon, Pakistan,* and *Monsoon Morning.*

Raymond Panikkar has studied in Spain, Germany and Italy and is Doctor in Philosophy (1945), Science (Chemistry) (1958), and Theology (1961) after having been Professor of Philosophy in several Universities. He works at present as Senior Research Fellow in the Centre for Advanced Study in Philosophy attached to the Banaras Hindu University, Varanasi. Among a dozen of books on Philosophy and Comparative Religion he has published, *The Unknown Christ of Hinduism,* London (Darton, Longman and Todd) 1964.

Ninian Smart studied Chinese at the School or Oriental and African Studies in London at the end of the War and was posted to Singapore and Ceylon. He then studied philosophy at Oxford and Pali Sanskrit at Yale. He is now Professor of Theology at the University of Birmingham, and Professor Elect of Religious Studies in the University of Lancaster. Among his publications are *Reason and Faiths, A Dialogue of Religions,* and *Doctrine and Argument in Indian Philisophy.*

John R. D. Walker is chief engineer of The Rugby Portland Cement Group. He studied Mathematics and Mechanical Sciences at Cambridge, was resident ventilating engineer for the Mersey Tunnel, popularised underground mine fans, and, though an R.N.V.R. navigator, worked during the latter part of the war mainly on development of servo-mechanisms, gyroscopes and predictors for gunnery. He was nominated by the R.N. to assist the development of post-war weapons by Vickers Armstrong, and managed their engineering research department until 1953.

Edward Blishen has been a school teacher and has lectured in the Department of Education at the University of York. Is now a full-time writer, chiefly concerned with education and children's books. Author of *Roaring Boys*; edited *The Oxford Book of Poetry for Children.*

Margaret Masterman studied French Language and Literature at the University of Paris and Modern Languages and Moral Science at Newnham College, Cambridge. She is the Director of Research at the Cambridge Language Research Unit, a Director of Studies in Moral Science and has been a lecturer for the Moral Science Faculty on philosophy of language. She is also the Vice-President of Lucy Cavendish College.

Rupert Sheldrake read the Natural Sciences Tripos and is now a research student in Plant Biochemistry at Clare College, Cambridge. He has also studied the History of Science as a research student at Harvard.

Tom Heron is a business man who has always taken an amateur interest in the arts, theology and sociology. During the last war he acted as adviser to the Board of Trade.

Kathleen Russell is a choreographer who uses Benesh notation in her choreography, and in investigating the principles of choregraphic composition; she lectures in this at the Institute of Choreography.

Ian Marshall, who wrote the concrete poem on the cover, studied Philosophy and Psychology at Oxford and Medicine in London. He now practises as a psychotherapist. Other interests include philosophy of science, mathematics, and E.S.P. Author of "E.S.P. and Memory: a Physical Theory", *British Journal for the Philosophy of Science,* 1960.

SENTENCES

Zen Koans, Phrases (Jakugo) and Comments.[1]

The three essential requirements of Zen : the first is a great root of faith; the second is great ball of doubt; the third is great tenacity of purpose. A man who lacks any one of these is like a three-legged kettle with one broken leg.

* * *

Underlying great doubt there is great satori; where there is thorough question there will be thorough experience of awakening.

Do not say : "Since my worldly duties are many and troublesome, I cannot spare time to solidify my doubt truly".

* * *

Empty-handed, yet holding a hoe;
Walking, yet riding a water buffalo.

* * *

One day Enkan Osho called to his attendant and said :

"Fetch me my rhinoceros-horn fan".

"The fan has been broken", said the attendant.

"If the fan has been broken, then bring me the rhinoceros itself", Enkan returned.

* * *

The Mayahana bodhistattva . . . from the midst of the sea of effortlessness [he] lets his great uncaused compassion shine forth.

* * *

Grasping in your two hands the talons and teeth from the cave of Dharma and wearing the supernatural talisman that wrests life from death, you can enter the realms of the Buddhas and sport in the world of the Maras; you can pull out the nails and wrench out the wedges, spread the cloud of Great Compassion, practise the

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[1] Selected from translations by Isshu Muira and Ruth Fuller Sasaki in *The Zen Koan: its history and use in Rinzi Zen.* Published by the first Zen Institute of America, Kyoto, Japan, and Harcourt Brace and World Inc. and quoted with permission of the authors and publishers.

almsgiving of the Great Dharma, and abundantly benefit those who come to you from all directions : yet all the while you are only an old monk with two horizontal eyes and a perpendicular nose, who, having nothing further to do, enjoys the greatest ease.

* * *

Upon hearing of Sozan's words, Rasan said : "By my speaking thus, the tail hairs of the tortoise have suddenly grown several feet longer".

* * *

"What is Tao?"
"A bright-eyed man falls into a well".

* * *

When an ordinary man attains knowledge, he is a sage;
When a sage attains understanding, he is an ordinary man.

* * *

Goso Hoen Zenji said, "It is like a water buffalo's passing through a window lattice. Its head, horns and four hoofs have all passed through. Why can't the tail pass through?"

* * *

If, on coming upon expressions such as these, you feel as if you were meeting a close relative face to face at a busy crossroad and recognizing him beyond the question of a doubt, then you can be said to understand the Dharma kaya.

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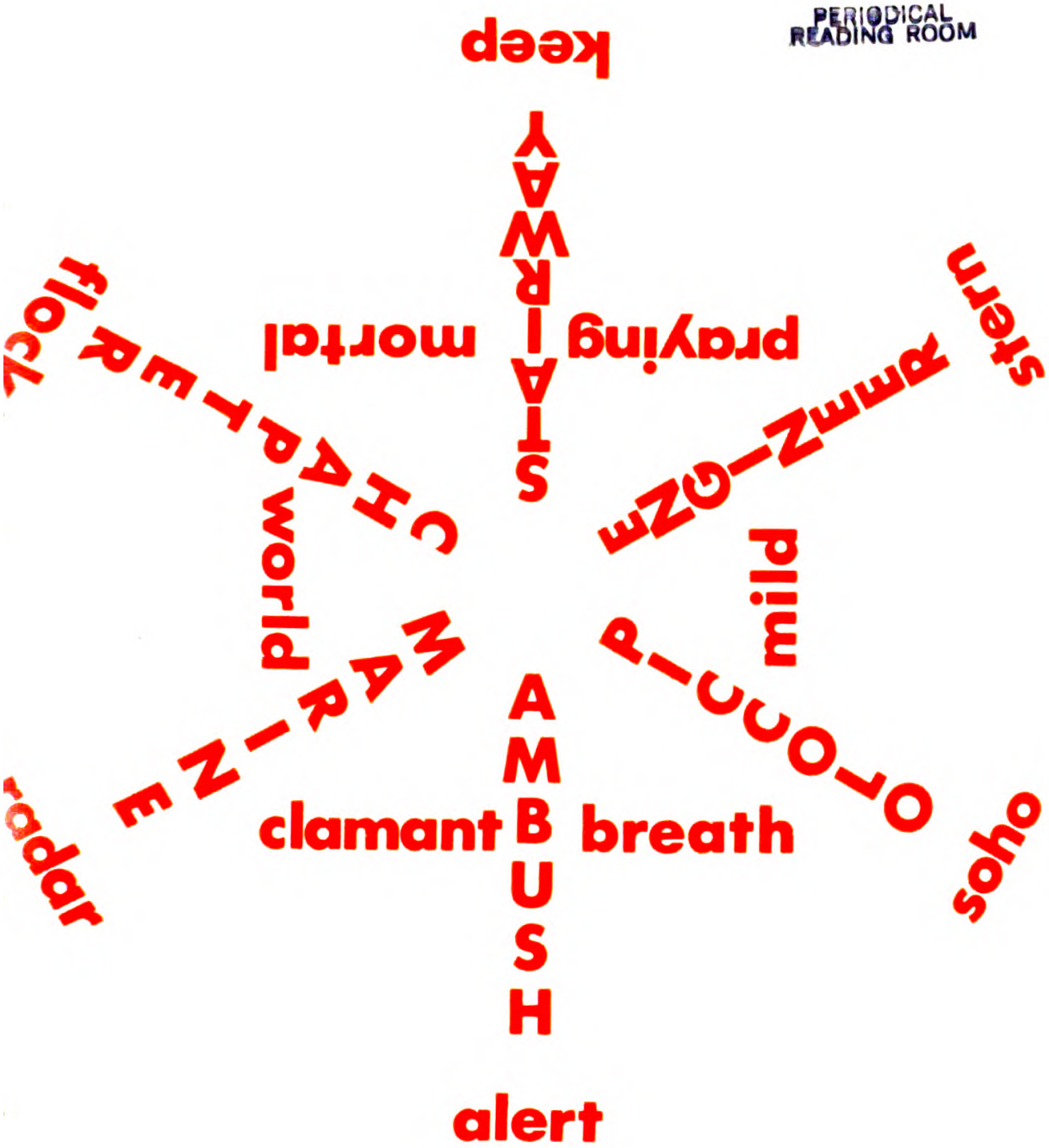
THEORIA TO THEORY

Volume 1 Third Quarter April 1967



THEORIA TO THEORY

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THEORIA TO THEORY

Volume 1 Third Quarter April 1967

N.B. The Printers apologise for late distribution due to the Contents Page being reset after a discrepancy occurred.

Editorial

In this number we are taking the perhaps unusual step of reprinting, with permission, parts of reviews of *Theoria to Theory* to show what kind of press we are getting. Our experience and correspondence incline us to think that a quite new situation is now developing, in which many scientists are prepared to be contemplative (far more than we had foreseen), and just a few contemplatives are prepared to set a high value on science. This is one side of the picture. On the other side, there is another set of people who are strongly activist and anti-mystical, and who have a limited view of the scope and value of science (are they also terrified of it?). It is these last who are so strongly represented on the staffs of theological colleges and faculties, and who thus, by the nature of their positions, are in the middle of the ecclesiastical profession. The scientific-cum-contemplative minority—who, as soon as they meet, tend to like and understand one another—are apt to be either on the extreme right or the extreme left of the Church. Obviously a lot turns on what is meant by "scientific" and by "contemplative", and by "right" and "left"; we hope to go into this later on. Meanwhile, it is clear that the people whom we have stung up are those above all who have settled for the contemporarily accepted ways of drawing rigid boundaries between science, religion, and philosophy.

The editor of the bulletin of *The Union for the Study of the Great Religions* speaks of our "Dolly Dialogues". The blurb of Anthony Hope's *Dolly Dialogues* referred to Dolly, Lady Mickleham, as "the first of the witty and irresponsible ladies who, for the last decade, have enlivened English fiction". We cannot presume to stand up to this comparison. The use of Christian names symbolizes the irrelevance of all labels and titles, ecclesiastical or secular, within the dialogue. Those who have taken part in preparing the dialogues have seen the point.

Besides the articles which continue our main pre-occupation with religious-scientific truth, this number contains an article on mountaineering, and another by a member of the "Small World" expedition which tried to cross the Atlantic in a balloon. This is a first hand account of "raw stress". We hope to lead on to some more analytic articles on problems of stress: what happens to people individually and in relations with each other under extreme conditions. The trouble with most sociological work with small

groups is that it is either set up under artificial laboratory conditions, or is based on observing primitive societies. A sociologist is seldom on the spot to observe "raw stress". The experimental group under artificial conditions knows it can get out of the situation. The members of the primitive society generally know they can't, and they probably live close to a critical subsistence level. This gives them obvious problems, but may also protect them from other subtler ones. We need to know more about the habits of groups under stress; what sort of rituals, for instance, they may develop. Have different religions developed different kinds of wisdom under these conditions? Most religions have come to us from a time when life was not so protected as it is now, and there had to be heroic ways of dealing with it.

This is one reason why the Beats contract out of many of the liberal institutions that cost so much effort to build up. The contracting out is only a deployment of available effort in circumstances where it seems to them that the vital thing to go for is directness, honesty, spontaneity in personal relations. An institution, however liberal, which has grown beyond the experience of "raw stress" which compels its creation, is going to seem an unfaithful representation of life as it is to people who come into it as a going concern. Raw stress has to be experienced by them afresh, and for this reason, in particular, they will be prepared to see religion as heroic in its saints, or only as the dullest thing ever.

* * *

The Pergamon Press has taken over publication of the Journal, leaving us full editorial freedom.

HOW OUR CRITICS SEE US

From *The Times Literary Supplement* :

MEETING POINT

'Dons may once have been thought remote and ineffectual but their presence in the corridors of power during two world wars and numerous economic crises has long since dispelled the legend. Monks, too, have often been credited with influencing the temporal affairs of the world. Yet the thought of dons holding converse with monks still suggests a picture of ivory tower calling to ivory tower in a language that no one in between can comprehend.

This is the picture suggested by the title, and to some extent by the contents, of a new periodical intended to strengthen contacts between men of a religous and men of a scientific outlook. Here is the importance of the new venture. In these days when there is so much discussion about once-for-all or continous creation, to give only one example, a re-examination of the cosmological argument between trained men of science and trained theologians would seem a worthwhile exercise. Miss Masterman herself believes that the experiments of Professor L. L. Vasiliev in Russia have proved telepathic communication of information—"a form of long-distance linkage between person and person which cannot, by any known criterion, be analysed as physical"—to be repeatable; and she argues that if apparently separate organisms are multiply interlinked, it is a mild matter to imagine them linked to a central invisible x which religious people have called God. This example shows that all the mental adjustment need not be on the side of the theologians, for these para-psychological facts, if confirmed, would require a revolution in the scientific picture of the universe.

Theoria to Theory is therefore something that is needed in the gap separating scientific and religious thinking and it deserves a favourable reception. A word of warning, though: those who control it must, without abandoning their intellectual standards, and without deliberately courting a popular appeal, avoid the little tricks of language that give the first number its private character.'

From *The Times Educational Supplement* :

PROMISING NEW ARRIVAL

'One of those who has watched the conception and birth-throes of this new journal has awaited the appearance of the first issue with

considerable interest. Now that it has appeared, he is able to salute the birth of a lusty and promising infant.

The appearance of a journal such as this is symptomatic of the trend of current thought. In an age in which there has been so great a shaking of foundations and shattering of images, men are looking for a new meaning of that which they call God, of the universe and of themselves : for some sort of synthesis which will gather together the secular and the spiritual, the thought-patterns and modes of expression of the theologian and the philosopher and those of the scientist, the way of religious "contemplation" and the way of scientific exploration. That is what the Epiphany Philosophers in this quarterly have set out to do. It is a task similar, though on a wider scale, to that which is being attempted by scientists, such as Ludwig von Bertalanffy in his organismic conception and general system theory. This objective explains the rather obscure title, *Theoria to Theory.*'

From *Theology* :

'The scope of this journal (published under the auspices of the Epiphany Philosophers and some members of the SSM, Kelham) is indicated by the title in which *theoria* means the contemplation of God and "theory" the postulation of his existence by the speculative intellect. The editorial aim is twofold : first (on the side of *theoria*) to re-examine the contemplative strain in Christianity with special reference to the monastic tradition, and secondly (on the side of theory) to show that the theistic hypothesis is, no less than a scientific hypothesis, capable of experimental testing. The validity of the first aim is established by Dorothy Emmet and George Every. Only one attempt is made to validate the second aim—by Margaret Masterman who asserts that parapsychology may one day provide scientific criteria for deciding whether the theistic hypothesis is true or false; but she does not specify the criteria or define the God to whom (or which) they supposedly apply. If she means the God of Christianity her project is doomed to failure. If one clear fact has emerged from recent discussions between Christian philosophers and non-Christian empiricists it is that theistic statements are not amenable to the verification procedures of the natural sciences. Furthermore, none of the contributors shows how *theoria* and theory are interconnected; and I cannot conceive what kind of interconnexion there could be. Most of the other philosophical essays are disappointing. The ones attacking A. M. Farrer's *A Science of*

God? completely fail to come to grips with his metaphysical reasoning; they do not deserve his courteous (and wholly adequate) reply. In a dialogue with Gregory Wilkins, R. B. Braithwaite merely repeats the views he advanced in his Eddington Memorial Lecture. Joan Miller's claim that telepathic phenomena express the activity of Teilhard de Chardin's "noosphere" requires a much closer analysis than the one she offers.'

H. P. OWEN

From *The Cambridge Review* :

'With this first issue the Cambridge group of "Epiphany Philosophers", after a decade of thinking, has opened itself to the public, and hence to abuse. No doubt they will receive plenty of the latter, as they deserve a fair proportion of the former. Their necks, as it were, are here laid bare for the axe. Hatchet rather. Doing a "hatchet-job", as it is known in the trade, or an "intellectual carve-up", is the easiest and commonest method of dealing with anything that seems distinctly new and slightly disturbing. Easy, because a very small hatchet will do. The blows need only be short, and not particularly sharp, for the job to be reckoned a success by the mini-minded crowd that enjoys this kind of operation.

Hatchet jobs require a certain surgical skill in the techniques of incision and blunt dissection. He is a poor surgeon, though, who is no more than a skilled dissector. His cure-rate, as distinct from his success-rate ("the operation was successful; the patient unfortunately died") is likely to be pretty low. In the intellectual analogy, destructive sophistication is seen to be not only dangerous ("the" enemy of the intellectual, in fact), but recently it has also begun to seem a crashing bore. If the smart-aleck reviewers, produced in such profusion by this and another university, notice *Theoria to Theory* at all, they will doubtless smack their thin lips and try to make a tasty meal of it. Everyone's palate, though, is becoming altogether too jaded.

Of course, the name "Epiphany Philosophers" is off-putting enough in all conscience. It sounds so very pretentious, as though a self-chosen people were finally making themselves manifest. In fact it was simpler and more innocent than that : at first, the important link with the monastic life happened to be with the Community of the Epiphany at Truro. So that, quite simply, was that. A change of name might obviate the predictable complaint by the Bishop of Woolwich that the organization represents too esoteric an

in-group. His plea for "the ordinary mortals among us" sounds, perhaps, too accommodating to the most popular (as well as the all-time biggest) in-group of all.

There are times, though, during a reading of this fascinating series of attempts at communication, between people of widely-differing disciplinary backgrounds, when one suddenly has the feeling that there really is something a bit dotty about it after all. Concrete poetry, perhaps, is an acquired taste: as yet it makes no sense to me. And while a good case is made out for the publication of "partly-baked ideas", yet some out of the list of 31 "succinct examples" seem singularly unrewarding. And again, what is one to make of a serious editorial note that, far from being the product solely of the in-group, the journal even in this first number includes amongst its "independent contributors" not only the Archbishop of Canterbury, but also St Catherine of Siena?[1] It makes one think way beyond the Epiphany, to the Second Coming perhaps, or the General Resurrection.

Dorothy Emmet's article on the meaning of *Theoria* in classical philosophy and the Greek Fathers, and its relevance to *Theory* in modern science, is not only scholarly, but it also deeply penetrating. Without analyses such as these we never shall get out of the complex of tiny departmental rat-runs in which most academics feel so much safer—more at home, as it were. The group's overall venture, though, is clearly fraught with the twin dangers of dilettantism and dottiness. The rigorous control that is required can best be achieved by insistence on the genuine experience and the genuine experiment. The two fields where these are of paramount importance are, firstly, the spiritual life as exemplified especially by the monastics and, secondly, modern science when practised at a serious level. The Epiphany Philosophers (capitals seem somehow to be *de rigueur*) are surely right in seeing the link between these two activities, now expressed in the title of their journal, as fundamental to that movement of convergence between real seekers after truth, that bids fair to be the distinguishing mark of the last third of the twentieth century.

The theologian who merely talks about God is like the scientist who never lights on a really worth-while experiment, or who never does any real thinking (meditating?) about the implications of the "data" which he is all too often merely content to collect. This

[1] This was meant to be a crack (Ed.).

journal makes a determined attack on everything derivative and second-rate. In particular, there is a three-pronged assault, by Dorothy Emmet, Ted Bastin, and Margaret Masterman, on Austin Farrer's recent book *A Science of God?* It would spoil the impact to rehearse the arguments here, even if there were space. Farrer has an opportunity to reply. He is outwardly suave still, but is clearly punch-drunk and intellectually reeling. One hopes he will never again be tempted to write such a "popular" book: full of semi-disguised "sermonizing", as Bastin calls it. The day of sermonizing is over now. . . . The prospects for this welcome periodical look distinctly bright, not least because it will make some people angry. But all they are asking (in the editorial) is for monastics to renew their vision, for scientists not to assume that what they cannot deal with does not exist, and for philosophers to stop trying to be fashionable, and be curious instead.'

BERNARD TOWERS

From the bulletin of the Union for the Study of the Great Religions:

'They (the Epiphany Philosophers) have provided much food for thought. First impressions were unfavourable. With a sinking heart one detected symptoms of a fatal desire to be "with it". "I don't know what they are with" a friend remarked recently in another context "but it is easy to see what they are without". The notion that an exchange of views between the Archbishop of Canterbury and Professor Hoyle could gain added significance from being called "A Dialogue between Michael and Fred" seems to be rather like suggesting that the flavour of the food served at the Café Royal could be improved by changing its name to "Boney's Bar BQ".

The opening number is about poetry, written in the vein of E. E. Cummings or (as Ivor Brown remarked in 1934) "Mr. e. e. cuMMinGs, or however he spells it when he is heavily aflame with inspiration". This is probably a skit but one would have to decipher it to find out, so turns the page instead, to discover with a breath of relief that the next item is written by Dorothy Emmet in square English (not arch) and propria persona (not "Auntie Dolly"). From now on there are no grounds for complaint. Dorothy Emmet defines Theoria as Contemplation, the Greek equivalent of Buddhist Meditation or the aesthetic Abstraction of Tao. From it may come an Idea—from Theoria, Theory.

Contemplation, lay-brother Every points out, requires preparation. The danger for Christian and Buddhist monks alike is that the preparatory disciplines may come to be regarded as an end in themselves.

For those of us who were educated, or partially educated, on the wrong side of the yellow tiles, now comes the test—an essay on "The Future of Speculation in Science exemplified by the Sub-Assembly Theory of Mind" by I. J. Good of the Science Research Council. This submits what he calls a partly baked idea, and he opens by discussing the scientific justification for allowing such ideas to see the light, in a light-hearted passage which includes a formula for the pbi which, by reason of its unintelligibility to the PBI (old style) gives them warning of breakers ahead. . . .

Now these are problems we have discussed on our side of the tiles. We wouldn't dream of discussing quantum physics. Are we being just as absurd when we intrude into the field of Memory? If Mr. Good's ideas are partly baked, are not ours still in the flour-and-water stage? It is therefore in a humble frame of mind that we move on to the first of the Dolly Dialogues.

The protagonists are Richard and Gregory, the first a Professor of Moral Philosophy and the second Director of the Society of the Sacred Mission. They are proposing to discuss this very question, of difficulties of communication between "those brought up in a religious tradition and those educated in a scientific tradition". It turns out however that the boot of incomprehension is on the other foot, for while "there is a recognized method of teaching a science which is successful with anyone of normal intelligence" no comparable method has been devised for communicating to a scientist what a Christian means when he talks, for instance, of Immanence and Transcendence. Thereafter the discussion follows familiar lines—"How can God be in two places at once?" "When is a First Cause not a Cause?" One would like to see the questioner questioned—"What are the odds of probability between Some Cause and Blind Chance?" "What is the sanction behind the Ethic of Humanism?". . . .'

Miss Masterman in her turn produces a pbi :

'This is that Vasiliev's experiments in parapsychology have, by destroying the isolation of the organism, exploded the whole existing paradigm of scientific thought, even transferring what she calls "raw theism" into the category of the experimentally possible, since "if we are to suppose apparently separate organisms to be, in fact,

multiply interlinked, then, by comparison with that basic scientific shock, it is a mild matter to imagine them also linked to a central, though crude, invisible something, X, which religious people who speak English have called 'God'." The irony here for the PBI is that we on our side of the tiles have known this all the time—about telepathy and the Australian aborigines, the termites and the dolphins, about Lassie walking Home, and the migrating swallows. All that is familiar stuff, but one never thought of it as basic material for an argument for the existence of God.

There will be more to follow on this theme, but meanwhile "there is one thing that must be said. On the present overall paradigm of science, the scientist, in imagination addressing God, would be bound to say to Him, as the Bishop of Woolwich in effect does say, *We are: and Thou art not.* But my personal guess is that on the new overall scientific paradigm, as it will be developed, say, in 250 years, a scientist in imagination addressing God would be equally bound to say, as St. Catherine of Siena (speaking in ecstasy) said, and as many other people have said : *Thou art: and we are not.*"

Meantime the theme is picked up by Joan Miller, a factory inspector with a training in theology. For her the "atmosphere" such as used to characterize a college or a regiment or a religious order is a telepathic product, and reciprocally telepathy is largely dependent on the existence of some such "rapport". The hurdle for the scientist is in translation from the unconscious to the conscious, a process in which incidentally Hindu science is deeply versed.

A unique feature of this periodical is the way the editor leads you on from one train of thought to the next. Parapsychology is familiar on our side, as I have already remarked, as a feature of primitive society. It is also of course an accepted characteristic of science fiction, and science fiction is next discussed. Here the baker's man can pat any cake without inhibition, encouraged by the success of his predecessors, Verne and Wells. He is developing, it appears, from a thaumaturgist into a Morality writer on the one hand and on the other into the type of intellectual foreseen by Berdiaeff and realized by Orwell, who would ache to return from an authoritarian Utopia into the freedom of an imperfect society.

So we come back to the attraction of the worm at the core of the apple.

In a letter of comment the Bishop of Woolwich begs the editors not to be "too rarified and precious" to appeal to ordinary mortals. This appeal must be endorsed by those of us who make heavy weather of equations, but can surely be met without recourse to

Tom, Dick, and Harry. Do not, however, let the presence of these three as all boys together act as a deterrent. In spite of my difficulties I read this issue through in one sitting, writing a commentary en route. I can't remember ever doing this before.'

K. D. D. HENDERSON

Dialogue between Edmund and Anthony: Revelation

Edmund Leach, Provost of King's College, Cambridge; Anthony Bloom, Archbishop of Surozh.

Edmund: I would like to know how you, Anthony, use this concept of revelation in the context in which you find it necessary.

Anthony: I think that revelation is a concept which is corollary to the existence of either a personal God or even human persons as persons—that is of a realm into which one cannot *force* one's way. A person can make himself or herself known but you cannot force yourself into the knowledge of a person. That is where I would begin. For me, the two things, revelation and persons, are parallel. If there is a God who is different from us, that is, who doesn't overlap with us, who has existence apart from us, and if we are to know anything about him, beginning with his existence and continuing with what he is, then there must be a moment of revelation when he unveils something about himself—he discloses something about himself.

Edmund: And you find it necessary that your concept of Deity should be other than us! Another different way of thinking about Deity is the sociological way. Namely that the collectivity of society has something within itself which is other than the individuals which make up society and that this is what you are talking about.

Anthony: Well, as far as concepts are concerned, I think one can conceive a variety of ways of defining Deity. If I may put it most arrogantly, as far as my knowledge of God is concerned, I have only one way of knowing Him. God as I know Him, is some-

one, and therefore I am in a situation of relatedness with him: of mutual discovery in a certain sense, but certainly of discovery on my part.

Edmund: It is this idea of God as a person which I find difficult to understand. Are you saying that your awareness is that you receive messages and therefore that there must be a sender of the message?

Anthony: I wouldn't define it quite that way, because, when you say I receive messages, it really almost implies that the only thing I am aware of is the message and I make a sort of extrapolation—I deduce from it the fact that there is someone sending the message. I would say I know the person primarily.

Edmund: How do you know a person if you don't receive a message from him?

Anthony: Well, both go together, but, you see, when you say that you receive messages and therefore you know there is a person, you assume that the person is out of reach—out of touch. If I receive letters and deduce that there is a sender, I am aware of letters and what they say. I am not aware of the person beyond the letters, whereas if we know each other, whatever you can convey in terms of vocal message or gesture, or what have you, will only be part of my total knowledge of the person who is sitting in front of me. And I would say that a believer, who is aware, or at least thinks he is aware that he knows his God, has a global knowledge which is far greater than the particular messages he can receive. You know, the way in which two persons know one another. They know one another to a much greater extent than they communicate in speech, in gesture, or in relationship.

Edmund: So that you use this feeling about other persons as the most important analogy which you can use for your notion of God?

Anthony: Yes.

Edmund: How could one verify this? How could you demonstrate that your feeling that your awareness of God is *like* your awareness of other persons shows that God is a person? Is it a purely intuitional feeling that this is the most satisfactory way of

talking about the notion of Deity, or is it something that could be put to the test in any way?

Anthony: I think it cannot be put to the test any more than a human person can be *forced* to reveal himself to another. If I dislike someone, I will just recoil and be a physical presence, or, if you prefer it, a complete absence. I will just be bulk in an armchair. You cannot force a person to reveal anything of the inner self, so that in that respect there is with God the same freedom on both sides. I can turn away from him and he can choose distancing himself from me, so that I cannot simply deal with my search of God as I would deal with experimental science. I cannot assume that he is bound to be dealt with the moment I choose to do so.

Edmund: Clearly our notion of person starts with our awareness of other human beings. This is where the nucleus of our idea of person arises. But in that case could one attach any meaning to this notion of person except as a corporeal person? Isn't your notion of person directly linked up with the fact that the origin of your person concept is a flesh and blood human being?

Anthony: Why? That's something I don't see the logic of. I don't see why someone is bound to be the corporeal presence.

Edmund: Well, earlier you yourself used this point. You remarked that if you receive a letter from someone, but all you receive in the letter is a message and the person is not there, then what would be lacking would be physical contact with the flesh and blood writer of the letter.

Anthony: Well, as far as the letter is concerned, yes, but as far as a person is concerned, I don't think it is inconceivable that, as we possess a mind, one could be aware of a mind. If you admit that you have got a soul, you can be aware of something which is not corporeal. Besides, I don't see either that—admitting that God is not corporeal—he cannot make himself known through our corporeal reality. And further, I don't see why we should not think of our knowledge of God being pin-pointed in the incarnate God. Say in Christ. If you need so much a corporeal presence—well, there is one to me. I don't think it a necessity, but I think if you want to have it you have it.

Edmund: This is just an assertion—not argument. You have still avoided saying what this direct knowledge of a person is. How can you be aware of a person if there is no corporeal or material mediator between yourself and that person?

Anthony: I think it is something like our perception of beauty or love or music.

Edmund: May I perhaps rephrase your argument? You ask me to start with a human being who is a thinking rational creature —I would myself pull away from your idea that you can have a mind without a human being attached to it; I'm not sure this means anything; anyway, we start with our human being who thinks and behaves and reasons in the world, and this same human being also has aesthetic judgments which somehow escape from rational analysis. You say that it is precisely these aesthetic judgments (and feelings analogous to them) which make this individual a person as opposed to a kind of thinking machine. This is the difference between the computerized aspect of the human being and the aesthetic aspect of the human being. Is this what you mean when you say Deity is a person? But if so, is it helpful? You see, what you've now been saying is that man's awareness that he is a human being, as distinct from the animal creature, shows him to be a very complicated creature. He isn't just a behaviouristic animal. He is a creature who has values and sentiments and so on, but this surely is all part of our analysis of what we mean by human being? Does it in fact help at all to say that this kind of distinction puts the animal on the one side, and the divine on the other?

Anthony: I am not going to follow this argument, but insist on the right to start at the other end. I start with something which I believe to be a personal experience of God whom I know as "someone". I know that the word "person" is a complex and difficult one, but if we reduce the concept to saying "someone" and not "something" it would possibly be more precise and at the same time less open to a complex discussion of the term. You see, my first meeting with God, when "I met him"—if I may put it this way—was a meeting with "someone" and my subsequent reasoning is a result of this primordial experience. It is someone I met and not a sociological situation or any intuitive notion. It did not grow out of me, it was positive, opposite me, as it were. I became aware of an otherness, a presence and a "someone" in the sense that there can be a dialogue and a relationship. That's where I begin, and this is why I put it that way, and in that sense "someone" and

"revelation" are cor-relative simply because someone can be discovered only to the extent to which he reveals himself, unfolds, discloses, opens himself to knowledge, or to discovery.

Edmund: Yes, but how far do you claim that such an awareness of relationship with God is independent of your cultural training? What I have in mind here is this: you have a private experience, but in order to communicate something of this experience to me or even to yourself you have to give the experience a name and to frame it in a concept. You then say that you see this relationship as being one between yourself and another person. Now human beings first experience relationships in the context of their family. Are you saying that you are interpreting this other experience by reference to a recollection of your pre-speech experience of what relationship is? Can you see what I mean? Why do you describe mystical feeling as a relationship between persons? You are able only to do this because you have a rather elaborate apparatus of language with which to make this analogy. But suppose you had no such language. Are you claiming that what you describe as your experience of God is like the experience which a speechless child has of its mother or of its Father, and that it is *this* notion of relationship which you are using, picking it out of your past experience? As it were projecting the childhood feeling on to this other? Mind you I agree that this way of looking at things is very common. In many parts of the world the notion of God the Father is very far from being just a metaphor. The idea of deity and of parent is often scarcely distinguished—"ancestor worship" is simply obedience to parents raised to the level of cult.

Anthony: I think perhaps I should be more personal than that. The primordial experience to which I refer is the sense of a real concrete presence of someone. That's where it begins. It doesn't begin with a relationship which afterwards—you know—gropes in the dark to find what to attach itself to. But with the discovery of someone confronting me, the relationship came afterwards in exactly the same way as we met a quarter of an hour ago, when you walked into the room, and there was no relationship whatever at the moment. The relationship is being built up at present gradually. We are related because you walked into the room. In exactly the same way at a certain moment (you may of course, interpret this as mental deficiency or a sort of mental trouble) I became aware that the Lord Jesus Christ was standing there, although I had no kind of perception in the sense of, well, hearing,

seeing, and so on, and that's where it began. It began with someone being there and it continued in a way of being related to that someone. This is why I feel on the other hand that it is not something in which one can experiment, because one can experiment only when one can establish certain conditions artificially. One can't artificially establish the presence of someone else. When the someone is there, one can experiment in the relatedness and in the relationship but one cannot create a presence and in that sense there is an experimental part in religion which is the way in which I perceive and discover the contents of it. But there is a moment which is beyond the experiment because it needs an event which cannot be provoked. Exactly the same way in which you can study an eclipse if there is an eclipse, but that's all you can do. You must wait for the next one to be able to study it. You cannot artificially provoke an eclipse of the sun or the moon.

Edmund: I find this very difficult on several grounds. In the first place your certainty that you have come face to face with the Lord Jesus Christ depends on your Christian upbringing. If you had been brought up in South India you might have interpreted the same experience as a confrontation with Vishnu or Shiva. Perhaps you will say that this doesn't really matter because the divine is always the divine whatever be the name by which we know "Him", but if so I must ask again how you can square this generalized idea of deity with the more particular idea of a personal God. Suppose that where you meet Jesus Christ I meet the Virgin Mary or the Goddess of Destruction Kali, does it make no difference? And how can we distinguish? Furthermore how can we evaluate this highly personal private experience of a confrontation with God? I am an anthropologist. My concern with religion is comparative; I encounter religion in different forms. Clearly, in terms of what we've been talking about, societies differ very greatly in the degree to which they attach respect to these states of mind in which individuals claim that they have personal contact with metaphysical being. At the present time, in Western Europe and particularly in England, a great deal of what we have been talking about is looked upon as "phoney" simply because of the strongly empirical bias of orthodox philosophy. All mysticism is somehow suspect, even the churches are very suspicious of saints who claim mystical experiences. At the other extreme you meet with societies in which mystical experience is highly valued. Here we may find that it is taken for granted that the normal way to obtain guidance as to what is metaphysically ordained is by direct personal contact

with the Deity. In such societies techniques for the attainment of mystical experience are specially cultivated. States of cataleptic trance and irrational ecstasy are considered to be within the reach of all. It would appear that this is not something which just varies randomly between individuals. If you have a society which approves of people gaining mystical experience, then most adults will claim that they have had such experiences and it will be a "normal" expectation that at any religious rite the priest or members of the congregation will achieve some kind of direct "communion" with God while in a state of trance. On the other hand, if you are in a society which disapproves of this kind of thing, the proportion of people who claim to have mystical experience becomes very small because by making such claims they are courting social disapproval. Now how do you evaluate this difference : in some societies a large number of people claim to have mystical experiences, in other societies only a small number of people claim to have them? Are they all on a par or can we discriminate one from the other?

Anthony: But in all societies some people are more perceptive just as some are more perceptive to music. Indeed, if instead of mystical experience we spoke of music . . . .

Edmund: I cannot really accept this. At the start we both assumed that by revelation we meant mystical experience; now you suggest that it simply means aesthetic experience. Do you want to use the notion of revelation in such a way that it applies equally to all knowledge of persons and all experience of beauty, as in music?

Anthony: I think that it's practically always used with relation to the divine but I don't think that it should be only part of a terminology which is specifically religious. Whenever something is being disclosed which cannot be conquered from the outside it is an act of revelation.

Edmund: Revelation then is communication? This brings us back to this business of messages. Let's admit for the sake of argument that when I am listening to a Bach fugue, I'm in communication with Bach. But in that case I can analyse the medium of communication—that's to say the music—I can show the structure of the music. I can discover the mechanism by which the musical communication is being established, in the same way that I can, by studying the phonetics, the grammar, and the syntax,

analyse the process by which language conveys any meaning to me. In the case of language the analysis of the phonetics, etc., will not tell me anything about the message that is being conveyed. It merely shows *how* the sounds are conveying a meaning. In the same way the analysis of the structure of music or the structure of colour tones in pictures will tell me quite a lot about how this medium of communication can possibly communicate anything, but it doesn't tell me what is being communicated. Now my difficulty is that when we move to the religious sphere I am told that something is being communicated, yet I'm not being shown any medium through which the communication is being established. Do you see what I mean? In the case of music or language I have sound patterns and so on which I can put on a tape recorder and tear to pieces. In the case of the religious experience, you are saying "Ah! but in the same way something is being communicated", but you're not providing me with evidence that there is any medium of communication. This is what I find difficult.

Anthony: Then how do you, as an anthropologist, interpret our knowledge of persons?

Edmund: The answer is that I don't think this form of words has great meaning to me. As an anthropologist I am ordinarily in the role of outsider. The things I discern about the relationships between the individuals are quite different from the things which they experience about each other. But the anthropologist always insists that no single relationship is simply a dyadic pair which you can cut off from the rest of society. An individual has a social personality because of the *total* position which he occupies in society. I as an outside observer can never make a direct confrontation with such a "person". There is no point at which I can treat any one individual action as isolated because it is only in the context of the wider society that he is acting at all. This is why as an anthropologist I often find that the concept of Deity appears to be superfluous. The "personal" relationship between the individual and his God which we have talked about seems to me indistinguishable from the social network of relationship which links the individual actor to his society and which thereby gives the individual a social personality. In the language of anthropologists persons and individuals are contrasted. Individuals are isolated animals; persons are human beings enmeshed in a cultural and social context, never standing alone.

Anthony: But at this point I wonder, does the fact that there is a collective experience, a sort of sum total, invalidate the objective reality of the experience of personal confrontation? And if that experience occurs within a society, even a small one such as a ghetto type, does it mean that it is an induced and a falsified experience—a sort of a fake—a thing which is man-made and to which people work themselves up in order to conform?

Edmund: I don't think it is a fake. I think there is a sense in which it's clearly man-made but this is what always fascinates me. Could it be that at this point you and I are really talking about the same thing even if we use different languages, namely that there are experiences or values which are common to a whole society and which are not the invention of any particular individual? We must both agree for example that, if you take our whole Western society at the present time, we have certain values about art and music which are peculiar to us and not shared by people who have not been brought up in our culture. You have to have a certain cultural education before you can hope to be in any way sensitive to Bach or Beethoven and so on, so that, if there is real aesthetic merit in this kind of music, it is partly locked up with the fact that we have to be educated in this particular way before we can be sensitive to it. Now in the same way, it seems to me, one has to be educated in a particular way religiously before one can be sensitive to a particular kind of religious experience, and this is where I begin to classify.

Anthony: What would you make of individuals who are brought up in complete atheism? I'm not thinking of active aggressive atheism which creates its counterpart but of a sort of practical atheism that makes God completely absent and irrelevant. Such atheists one day bump on an experience which to them is a discovery of God. There may be a very simple explanation which I don't know. I'm simply impressed by the fact that it does happen. People who are not anti-God, and therefore for whom God is not present, and who have no reason to be either for or against since God is totally irrelevant, yet discover him within a social group where he does not exist—where he is completely absent.

Edmund: Well of course, the difficulty here is that we all of us exist within a social group of some kind, in fact a whole series of Chinese boxes of social groups within groups so that our values are never free. We have already got a whole set of values which have been taught to us by the very language we use so that the

way we interpret experience is necessarily tied up with our education and our language and the categories of our thought and so on. But I don't think this means that our experiences are fake. I mean to say . . . . .

Anthony: Well, they may correspond to objective reality or they may not. They may not be fake. I mean no experience is unreal, because it's real as experience, but it may not correspond to an object of experience.

Edmund: You seem to have changed sides. Is there any way at all then of judging between more or less valid experiences?

Anthony: I think—I'm not sure I'm using the right terminology from a philosophical point of view—intuition is something which comes from the inside which may be true, and revelation is a discovery of something which is outside, comes from the outside. But I don't know of a way of distinguishing the one from the other. Whether or not a person was revealing himself, I know I had an experience that changed my life. I think that in a religious society one of the ways in which people will approach revelations is that something has come to a number of individuals as coming from outside and there is co-incidence between what they say it says.

Edmund: People agree—yes.

Anthony: People who did not receive the knowledge of the thing from each other, who received it independently, discover that they say the same thing, they know the same thing about the same thing.

Edmund: If one is being sociological and atheistical about this, one says that one way of thinking about man in society is to make this kind of dichotomy between the individual and the society, and the society is treated as a kind of collectivity which can be described. A society has certain rules, a certain structure, it has certain values; this is a sort of Durkheimian sociology. And then you reify the society and talk of the Society as if it thought, acted, worked, as a collectivity—as if it had a collective conscience—and you think of Society as imposing its will on the individual. When you've got this far it is just one possible language of description; there are other alternative ways of describing the same ideas; if you choose to turn it right over into a religious frame, you will not have moved

very far. You will have changed the words. My difficulty is to know whether, when you talk about a Deity who is external to the individual, and, who is as it were, giving messages to individuals which they pick up, you are really talking about anything different from the notion of Society as a sort of collectivity, which has a collective conscience, which imposes its will on the individual. Have I made my point?

Anthony: I think you have indeed established the equivalence of the two theoretical descriptions so far as they cover the same set of facts. To make it justifiable for me to prefer my description (and I have to admit—as the one who wants the more speculative description—that the onus is on me to justify myself) I shall have to argue that when we speak as I wish to do of direct experience of a person, I am alluding to some facts which are not brought into prominence by your sociological description. We cannot know God beyond the categories in which we can perceive and reason.

Edmund: Well, all you're saying now, surely, is that since your language limits you to talking about and evisaging entities of which you have experience in a visual, perceptive, aural sense, then if there are any kinds of direct experiences of God, and if God is extrinsic to the situation, you cannot in fact talk about this experience, because you have no language with which to do so. In that case, I, as a sceptic, have to say, well why is it necessary to talk about it? Why must you struggle to express in words experiences for which you can offer no evidence?

Anthony: I would say more than that. I think that there is, beyond the knowable and the revealable in God, something unknowable which he knows and no-one will know apart from him. I would draw a parallel also with a human person in that respect. I think that there is in every human person an unknowable element. I am not now pre-judging what will happen when science has gone far beyond where it is now, but, as far as we are concerned, there is a central core which is beyond our knowing. Simply because logically, if we could know this core as this core knows itself, or even beyond that, there would be such identification that you would be me—I would be you—and we wouldn't be discussing anything. So in that sense, I think there is in God a central core which is beyond revelation because it is him. I know these images seem and are ridiculous, but there is a point at which one can begin to know God and at that moment we discover him as the other

one. As not me. And not me in a more radical way than a collective experience or a collective reality. You see I can perceive society as being not me while I am it to a certain extent.

Edmund: You have come back again to this assertion of a highly personal belief in the awareness of the Divine "other". But can we as third parties who are not sharing in your experience have any criteria at all for "validating"? If Hitler said: "I know that I am inspired by something or other to lead the German Volk"—perhaps to disaster, what criteria have we for saying that he was wrong but you are right? Isn't it essentially important that we should have some means of distinguishing between the true prophet and the false? How do you apply your concept of a central core to personality in a case like this? All societies produce their inspired leaders who commune with God—they cannot surely all be equally "correct".

Anthony: I am afraid I haven't thought that one out. I could give you criteria that I in fact work on, but if you place yourself as a total outsider you can have no criteria. I will say that the criterion of holiness is love.

Edmund: But who is to judge? You claim to be able to distinguish love and holiness but why should I accept your claim? Surely the criterion of revelation is truth. But who is to judge what is true? As an anthropologist with a knowledge of comparative religion, I know that in very widely different societies we can meet with people who have this conviction that they have personally been in touch, face to face, with the Deity. Yet the behaviour of such people is not standardized. If you have this experience as a Pakistani mystic or a Malayan aboriginal mystic or a Christian mystic, your physical condition will not always be of the same kind. Some people will be very passive, others will be extremely active. Indeed even within a single society some may claim that divine inspiration is to be achieved by asceticism while others seek the same goal through ecstasy. Some hold that divine love is sexual, as witness the temple sculptures of mediaeval India, others that it is sexless, as witness St. Paul. Why should I prefer one road to enlightenment rather than the other? I have no objective grounds for thinking that any one type of experience has greater "validity" than any other. Yet I do not want to maintain that no such grounds could possibly exist.

Theism as a Scientific Hypothesis, III

Margaret Masterman

ICONS : THE NATURE OF SCIENTIFIC REVELATION

Synopsis of sections I and II

This essay is being written to consider what it might be like for theism to be a scientific hypothesis. To do this, even partially, involves using some new and powerful ideas, as will be shown in the final sections.

The contention of the apophatic theologians was considered, i.e. of those who say that God, being by His nature unlimited, no human intellect can ever frame an adequate account of Him; and also the contention of those philosophers and meta-mathematicians who say that, human thought-in-language being what it is, no meaningful or complete metaphysical account can ever be given of anything. With regard to the theological objection, the apparent riddles and aphorisms with which the apophatics themselves desire to bring the student contemplative to the intuitive "revealed" apprehension of God, were examined by analogy with the Japanese Zen Buddhist koans. With regard to the philosophical objection, it was pointed out that, on the philosophers' own showing, their objections do not apply to any form of scientific system or argument, only to metaphysical systems or arguments. It was concluded, therefore, that the contemplative use of koans must be supplemented by the straightforward use of fundamental scientific argument—which should provide the abstract schema to which the koans, however indirectly, must relate. It was promised to illustrate this double apophatic-cataphatic process further by considering the Christian doctrine of the Holy Trinity.

And now let us get to the heart of the whole matter of how the contemplative should use his intellect in a double manner to grasp the nature of "revealed" truth. Let us do this by examining the nature of revelation. For if we do not, any new examination of any particular doctrine, even one as abstract and general as the Christian doctrine of the Holy Trinity, is only going to seem like a clever gimmick.

* * *

Earlier it was said, in describing the nature of Zen Buddhist koans, that the object of koans was to bring the student, without recourse to the mediation of words or concepts, to direct realization of reality. . . . "The koan is not a conundrum to be solved by a nimble wit. It is not a verbal psychiatric device for shocking the disintegrated ego of a student into some kind of stability. Nor . . . is it ever a paradoxical statement except to those who view it from outside. When the koan is resolved it is realised to be a simple and clear statement made from the state of consciousness which it has helped to awaken".[1]

Proceeding from this to the doctrine of the Trinity, considered as a koan, it was also pointed out that this description of a koan was very like what Lossky, speaking from within Eastern Christianity, says of the Orthodox conception of the doctrine of the Trinity. "Theology", says Lossky, "will never be abstract, working through concepts, but contemplative: raising the mind to those realities which pass all understanding. This is why the dogmas of the Church often present themselves to the human reason as antinomies, the more difficult to resolve the more sublime the mystery which they express. It is not a question of suppressing the antinomy by adapting dogma to our understanding, but of a change of heart and mind enabling us to attain to the contemplation of the reality which reveals itself to us as it raises us to God. . . . The highest point of revelation, the dogma of the Holy Trinity, is pre-eminently an antinomy. To attain to the contemplation of this primordial reality in all its fullness, it is necessary to reach the goal which is set before us, to attain to the state of deification".[2]

Thus, for the Zen Buddhist Masters as for the Greek Christian Fathers, the new state of consciousness which the koan or antinomy has helped to awaken itself subsequently makes possible a new kind of comprehension, an increase of knowledge (though not of ordinary knowledge) in the light of which the antinomy is no longer seen as an antinomy, but as a straight statement.

This counter-intuitive, non-normal increase of knowledge, by whatever kind of statement it is subsequently expressed, I will here call "revelation".

* * *

Proceeding further, let us now consider the case of George Boole.

His name has already come up earlier in this essay when, in discussing the general nature of a koan, I asked: "Do Boole's two Idempotency Laws, $xx = x$, and $x^n = x$, count as a koan?" For

there is no doubt that, for those brought up on ordinary algebra, these represent an extremely painful antinomy. As a young philosopher of science once said to me: "Part of this Boolean stuff is quite sensible, and part is just barmy. For how can two numbers multiplied together be the same as either, and how can the square of a number be the same as itself?" Of course, scientifically, after 110 years, we have got used to these two Idempotency Laws in the sense that we can use them, combined with other laws, to produce calculations. In another sense, however, we have never got used to them. For the calculations to which they lead are themselves so counter-intuitive that really to re-envisage any fundamental structure of the Universe in terms of them needs something not less deep than a mystical "realisation" of reality, this realisation being in its turn preceded by the sudden and supernatural attainment of a new state of consciousness.[3]

So, what I now want to ask all the Orthodox (and the orthodox) is: does George Boole's discovery of the Idempotency Laws count as a revelation, in the sense of "revelation" which I have defined above?

* * *

In this definition two components of a "revelation" are immediately seen as relevant: (*a*) how the revelation occurs—what is the psychological *surround* of it, (*b*) *what* is "revealed" within this psychological surround—what the actual message is, and in what form it appears.

It is assumed by the definition, of course, that the correct psychological surround might occur when the message, i.e. the "revelation" which was revealed within it, was unintelligible or false; that the surround does not, of itself, validate the message, and that therefore there have got to be other criteria, apart from the nature of the surround, by which it can be seen whether a revelation is a *true* revelation or not. On the other hand—together with the Zen Buddhists, and the Orthodox Church, and with certain *caveats*, which are given below—I am prepared to admit the presence of the surround as one criterion of whether the revelation was *deep* or not—using the word "deep" now both in the sense in which it is used in ascetic theology[4] and in the sense in which it is currently used in science.[5] The surround of Boole's discovery was thus:

"Very soon after he had begun to study mathematics seriously, [Boole] had the idea that algebraic formulae might be used to express logical relations. In later years he told his wife that the thought

came to him during a walk in the fields while he was still a boy. The circumstantial detail in this story suggests that he had a vivid experience, something like that of Descartes by the stove at Ulm, and saw in a flash 'the principles of a marvellous new science' . . . what it was in mathematics that attracted Boole [was] . . . the beauty of generality. . . . He maintained that a mathematician must be something of a poet. . . . On another occasion he said, 'However correct a mathematical theorem may appear to be, you ought not to be satisfied there is not something imperfect about it till it gives you the impression of being also beautiful'. Towards mathematical truth he had indeed a consciously religious attitude, which he sometimes expressed to himself by the phrase, 'For ever, O Lord, Thy word is settled in heaven. . . .' Boole's behaviour during his last illness was characteristic of the man. . . . When his mind had been wandering in fever, he told his wife that the whole universe seemed to be spread before him like a great black ocean, where there was nothing to see and nothing to hear, except that at intervals a silver trumpet seemed to sound across the waters, 'For ever, O Lord, Thy word is settled in heaven'. And as he lay in bed on the borders of delirium, all the little sounds of the house, such as the creaking of doors, resolved themselves into a chant of these words, which expressed for him the excellence of mathematical truth". . . .[6]

Now, I think that there is no doubt that, from this account, Boole on that walk received a deep and non-obvious increase of knowledge which was produced by a sudden "realisation"; and that, though this was originally achieved by the spontaneous attainment of a new state of consciousness, to reproduce this new state of consciousness in others, and to make its "vision" permanently attainable, a subsequent formulation of its content had to be made which produced Boolean algebra as its message and the Idempotency Laws as its koan. But now, from the point of view of a Zen Buddhist Master or of an Early Christian Father, did Boole receive a "supernatural" revelation or not? Does his realisation, although it was a mathematical one, stand beside (e.g.) Moses' apperception, by the burning bush, of the Name of God and of his own mission to the Jews: or beside (e.g) St. Peter's vision-in-trance of the net full of variegated animals and fishes, of which none, from that moment on, was to be counted common or unclean? For there is no doubt that the psychological surrounds of all three were exceedingly similar. Nor is the force of this similarity weakened if we extend the meaning of "revelation" to include not only a set of experiences in the course of which truths were made known to individual men, but also any public set of actual events and/or acts (e.g. those

collectively known to Christians as the Incarnation) by the means of which some new truth was exemplified or displayed to a number of people at once, and over a period of time. For not only, in the public case, does the sequence of events itself act as a total public "statement" in some "language" (rather as the sequence of positions and gestures in a ballet or narrative dance can tell an allegorical story) but also, for the "revelation", in this wider and derived sense, to be understood and appropriated by subsequent generations, the set of revelatory acts performed by one person has got to be understood by other people; or rather what is being "revealed" in this public manner has to be "revealed" to these other people in the original and narrower sense of "revelation" which I have defined. Thus (in the Gospels), at the Transfiguration, and later, on the walk to Emmaus, different aspects of the universality and significance of Christ's Passion were suddenly "revealed" to various disciples in various apparitions and visions—in very much the same way as that in which the foundations of modern mathematics were "revealed" to George Boole.

Various objections, of course, instantly present themselves: that it was not only to Boole (who was a devout though eccentric Christian contemplative), and to Descartes (who was, more than is usually thought, a sincere Catholic) that mathematical revelations came, but also to a majority of men who did not hold the Christian faith, including many who held no faith at all.[7] Then there is the undoubted fact, which will be stressed by humanists, that by no means all creative discoveries in mathematics and science have come accompanied by the correct psychological surround; and yet these "normal" mathematical discoveries were perfectly good ones. Moreover, there is the notorious fact that revelations—like the charismatic utterances made by the first-century Christians who had "the gift of tongues"—need interpreting, and nobody is ever sure that they have been interpreted rightly; especially as they are usually not best or most fully understood within the conceptual tradition within which they first occur and the members of which first preserve them. And finally, there is the objection which is always brought up against the possibility of there being any objectively true revelations whatever, which is that every revelation presents itself against the conceptual background of the man or woman who receives it: no Buddhist ever had a revelation of Our Lady, no Catholic of the Buddha.

Before we deal with the objections to it, however, let us look again at the phenomenon; for that *some* revelatory experiences have occurred to some men and women, the messages of which

subsequently "worked out right" in some sense, while also the experience came with the correct psychological surround—this qualified assertion would be hard to deny. And the current unsatisfactory situation is that whereas, whenever humanists and religious believers meet to discuss the nature of revelation, the humanists always wholly demolish the believers by bringing forward the crippling objections to the validity of revelation which I have listed above, the humanists themselves, having won the argument, usually go away with the sneaking suspicion that that of which they have so cogently demonstrated the impossibility does in fact occur, which leaves them in a divided and unhappy state of mind. I am going to assume here that indeed revelation does occur, and that we know it does; so that the real problem is that of giving a defensible and rational account of it, in the light of which we can re-examine the objections to it afterwards.

This I shall do by saying that there is a third characteristic of revelation which I have not mentioned yet, and that is that the message which is revealed is always an *icon* of deep truth. And here by "icon" I do not mean *only* what the Early Greek Fathers meant by "icon", though, in essentials I do indeed mean this; and I do not mean *only* what the great American logician Charles Sanders Peirce meant by "icon", though, in essentials, I do mean this also; *what I am saying here is that revelation combines the two.* For, if the modern Orthodox would only discalce their minds, they would see that what their own authentic (and Greek) tradition was trying to arrive at was, bar a hairsbreadth, the same notion of "icon" as that which Peirce, in the nineteenth century, was again trying to arrive at, though with more exactness and with a more explicitly logical orientation; and if the modern humanists would stop trying to be so psychologically refined, and would turn themselves into Orthodox and re-allume their hearts, they would see that what Charles Sanders Peirce was struggling to tell them (Peirce, like Boole, being another of these crusty Protestant Fathers-of-the-desert, born out of time[8]) was that his icons, like the Orthodox ones, transfigure in a fundamental manner what you see through them, in such a way that a true and deep scientific illumination, by their help, can alone occur.

Now, *if* I am right in saying that the two senses of "icon" can be combined, then revelation is quite simple to understand; it's just a counter-intuitive deep experience which gives you an icon. Moreover, *if*, as I say, I am right in asserting this, then all the humanist objections to revelation melt away like warm snow. For the Peircean sense of "icon" enables you to provide criteria for the

nature and scope of the icon's truth; whereas the Orthodox sense of "icon" enables you to provide criteria for the icon's genuine depth and originality. The criteria of truth I will deal with properly and in detail next time, when discussing the nature and concreteness of scientific paradigms. The criteria of originality I will deal with now, in the course of trying to make clearer what I mean by the general notion of the icon itself.

According to Pierce,[9] and in brief, an icon has the following characteristics :

(i) An icon has a *character* (i.e. a structure) which would still render it significant, even if there were no existent to which it referred—e.g. a picture could be an icon.

(ii) An icon need have no sensuous resemblance to that to which it refers, but there can be an *analogy* between the relations of its parts and those of the object to which it refers—e.g. a diagram.

(iii) The handling of this analogy can be assisted by *the formulation of* conventional *rules* for operating it—as in an algebraic formula.

(iv) Icons are *revelatory,* but in a logical sense. "A great distinguishing property of the icon is that by the direct observation of it other truths concerning its object can be discovered than those which suffice to determine its construction". . . . "This capacity of revealing unexpected truth is precisely that wherein the utility of an algebraic formula consists" . . . "suggesting in a precise way new aspects of supposed states of things". . . .

(v) Icons *reveal relations* between entities, rather than entities. Algebraic formulae are icons because they exhibit (by means of algebraic signs which are not themselves icons), the relations of the quantities concerned.

(Note : Icons are to be contrasted with "indexes", or "signs". A rolling gait is the *sign* of a sailor, because there is a causal connection between the pitching and rolling of the ship on which the sailor has to walk, and the adaptive characteristic—i.e. the rolling gait—which he develops as a reaction to it, and by means of which he can subsequently be identified. Between the icon and its object there is no such causal connection. Icons also have to be distinguished from "symbols", e.g. words, where the connection between the sound or graph and what it symbolizes is nearly always purely arbitrary.)

The Orthodox icon has the following characteristics :[10]

(i) The icon has a *character* (i.e. a subject, a design and a style) which would still render it significant (i.e. a subject of aesthetic

study) even if there were no existent to which it referred. e.g. the icon can be a picture.

(ii) An icon need have no sensuous resemblance to that to which it refers, but can indicate *an analogy* between the relation of its parts and those of the object to which it refers, as in a diagram.

Thus, while being concrete, Orthodox icons can also be *abstract;* as was clearly known to those Greek Fathers who said that the architecture and organization of the city of Byzantium was an icon of heaven; and that Christ (the Logos) was an icon of God. In this same abstract but Orthodox sense of "icon", scientific theories also would be "icons of the energies of God".[11]

(iii) The handling of this analogy can be assisted by the *formulation of conventions* for operating with it, e.g. by the conventions of icon painting.

(iv) Icons are *revelatory,* but in a mystical sense. They can have the property of giving those who use them rightly a whole sudden vision of that heavenly world which underlies the sensory real world, so that, in accordance with that vision, those who see it may change their whole lives.

(v) Thus, icons are *transfigurational* : they are dynamic : not in the sense (underlined by Peirce, above) that transformations can occur between the components of the artefact (as they can between the formulae of an algebraic system), but in the sense that they are tools which effect transfigurations.

(In this way they are like koans; but they are unlike koans in that their structures can be developed, and inferences made from them, in a rational (i.e. a cataphatic) manner.

Icons are to be distinguished from *replicas* (since each painted icon, and each abstract icon must be an original); from *photographs* (which are narrowly realistic representations of an object); from *heraldic devices* (which are not realistic enough); and from Peircean *signs* and *symbols* (see above).)

Now, if you combine the two senses of "icon" which I have given above, it at once becomes evident that there are two iconic ways *both of doing theology and of doing science.* In the first, you can take the *iconic vehicle* at its face-value, increase your grasp of it, and try to develop it, but in an opaque and second-hand way. In the second, you use the icon as a vehicle for immediate revelation, thus doing "theologia" in the authentic sense; I shall call this second activity *discerning the icon.* Thus I distinguish the *iconic vehicle* (which is always some sort of publicly accessible artefact, whether painted picture or constructed system, or model) from the icon itself,

which is the symbolic concrete clothing of the private dynamic "vision" which the man has to whom the icon is "revealed"; e.g. the actual moving net full of beasts which St. Peter saw, as opposed to any paintings which were later made of it.

I shall not discuss here whether or not those experiences which have later been thought of as revelatory, in the canonical scriptures of any of the religions, have or have not put those who received them in the possession of a new icon, or whether my *icon* is or is not the same as St. Thomas' *species*; here I shall assume that revelation yields an icon.

In order to make clearer the difference between developing the iconic vehicle and discerning the icon, I will now, with the help of a logical system derived from Boole's insight, construct a mathematical iconic vehicle of the Christian Trinity; and I do this in all seriousness, not as a gimmick, since I think that Boole, in setting up his *Laws of Thought,* had a Trinitarian revelation as well as an Idempotent one.[12]

Icon of the Christian Doctrine of the Trinity: seen as an 8-element Boolean Lattice.

(a) *The necessity of working within a binary system.*

In order to get any mathematical icon whatever of the Trinity, we must first establish postulates which will take us right out of the particular world of ordinary numbers.

We will therefore use the two signs 0 and 1 to serve purely as markers with no numerical significance attached to them.

(b) *Triads.*

Using these two numbers, the first step, in constructing the system, is to *exhibit* three-ness within it by causing its elements to consist of a set of *triads,* each triad consisting of a 3-digit sequence of 0s and 1s. (Note that we cannot, within the system, *count* these triads, since the system does not itself contain the number 3.) We allow all possible such 3-digit combinations as elements of the system. There are eight of these: 111; 110, 101, 011; 100, 010, 001; 000. Note that these triads fall into a patterned set of ranks (marked above by the semi-colons) according to how many 0s or 1s they have. The first rank has only one member, namely the triad consisting entirely of 1s; the three triads in the second rank each have two 1s and only one 0; the three in the third rank have two 0s and only one 1; and the single triad in the lowest rank has nothing but 0s.

Using this ranking, we can set the triads out on the page in a balanced way, thus:

	111	
110	101	011
100	010	001
	000	

This way of setting them out makes it clear that we are not here thinking of the triads as numbers at all. There are many ways of re-interpreting them; I propose that we think of them as *states of information*. Thus the triad 111 represents the state in which *full information* is present; the triad 000 represents the state in which no information is present; and the triads in between represent the set of possible states in which *partial information* is present.

(c) *The relation of greater-than-or- equal-to* ($\geqq$)

We have spoken of the set of triads as a set; but we have not yet established any set-relation between them. We will do this by postulating that the very general notion of "greater-than-or-equal-to" (also called the relation of *inclusion*) holds between triads of the set. It is this relation which, operating upon an "0–1" system, brings the generalizing power of the Idempotency Laws into play. Even in such an inclusion-system which has only one element, x, $x \geqq x$; that is, x is greater-than-or-equal-to itself. So the inclusion-relation *can hold whether the two elements concerned in the relation are distinct or not.*

(d) *Specifications of the inclusion-relations of the system*

We can now say that this relation of greater-than-or-equal-to shall so hold between the elements of the set which we are constructing that:

(i) any triad shall include itself.

(ii) triads in which fuller information is present shall include triads in which lesser information is present *except where* the triad representing the lesser state of information has a 1 where the triad representing the greater state of information has a 0. Thus, the triad 101 does not include the triad 010, but (e.g.) the triad 110 does include the triad 100, because the 1 in the second triad, 100, is in the same position as a corresponding 1 in the triad 110, whereas the 1 in the triad 010 corresponds to an 0, not to a 1, in the triad 101.

(iii) Given any three triads, x, y, z, if $x \geqq y$ and $y \geqq z$, $x \geqq z$. (This requires not only that the elements between which the

inclusion-relation holds need not be distinct, but also that they need not be in contiguous ranks).

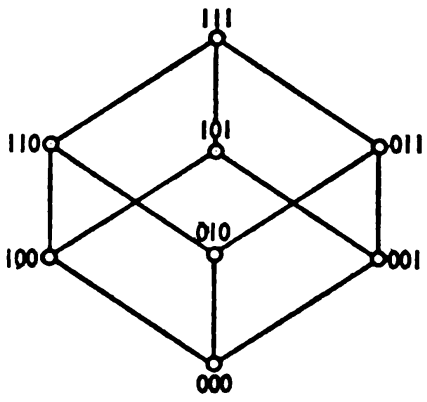
On these three conditions, the inclusion-relations holding between the triads of our system will be :

(From condition (i)) : $111 \geqq 111$, $110 \geqq 110$, $101 \geqq 101$, $011 \geqq 011$, $100 \geqq 100$, $010 \geqq 010$, $001 \geqq 001$, $000 \geqq 000$; (From condition (ii)) : $111 \geqq 110$, $111 \geqq 101$, $111 \geqq 011$; $110 \geqq 100$, $110 \geqq 010$, $101 \geqq 100$, $101 \geqq 001$, $011 \geqq 010$, $011 \geqq 001$; $100 \geqq 000$, $010 \geqq 000$, $001 \geqq 000$; (From condition (iii)) : $111 \geqq 100$, $111 \geqq 001$; $111 \geqq 000$, $110 \geqq 000$; $101 \geqq 000$, $011 \geqq 000$.

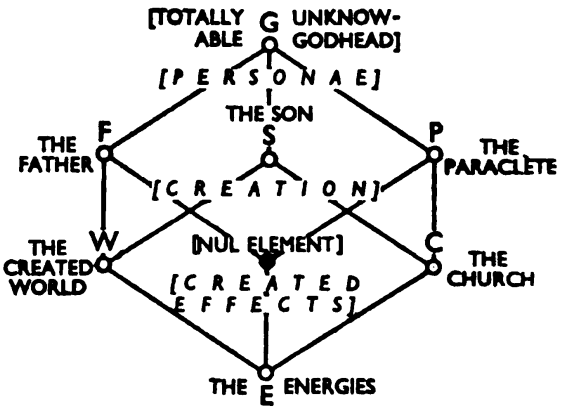
(e) *The Hasse Diagram.*

We can make a simplified picture (called a Hasse Diagram) of this system of inclusion-relations by representing the eight triads as eight points arranged in four ranks (as in (b) above), and then drawing lines as inclusion-relations between them on criterion (ii) (as in (d) above [see Diagram A]. In other words, we can depict graphically any situation where the inclusion-relation holds between the two triads which are distinct; but we cannot graphically depict any situation in which an inclusion-relation holds between a triad and itself; and if we try to depict graphically the non-contiguous inclusion relations, we find the lines depicting these fall on top of lines already drawn. Such a simplified picture is sufficient, however, to distinguish any finite idempotent system from any other.

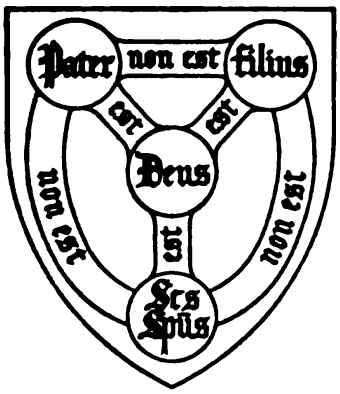
In such a picture, the inclusion-relation goes down the page from top to bottom.



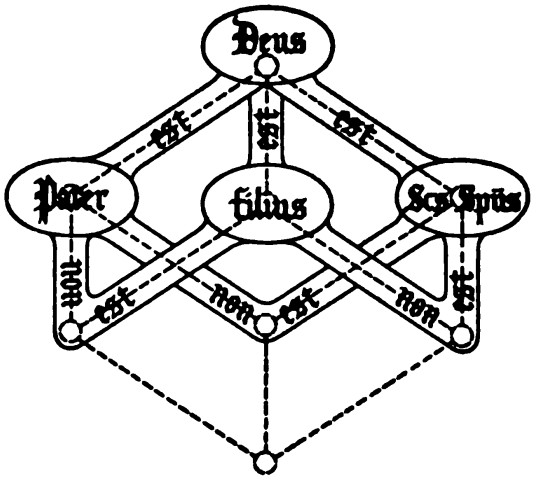
A Binary mathematical interpretation of the Boolean lattice of eight elements. (Hasse diagram)



B Orthodox Trinitarian re-interpretation of A



C Medieval symbol of the Holy Trinity.[13]



D Mapping of Conto A.
(Note correct positioning of complementary points.)

(f) *Remarks on the mathematical centrality of the system.*

The system which we have just constructed can be regarded mathematically in several ways:

(i) As a Boolean algebra.

(ii) As a partially-ordered set. (i.e. as a set of elements interconnected by the $\geqq$ relation).

(iii) As a particular kind of partially-ordered set called a *lattice*.

A lattice is a partially-ordered set in which it is true of any two elements, x and y, that there is within the system a unique element, $x \cup y$ (called the *join* of x and y) constituting a *least upper bound* (supremum) of x and y; and also a unique element $x \cap y$, (called the *meet* of x and y) constituting the *greatest lower bound* (infimum) of x and y. The idempotencies of the system arise from the fact that, whatever element x may be, both the join of x and x and the meet of x and x is x itself. The fact that the system is a partially-ordered set shows itself in that if, of any two distinct elements, x and y, $x \cup y = x$ and $x \cap y = y$, then $x \geqq y$.

Thus, [see Diagram A] of the two elements (e.g.) 110 and 100, $110 \cup 100 = 100$, and $110 \cap 100 = 100$, because $110 \geqq 100$. But of the two elements (eg.) 110 and 011, which do not include one another, $110 \cup 011 = 111$, and $110 \cap 001 = 010$. (In other words, to find the *joins* of two triads you combine their 1s, whereas to find the *meet* of two triads you combine their 0s.

(iv) The system can also be regarded as an information-system as in (b) above).

(g) *Remarks about the system considered as a Boolean Lattice.*

Considered as a lattice, the system which we have just constructed is the very well-known Boolean lattice of three minimals, the "cube" lattice. It is exceedingly useful because it can equally well be considered as an algebra, as a partially-ordered set and as a lattice. Not all partially-ordered sets are lattices (consider, for instance, a two-branched tree with, say, seven elements), and not all lattices are Boolean, in that not all represent the maximal number of inclusion-relations between their elements (consider, for instance, the 8-element "lantern" lattice, which has one point at the top, and one at the bottom, and the other six in a single rank in between). The system which we have just constructed is therefore, in the mathematical world of idempotent systems, a cardinal one, about which it is possible to think a number of pure mathematical thoughts of many kinds. It is not the only finite Boolean lattice; the Boolean lattices go up in size, within lattice-theory, by having the numbers of their elements correspond to the sequence of the powers of two : i.e. 2, 4, 8 (our lattice), 16, 32, etc. But, like all Boolean lattices, it is a fully *complemented lattice* (i.e. every point in it has a corresponding opposite point; contrast it, for instance, with the "limping lattice" of five elements, the Hasse Diagram of which is made by drawing four points in a diamond, adding an extra point on one side, and then joining them all up in a ring). It is a *modular* and a *distributive* lattice (modularity and distributiveness both being properties which define differing types of regularity); it is a *self-dual lattice* (i.e. if you turn Diagram A upside down the same shape re-occurs); and it is the lattice formed by the "centres", or boundary-markers, of the three factors in any three-factor product-lattice, no matter what shape the lattices which constitute the three factors of the product-lattice may be.

Some of these properties, though not all, will be used in what follows.

We have constructed the system, or schema; let us now convert it into an icon—or rather, into an iconic vehicle [see Diagram B]. That it is not entirely a theological innovation to make an abstract schema of the Trinity is shown by the frequently found mediaeval diagram given in Diagram C, which can be mapped on to the cube-lattice.

To return now to the iconic vehicle given in Diagram B. If we develop this vehicle, we find that we can now think quite a number of mathematical thoughts which are analogous to thoughts which

theologians have thought of the Trinity. Among these are the following:

(i) God can be conceived in His unknowable Essence, *G*, as well as in any of His Personae, *F*, *S*, or *P*. When He is conceived in His Essence, we shall say that $F \cup G = G$, and that He is being conceived in the aspect of His *supremum*. When He is conceived as *F*, i.e. in His Persona as the Father, we shall say that $F \cap G = F$, and that He is being conceived in the aspect of His *infimum*. But, since $F \cup G = G$ and $F \cap G = F$, therefore $G \geqq F$; so there are not two Gods, but only two aspects of one God.

(ii) God in His Essence, *G*, is complementary to God seen in His Energies, *E*. But (under condition (iii), given earlier) $G \geqq E$. Therefore (as St. Gregory Palamas said) there are not two Gods, but only two aspects of the same God.

(iii) From God the Father as conceived in His Essence, $F \cup G$, is begotten the Eternal Son, seen as God seen in His *infimum*, $G \cap S$. But $(F \cup G) \cap (G \cap S) = S$, and $(G \cup S) \cup (F \cup G) = G$; therefore $(F \cup G) \geqq (G \cap S)$. So again, here are not two Gods, but one God.

(iv) Similarly, substituting *P* for *S* in (iii), we can show that the Paraclete, seen as God in His *infimum*, proceeds from the Father (but not from the Son, for there is no *Filioque* inclusion-relation in this icon).

Thus we have shown the Trinity of God, "neither confounding the Persons, not dividing the Substance"; and the Son, "equal to the Father concerning His Godhead, but inferior to the Father as concerning His Humanity".

(v) Consider now the 4-element Boolean sub-lattice $G \geqq S$, $G \geqq P$, $S \geqq C$, $P \geqq C$. This shows the Church, *C*, proceeding from the Son, *S*, and the Paraclete, *P*. That the Church is Divine is shown by the fact that $C \cup S = S$ ("the Church is the Body of Christ") and that the Paraclete works within the Church is shown by the fact that $P \cap C = C$; i.e. the Paraclete, seen in His *infimum*, is the Church. Moreover, when we say $(C \cup S) \cup G = G$, or, $(C \cup P) \cup G = G$, we show the very humanity of the Church being taken up into God.

Take now the corresponding 4-element Boolean sub-lattice $G \geqq F$, $G \geqq S$, $F \geqq W$, $S \geqq W$. This shows how the Father, (in His *supremum*) through the Son, created i.e. includes the world; and how the Father (in His *infimum*) together with the Son, includes the world. And, if the two corresponding sub-lattices

be compared, it will be seen that the Divine Church is complementary to the created world; and that the created world itself is, in its Essence, Divine.

(vi) The direction of the inclusion-relation in the icon shows that God empties Himself (of information) in creating the world, while yet remaining God; and that, seen in its Essence, everything is transfigured, i.e. carried up the lattice into union with God.

(vii) If we substitute the dual of the lattice for the lattice (i.e. if we turn Diagram B upside down) then, while the whole dynamic patterning remains the same, since the lattice is self-dual, we get an icon of what it looks like to our eyes. For first we see the Energies, the manifestations of God; then, proceeding further we see, on the one hand, the divine springs of natural creation, and, on the other, the divine springs of the Church, i.e. of man "as he shall be". Proceeding further yet, we glimpse the Personae; and beyond that again, apprehension comes to an end in the unknowable Essence of God. And, as we go further and further, the state of information grows greater; i.e. everything becomes not less, but more, real. . . .

Of course it can be objected that, by thinking this way, we only make it possible to think about the interrelations between the different aspects of God, not about the nature of the Personae. It can also be objected, by those who think it wrong to press mathematics into the service of theology, that to mathematicize human thinking about the Doctrine of the Trinity makes this doctrine trivial; (but similar iconoclastic objections can be made, *mutatis mutandis,* against the use of any icon). What is clear is that whoever in this day and age derides the doctrine of the Christian Trinity, will not be a scientific humanist (he is much more likely to be a Protestant theologian). For I have shown strong reason to think that the Early Greek Fathers were feeling after a very general way of thinking, which, centuries after, other men have mathematicized, and which, as there is coming to be increasing reason to believe, may be fundamental for thinking about the foundations of the Universe itself.[14]

* * *

We have developed the vehicle; now what about the deep activity of discerning the icon?

The difficulty about this is, that Christians, as of now, do not believe in the Trinity; or rather, as Teilhard de Chardin said, they believe by convention, not by conviction. And here we see the devastation made by "leap of faith" theologians who separated the

foundations of "revealed" theology from the foundations of what they thought of as unrevealed truth. They meant well; for (using my language) they wished to stop people eternally developing iconic vehicles of one sort or another; they wished to recommend the activity of discerning the icon. But because they did not make the effort to understand, in a comparative-religion way, what it was that they were doing in recommending this, they produced in their readers a despairing state of affairs in which, since faith was not allowed to leap from natural truth, but only from dogma, dogma itself began to be regarded as folklore or poetry. For men could not so make the "leap of faith", however much they desired to; (and beatniks and teenagers are now so furious about their inability to do it that they have many of them taken to drugs instead); for who would worry about extravagances in folklore, or about koans occurring as lines of poetry? In order even to understand what it is like to discern the icon—I do not say to do it, for this requires grace, but to understand what it is like—you have to imagine what it is like to come to an antinomy, a conceptual impasse, in some way of thinking which, using to the full your native wits and five senses, you think is supremely important, and which, right down to the very core of your being, you accept as ordinarily *true*.[15]

Suppose now—as some people have—I try to connect the Trinity icon with ordinary reality, by saying that (somehow) the three Personae connect up with, or in some other way stand for, the three great branches of knowledge, physics, biology, psychology. I now ask myself what I am really saying in saying this; for clearly I am not merely saying that reality is a cube. I start (from the cube) by going behind the Hasse diagram to the full richness of the algebra which it pictures; I use this algebra not in isolation, but to indicate the centricity of a three-factor product lattice, each factor (somehow) representing one of the three branches of knowledge. The factors would have to be infinite, clearly (that's the first trouble; what happens to the lattice formed by the centres in an infinite three-factor product lattice?). Leave that, for the moment; *how* does each of these factor-lattices represent a branch of knowledge? Well, all the sub-systems of knowledge within them would have to be mappable (somehow) on to the factor-lattice. *How*? Leave that, for now. What, *in reality,* are these sub-systems (notice that the meditation is coming more real)? They would have to be information-systems (and suddenly, I sit up; for that is what, in my deepest core, I believe they are). And here's real trouble; for, the moment reality is looked at as information, *there cease to be three factors;* there is only one information-system; there's got to be.

Well then, what is it like? Is it personal? Yes, it's got to be; for a person, on this showing, is only an information-system rich enough to reproduce itself. (Do you believe that? No, of course I don't; the truth's infinitely more complicated; but leave this for now.) Well then, *what is this information system-of-systems like?* Press, try hard to imagine what it is like (for this is truth we're after, this matters) until you realize that you utterly can't imagine what it is like. But don't give up; try harder . . . try harder . . . become obsessed with it; day and night . . . day and night.

This is as far as anyone can take you; i.e. to the point where something *must* and *can't* be imagined, because the point where it must be imagined is just at the point where all fades.

If grace takes over, and if you are George Boole, you will come out with a new icon.

* * *

In the next instalment of this essay, which will go further into the nature of scientific icons or paradigms, and discuss how they are developed and how they finally crack—i.e. into the philosophy of the nature of scientific revolutions—the first half of "Theism as a Scientific Hypothesis" will be concluded.

NOTES

[1] Isshu Miura and Ruth Fuller Sasaki, *The Zen Koan* (Dust Cover).

[2] Lossky, *The Mystical Theology of The Eastern Church,* p. 43.

[3] "Intuition" is a highly ambiguous word. "Counter-intuition" is here used, as in mathematics, to mean counter to what seems obvious to common sense. Some fundamental discoveries confirm and crystallize, in a brilliant way, what everyone else was thinking and hoping would turn out to be the case. Such discoveries can be profound, yes; but they also accord, though at a very deep level, with our own more superficial and normal common-sense intuitions. Other discoveries (such as Boole's) do not; they are "counter-intuitive", as scientists say, and they shock. It is counter-intuitive discoveries of this second type which, according to me, tend to occur as "revealed".

[4] Cf. for instance St. Paul, *Romans* 11.33: "the depth of the riches of the wisdom and of the knowledge of God".

[5] Fred Hoyle in *The Black Cloud* makes the Cloud, before it moves away, say that it is seeking a solution to the "deep" problems, among which is that of the possible existence of larger-scale intelligence than ourselves in the Universe.

G. H. Hardy in *A Mathematician's Apology* also discusses "deep" theories in mathematics.

[6] William C. Kneale, "Boole and the Revival of Logic", *Mind,* N.S., Vol. C. LVII, No. 226, April 1948.

[7] There is, of course, a considerable literature on the psychological conditions of creative discovery. Koestler in particular has written about this in *The Sleep Walkers*. He gives case studies of the imagination, at once bizarre and seer-like, behind the work of some of the great scientists such as Kepler. Though his factual accuracy in some places has been questioned, he makes a strong case for his main thesis, that these discoveries have come in non-obvious ways, in non-obvious contexts, and with non-obvious symbolism. In calling these experiences "revelatory", I am not overlooking the common objection that they bubble up from "the sub-conscious". But if everything in human experience which we cannot understand is to be relegated to a kind of indefinitely elastic psychological bin called the Sub-conscious, I am by no means the only scientific humanist who is beginning to get awkward about this. If the human Sub-conscious is now going to be imagined to include the whole Universe, not to mention also its Ground, then it is a totally useless concept which explains nothing; and the postulate of its existence should be abandoned forthwith. Of course discoveries and "revelations" come up into perception from below consciousness: we know this; but how? Why? And response to what?

[8] William James wrote of him: "I am amused that you should have fallen into the arms of C. S. Peirce . . . but the way you treat him is after the famous 'nettle' receipt; grasp firmly, contradict, push hard, make fun of him, and he is as pleasant as anyone, but be overawed by his sententious manner and his paradoxical and obscure statements . . . and you will never get a feeling of ease with him any more than I did for years, until I changed my course and treated him more or less jokingly. I confess I like him very much in spite of all his peculiarities, for he is a man of genius, and there is always something in that to compel one's sympathy" (quoted by W. B. Gallie, *Peirce and Pragmatism*, Pelicans, 1952, p. 38). George Boole's actual "eccentric" way of life, when he lived in Ireland, and Peirce's, especially during the period during which he lived in intellectual isolation and almost as a hermit, are both reminiscent of tales of the Early Fathers.

[9] Cf. Justus Buchler, *The Philosophy of Peirce* (London 1940), pp. 104–107.

[10] In this conflation of the sense of Peircian "icons" and the Orthodox "icon", I owe a considerable acknowledgement to some unpublished work of Dorothy Emmet and to informal discussions with her.

In Orthodoxy the "icon" is a picture which conveys the impression of humanity turning into something else. The "Transfiguration" not only of humanity but of the whole cosmos is central. (cf. Uspenski, *La theologie de l'icone dans l'eglise orthodoxe,* Paris 1960; and P. Sherrard, *The Art of the Icon, Sobornost,* Winter to Spring 1962.) On the one hand there is a picture of a man who is a saint or a hesychast praying. His face looks impersonal. He is elongated; his body is no longer heavy but has become light. Yet his face gives the impression of a genuine individual. At the same time the conventions of this kind of painting, e.g. haloes, symbolic animals, doves, jewelled surrounds, convey the turning of natural reality into glorified reality. These are conventions, like heraldic conventions, but while heraldic conventions indicate heroic ideals, iconic conventions indicate contemplative ideals. They convey the impression of that transformation of the natural world which can be seen actually beginning to happen in the face of the saint of hesychast in prayer. This may be what Lossky (*Memorial V. Lossky, Messager* No. 30–31, pp. 170–172) means when he speaks of the Orthodox Tradition as seeing nature "dynamically", not "statically" as he thinks science sees it. In fact however Lossky is wrong about science; science is based on seeing the world dynamically. Writers about icons stress also that the "Tradition" in Orthodoxy means not a body of teachings so much as a repeatedly illuminating style of statement which has the capability of triggering off, or promoting the experience of transfiguration;

i.e. a set of koans. What the Orthodox don't face (being in this like all other Christians) is that the very symbols of the Tradition, even in this deep non-literal sense, may have to change so that the possibility of transfiguration may be preserved.

[11] St. Gregory Palamas spoke of the Divine Energies as God expressed in creation. (See *St. Gregoire Palamas et la mystere orthodoxe*—Jean Meyendorp. *Editions du Seuil*).

[12] He wrote a sonnet to the Number Three which echoes the sentiments of St. Gregory Nazianzen on the Trinity: "the ineffable radiance common to the Three". (Cf. Lossky, *Mystical Theology of the Eastern Church*, p. 43.)

[13] See *Dedication of English Churches: Ecclesiastical Symbolism, Saints and Emblems*, by Francis Bond. Oxford University Press, 1914, p. 25 (two variants of the mediaeval geometrical emblem of the Trinity).

The existence of this schema, and the possibility of the mapping, was pointed out to me by Mother Geraldine Mary, sometime Superior of the Society of St. Margaret, East Grinstead.

[14] See, for instance, O. M. Nikodym, *The Mathematical Apparatus for Quantum Theories, Based on the Theory of Boolean Lattices*, Springer-Verlag, *1966*.

[15] Cf. Lossky's telling remark that "If Tradition is a power of judging in the light of the Holy Spirit, it obliges those who want to know the truth of the Tradition to incessant efforts; one does not rest in the Tradition by a certain historic inertia, guarding as 'a tradition received from the Fathers' everything which by force of habit flatters a certain devout sensibility". (Translated from *Memorial, V. Lossky, Messager*, 30–31, p. 112).

Models and Mystery

R. B. Braithwaite

The Bishop of Durham has developed, while Lecturer at Cambridge and Professor at Oxford, a distinctive way of approaching questions of philosophical theology which he has, alas, so far expounded only in a series of small books based upon lectures. *Models and Mystery* (1964) (*MM*) is but one of these; and I shall also refer to *Religious Language* (1957) (*RL*), *Religion and Science: Conflict and Synthesis* (1964) (*RS*), *Christian Discourse* (1965) (*CD*), since I wish to comment upon I. T. Ramsey's fundamental notion of a situation in which there is a *disclosure* or an *insight* or a *discernment* (he uses these terms as near-synonyms), and this concept plays a large part in all four books. On my reading of Ramsey the key concepts in his philosophy of religion are disclosure and commitment. "Model" is indeed one of his key words, but he seems to use it in different senses which do not overlap, so that no one core

of meaning can be found running through the uses. In Chapter I of *MM* he usually uses "model" in the fairly exact way in which it is employed by contemporary philosophers of science (including myself) to stand for something which is *not* the scientific theory for which it is a model, but which has such a degree of formal similarity to this theory that thinking about the model may serve, for certain purposes, instead of thinking directly about the theory. Ramsey's "picture models" are of this kind. Ramsey soon passes from these to what he calls "disclosure models" which, along with metaphors, are "rooted in disclosures and born in insight" (*MM* 50); and here he seems to be abandoning the distinction between a theory and a model for it, and using the term "model" as a synonym for a schematic or partial or approximate theory, a theory put forward to cover only certain aspects of the phenomena in question. Economists and other social scientists frequently use "model" in this way. But if it is so used, it cannot also be used to contrast with the theory for which it is a model. So I cannot consider model as being one of Ramsey's key concepts; and shall instead concentrate on his concept of disclosure or insight or discernment. The "models" of Ramsey's to which I shall have occasion to refer all fall into his class of "disclosure models", and I shall refer to them as theories or hypotheses (except when quoting Ramsey).

We all speak of scientific "discoveries"; and when the discovery has been made by connecting two concepts previously thought to be unconnected (e.g. Maxwell's discovery that light is an electromagnetic phenomenon), we speak of the "insight" or "discernment" of the scientist who had the creative imagination to think of the connexion. The insight here consists in thinking of a scientific hypothesis and putting it forward as a *conjecture* (to use one of K. R. Popper's key words). Whether or not the conjecture comes to be accepted as true (or approximately true) depends upon whether or not it stands up to the test of "deductive experimental verification" (Ramsey's phrase: *MM* 21). If it does so, it will in popular scientific literature be called a "discovery", and the scientist making it will be praised for his discernment and insight. But this will all be hindsight. When the scientist conjectures the hypothesis, it is not *disclosed* to him that it is true. Indeed most conjectured hypotheses turn out to be false. Science progresses largely through highly intelligent conjectures being refuted by the test of experience.

Ramsey would not disagree with this; for he contrasts theological theories (models, as he calls them) with scientific ones, and says that the former are not to be judged by whether or not they lead

to "verifiable deductions", but instead are to be tested by "the method of empirical fit". "As a model in theology is developed, it rather stands or falls according to its success (or otherwise) in harmonizing whatever events are to hand" (*MM* 17). Now if by "empirical fit" and "harmonizing events to hand" Ramsey means that a theological theory, like a scientific theory, serves as an explanation of how events in the world are connected together, he would be treating theism as a scientific hypothesis and arguing for it by some form of the very respectable (although, I think, unconvincing) Argument from Design. But this would be inconsistent with his holding that a theological theory is not subject to "deductive experimental verification", and that models (theories) which "work in terms of . . . empirical fit" have "links with observable facts [which] are not predictive, after the fashion of scientific models" (*MM* 38), for such links are essential parts of the way in which a scientific theory works as an explanation. So Ramsey's "empirical fit" must stand for something different from the sort of explanatory harmonizing which is characteristic of scientific explanation. What, then, is it? The clue comes, I think, from his regarding assertions about oneself as paradigm cases both of empirical fit and of disclosure.

In two of his books (*RL* 113, *RS* 42) Ramsey cites the Nathan-David encounter of 2 Samuel 12 to exemplify what he means. Nathan tells David the story of the rich man who steals the ewe lamb which is the poor man's sole possession. After David has expressed his condemnation of the rich man, "Nathan challenges David, 'Thou art the man', and the penny drops—there is a disclosure indeed" (*RS* 42). Ramsey goes on to say, and in italics for emphasis, "David's awareness of himself subjectively is given along with the discernment objectively of a moral challenge". Such a situation is one "which *subjectively* transcends the spatio-temporal and assures us of our religious individuality; and *objectively* it appears as a moral challenge to which we answer . . ." (*RS* 43). Though Ramsey mentions other cases in which awareness discloses something (in *RL* 24 he says that "all experience is *of* something", philosophically a most disputable *obiter dictum*), his strongest case for there being a disclosure is certainly that in which the awareness is a moral awareness, where the discernment is intimately linked to commitment.

Now there are many difficult problems about commitment, both (as I think) unimportant problems like that of how to discriminate a particular kind of commitment as moral, and important problems like that of how to account for the non-fulfilment of a commitment

through "weakness" or "division" of will. However the concept of commitment to a particular policy of action seems to me a reasonably clear notion. But this is not so with the discernment of something objective which Ramsey associates with commitment. Kant, whom Ramsey cites (*RL* 30), regarded the Moral Law as something objective known by a man when he acts "from a sense of duty"; and in his *Religion within the limits of reason alone* Kant identifies God with the Moral Law. But, as Ramsey knows, many contemporary moral philosophers would deny that to act from a sense of duty presupposes a knowledge of something outside the agent, and would give exactly that explanation of why we are tempted to speak of duty in pseudo-cognitive language which Ramsey gives of an enthusiastic angler's using cognitive language when questioned by a philosophic friend. " 'Why did you wish to go fishing [yesterday]?' 'Because I wanted to fish?' 'Why did you want to fish?' 'What a question! You know what fishing is for me. Fishing is fishing. Why did I want to fish? Because I'm I'." (*RL* 41). These tautological answers in "final" form (as Ramsey calls them) serve to stop the questioning, since they imply that there is no answerable question to answer. In a similar spirit many philosophers today would say that the function of such a statement as "It's my duty to do so-and-so" is to stop further questioning as to the reason for doing so, and that a further question "What is the reason for doing your duty?" can only be answered by the tautology "Duty is duty".

Where, then, is the objective fact which the angler discerns in his situation? Ramsey calls his reply "I'm I" the "tautology which expresses the subjective response". I should describe it as a remark which in the context is made to express *commitment* to a policy, to show that (to use Ramsey's words) "fishing was, for him, that on which his whóle life was centred". And Ramsey calls his other reply "Fishing is fishing"—the "tautology which expresses the claim of the 'object' "—an "objective counterpart of 'I'm I' " (*RL* 42).

Objective or pseudo-objective? I have no doubt that, in the religious and moral contexts with which Ramsey is mainly concerned, he attaches more importance to the commitment than to the discernment. He says that "for the religious man 'God' is a key word, an irreducible posit, an ultimate of explanation expressive of the kind of *commitment* he professes. It is to be talked about in terms of the object-language over which it presides; but only when this object-language is qualified, . . . [and thus] becomes also currency for that odd *discernment* with which religious *commitment*, when it is not bigotry or fanaticism, will necessarily be associated"

(*RL* 47). Note that it is the discernment that is "odd", not the commitment. The relationship of discernment to commitment would seem to be that of a parasite to a host, and not a genuine symbiosis.

All these comments are based upon the assumption that Ramsey is taking his discernments and disclosures to be of something objective which is not, in any sense, a part of the person having the discernment or to whom the disclosure is made. But I may be wrong in making this assumption. Before recalling the Nathan-David encounter Ramsey asks how we become aware of our "personality", of our "characteristic subjectivity", and answers that we survey our "distinct perceptions" (Hume's expression) until "a disclosure occurs" and "we then become aware of ourselves" (*RS* 42). And after discussing the "Thou art the man" disclosure, Ramsey says that "personality is a religious category when is is revealed to each of us in such a disclosure" (*RS* 43). Such remarks as these make me wonder whether there is any clear distinction which Ramsey is trying to communicate when he uses the correlative terms "subjective" and "objective", and consequently whether there is any clear sense he wishes given to a disclosure being of something objective.

Although Ramsey uses "subjective" and "objective" frequently, there is an intimately related pair of terms used by philosophers of theism—"immanent" and "transcendent"—which, to the best of my belief, Ramsey never even mentions. Most theistic philosophers devote a great deal of attention to discussing the transcendence of God; and rightly so, since it is the transcendence and not the immanence of the God of Christianity which is the stumbling-block to religiously-minded humanists. Ramsey says a great deal about the qualifiers "infinitely", "perfectly", etc., which have to be placed before such adjectives as "good", "wise" when these are used of God. But nowhere does he explicitly discuss the question of God's transcedence or "otherness". The nearest he approaches this question crucial for a theistic philosopher is when, in the third chapter of *CD*, he comments upon the views expressed by the Bishop of Woolwich in his *Honest to God*. But even there he is more concerned with the language involved in "Talking about God" (the title of the chapter) than in answering the deep question which troubles J. A. T. Robinson: How can God be other than the universe? Perhaps Ramsey thinks that this is a nonsense question, and that the only genuine question is how does talk about God differ from talk about the universe. But, if so, he ought to say this explicitly and unambiguously. The problem of whether or not God transcends the

universe cannot be disposed of summarily by saying that the word "beyond" in the assertion "X is beyond the present world" "is given the logic of an operator or imperative" so that the assertion must be understood as the instruction: "Develop stories about the present world in a direction specified by the imperative 'beyond' until a disclosure occurs whereupon 'X' is posited to refer to what is disclosed" (*CD* 69-70). For the sincere attempt to follow Ramsey's instruction may, as it does for many religiously-minded people, lead to a disclosure not of something in any way "beyond", but of something for which "within" is by far the most appropriate metaphor. To quote the opening and the close of Fredegond Shove's "The Kingdom of Heaven" (from her 1922 volume of poems *Daybreak*):

Thou liest within me as a shell
    Lies in a pool,
Or as a milk-wort were in Hell,
    So fresh, so cool—
Or as an icicle all clear
    And straight within—
Mirror of holiness and sheer
    Contempt of sin. . . .
Thou liest within the storm and art
    So safe, so still,
O Jesus of the human heart,
    Whom none can kill.

Joan Miller

On page 1 of *Models and Mystery*, a collection of Whidden Lectures given in Canada in 1963, Dr. I. T. Ramsey states "It is by the use of models that each discipline provides its understanding of a mystery which confronts them all". He goes on to say that this proposition is to be the overall theme of his lectures. I am afraid this presents me with an overall difficulty, at the start, because to me it makes no sense to talk about mystery which is understood. If there is understanding, there is no mystery, and if there is mystery, I do not see that there is anything to say. I think Wittgenstein is relevant here, "Whereof one cannot speak, thereof one must be silent". However, for the time being I am going to assume that by "mystery" Ramsey is referring to our environment,

in its widest sense, and that by "model" he means something an individual uses to come to an understanding of his environment.

I have no clear idea of what Ramsey means by "models", or of the function he supposes them to perform. This well may be due to my ignorance, but I cannot help feeling that further clarification, particularly of "disclosure models" which are a central feature of his thought, is necessary to illuminate the subject being discussed. After some discussion of models at the beginning of the book, Ramsey says on page 10, "Now my reason for preferring the title 'disclosure models' is this. Max Black rightly emphasizes the point that there must be some sort of structural similarity, some sort of echo between the model and the phenomena it enables us to understand, while at the same time denying (as we would) sheer reproduction, replica picturing. But it is precisely such similarity-with-a-difference that generates insight, that leads to disclosures when (as we say) 'the light dawns'. I suggest the term 'disclosure' models for models which arise not as pictorial replicas, but with structural echoes". He amplifies this on page 13, "a disclosure model enables us to come to a reliable scientific understanding of the phenomena when two conditions hold. (1) Structurally the model must somehow chime in with and echo the phenomena. In this way the universe itself authenticates a model. The model arises in a moment of insight when the universe discloses itself in the points where the phenomena and the model meet. In this sense there must be at the heart of every model, a 'disclosure'. Such a disclosure arises around and embraces both the phenomena and their associate model. (2) In any scientific understanding a model is the better the more prolific it is in generating deductions which are then open to experimental verification and falsification". And on page 16, he notes that in respect of condition 2, theological models differ from scientific models. "A model in theology does not stand or fall with the possibility of verifiable deductions. It is judged by its ability to incorporate the most diverse phenomena not inconsistently. A model in theology stands or falls according to its success in harmonizing whatever events are to hand".

I find this somewhat obscure. It seems to me that the structural similarities to which Ramsey refers are provided by the set of concepts which are adopted to try and interpret the phenomena in question. That is, they are logical, not empirical, in the sense that they are recognized, in the first instance, by virtue of the grid of a priori notions which the individual uses when trying to assess the phenomena he finds himself confronted with. If this is the case, then a disclosure can only arise within a particular conceptual

framework, otherwise there is no means of identifying it. My major criticism of this book is that Ramsey nowhere provides us with criteria for judging when a disclosure has, or has not, been made, in any objective way, and yet maintains "for me the very aptness of the word I use—disclosure—is that the objective reference is safeguarded, for the object declares its objectivity by actively confronting us" (p. 58). What I would like to know is, what sort of thing is a disclosure? Has it an intellectual content, i.e. does it convey information, or is it merely a feeling? Also, what is it that is disclosed in any particular situation, how do we identify it, and how do we recognize whether it is true or false? It think it is fair to ask these questions because on several occasions Ramsey speaks of disclosures as having "ontological reference" and as carrying with them "ontological commitment", by which I presume he means they have some objective status. If he wishes to make this claim then I think he should offer objective criteria so that we can decide when a disclosure has taken place, and recognize its content. The absence of such criteria inclines me to the view that perhaps he is trying to mask subjectivity by using the term "model". My view is reinforced by the fact that I cannot discover from the book exactly what Ramsey means by "empirical fit". I would like some tests to be suggested whereby we could decide whether there is an empirical fit or not. I am led to suppose by the absence of any criteria that what is disclosed is how Ramsey feels about a given situation, and whether there is an empirical fit or not is decided by whether it fits his own views of the world.

Some evidence that Ramsey is talking about a subjective experience when he refers to "disclosure" and "insight", is to be found in his discussion of persons. He refers to the difference between how a person experiences his own actions and how an external observer might describe them. He notes that an individual involved in an action, and he takes as one example a kiss, would not give the same description of the action as an observer. He regards this situation as providing "an insight into ourselves to which no models however illuminating will ever be completely adequate", and he says "Here is the meeting of models and mystery: in what to each of us is the disclosure of himself" (p. 28). Further on, page 29, he remarks that models used by psychologists are "disclosure models, not pictorial models, and their models are fulfilled in insight, the insight in which each of us knows the topic of experimental psychology to be persons like himself". It is, of course, the case that performing an act is not the same as talking about it, and that the individual, or individuals, concerned in a situation may

have experiences associated with it which they find difficult, perhaps impossible, to describe, but if these experiences are to have any validity for anyone other than the person, or persons, concerned, they must be fitted, at least to some extent, into an objective framework. I suspect that this is the service which Ramsey wants his models to perform, but if it is, it seems to me that the objectivity of the disclosure depends on the adequacy of the model, not on its inadequacies. If a disclosure is to be anything more than a vague feeling, it must possess some cognitive content so that the individual concerned may recognize it, let alone anyone else. This requires that a conceptual framework related to the models being used should be outlined, but as Ramsey does not furnish us with such a framework, we have no method of judging what has been disclosed, other than that someone has had some sort of private experience. It is theoretically possible for a model to provide the objectivity which Ramsey wants, but as according to him a disclosure is what emerges when the model cannot be used, and is inadequate, he cannot have it both ways and, at the same time, use the model to guarantee the disclosure.

This is a major problem when theological discourse is considered. Ramsey says it is an absolute necessity for theology to have "qualifiers" which declare the inadequacy of all models, and the presence of a qualifier means a disclosure is imminent or available. As far as I can see this means the association of a qualifier with a model in theology indicates that the model is not to be taken literally. For instance, Ramsey regards the term "loving father" as a model for God, and says it is necessary to qualify it by associating with it phrases like "strong tower" and "king of all the earth", in order to show a father like a human father is not being referred to. In this case, I think it fair to ask, why use the term "father" at all? What structure is revealed which enables insights to emerge? Obviously it is not being suggested that there is a physical resemblance, it is not a case of generation from actual human seed, nor does it refer to the usual social situation where a father is found, because in that case it would be proper to ask where is the mother? Perhaps the answer might be along the lines that as a father has responsibility and love for his children, so God has towards men. This may be relevant if the assumption of an all-loving deity has first been made, but if this is not made, then the model seems to me to be extraordinarily unhelpful, and to disclose nothing except what one feels like believing. I think this illustrates how important it is, in theology in particular, for Ramsey to provide us with criteria for judging a disclosure, otherwise I can

see no difference between a disclosure and a guess, and no objective reference. Ramsey rightly points out the limitations of descriptive language, but unless he is more explicit about the conceptual framework he is adopting and about the relation of his models to that framework, I cannot see that his disclosures can be anything more than subjective experiences. Furthermore, in such circumstances, I think it is misleading to talk about models, because they are designed to preserve objectivity in the disciplines which employ them.

Ted Bastin

In a previous issue of this journal, I coined the term "sermon-talk" to refer to "any personalistic theistic language whose use in its particular context has not been explained or justified". Dr. I. T. Ramsey's book, *Models and Mystery,* can be summarized as an apologia for, and an explanation of, the activity of generating sermon-talk. Indeed, the last of the lectures it contains reads like a textbook on rhetoric—the particular kind of rhetoric I call sermon-talk.

The whole activity of sermon-talk seems to me to be disastrous at the present time when we hunger for the bread of understanding of spiritual things and when the world has decided that, by and large, the rhetoric of sermons constitutes stones. So Ramsey and I are obviously set on collision courses. However, if there must be a collision, we had better be clear on the issues.

It wouldn't be more than a slight oversimplification of Ramsey's position to say that he uses the term "theology" for what I call "generating sermon-talk". Certainly he has his own meaning for "theology". He thinks that an essential characteristic of theology is that when you do it you pile metaphor upon metaphor, so that the contrast produced by each combination points the way beyond the set of associations provided by each metaphor singly, and enables us to see the mystery beyond what we can describe. Then, since God is by his nature mysterious we are able to catch a fleeting glimpse of something nearer to God than we ordinarily get. This is called a *disclosure.*

So far Ramsey could be said merely to be describing the ordinary operation of the imagination. The way he hopes to connect his description with theology is by considering a special sort of metaphor which he regards as closely analogous to the *models* of the scientists

and in this way to assimilate theological discovery to scientific discovery. It is this aspect of his book that I wish specially to discuss, and my position is broadly this: Ramsey's thesis demands that a good model should be extremely flexible in its relation to the experimental facts, whereas in actual practice this is the last thing the scientist wants. The scientist wants to see his model specifying the facts as precisely as possible, and his ideal is for the practitioners of his science to take to his model so completely that they cease to distinguish between the facts as they are specified by his model and facts as they really are. Then the model has romped home and is an accepted part of the corpus of theory. When, by contrast, the scientist finds it necessary to supplement his model by ancillary models which exhibit other aspects of the experimental phenomena then this is a cause of deep suspicion, and the model in question is usually well on its way out by the time things have come to this pass.

To present to the reader the essential features of a model, Ramsey makes little use of the considerable philosophy of science literature on the subject, but takes his stand on the practice of actual sciences by considering actual cases of models that are in use in science. His analysis, however, does not give Ramsey the green light that he needs to establish the central distinction he wishes to make—that between "descriptive models" or "picture models" and what he calls "disclosure models". According to Ramsey, the use made of models in physics has changed radically (from "picture" to "disclosure") during the past century. But this is just not true. To take a case—and one used by Ramsey—from the best part of a century back, we may consider the *luminiferous ether* as a model, and we may give the example a little more precision by looking especially at one particular use of this rather general formulation—the vortex model of the atom. A natural comparison from the present day for the vortex theory of the atom would be the *water drop model of the nucleus*. This latter model is a very clear case in the sense that it is universally agreed that "model" is the right term for it. No one has much idea about the dynamics of the complex nucleus. Even if we knew how to deal individually with the many strongly interacting particles that constitute the nucleus (the nucleus presumably consists of a lot of constituent particles of some sort since, if you smash it, simpler particles are seen emerging), we still should have no idea how to solve equations for such a complex configuration. As it is, we do not even know how the individual particles and the fields associated with them interact, anything like adequately, and so, however we approach the problem, there is a gap in our understanding.

The water drop model is an attempt to force a way through the difficulties that is as crude as its name suggests. In using it, we appeal to a resultant attractive force which must exist in any nucleus which is stable for long periods of time (i.e. long by the standards of nuclear events). This attractive force is then imagined to produce an effect which bears a crude analogy to the surface tension "skin" in a water drop. The model abounds in suggestions one might try out, by analogy with the surface tension force. So far as I know no one has made serious attempts to try them out. Why? Simply because one knows that the model gives no real understanding of the forces at work. For this reason too, there is no question of anything startlingly new arising from the comparison of a nuclear fluid with water. The contrast of imagery may be startling and might be expected to warrant the use of Ramsey's term "disclosure", but in that case the disclosure has failed completely to pin down what the scientist is after. Scientific truth is not in disclosure: the two may or may not co-exist, but they are mutally irrelevant.

Now let us look at the vortex model of the atom. Compared with the water drop model of the nucleus, this model was very elaborate, very elegant and very sophisticated. It was a way to introduce atomicity or quantization into the continuous physics of the nineteenth century with its luminiferous ether. Indeed the vortex atom was nothing other than a vortex in the ether itself, which derived its stability from the classical hydrodynamics of the perfect fluid (in which there is a theorem to the effect that the amount of vorticity can never change). It seemed to Kelvin, J. J. Thomson and the rest to be the only conceivable way to get a persistent atom in the ether : yet it was wrong. It had no place for the electromagnetic field, and it defined no scale. Hence, again, it could become no more than a model because the basic phenomenon it sought to explain was of a completely different kind. As a result, any new "insights" that the vortex model produced were necessarily false. The same conclusion—namely the inappropriateness of Ramsey's disclosure idea to the achievement of scientific understanding—can therefore be drawn from the elegant and mathematically sophisticated vortex model as it can from the cruder water drop model.

One cannot obtain anything conclusive from a single pair of examples, yet I am sure that what these examples show will be found to be the case quite generally among models in the physical sciences. Firstly there is no case for thinking that Ramsey's disclosure models, in anything approaching his sense, have replaced an older, cruder form (in my pair of examples the crude model was

the contemporary one). Secondly—and more significantly still—the term "model" carries a suggestion of the second best. It conveys a sense of inexactness and inadequacy, in which respect it is to be contrasted with the true understanding of the phenomenon which is always the scientist's aim. Thus the inexactness of fit with fact that Ramsey makes use of in the idea of a model is precisely what, in the scientist's eye, makes the model no more than a stop gap.

I found nothing in the section of Ramsey's book on models in psychology and the social sciences to which what I have said about physical models does not also apply.

So we find no adequate background for the idea of disclosure from the sciences: that is the main conclusion of this commentary. However, Ramsey's writing is very complex and it is difficult to separate out the strands composing it. It is rather as though Ramsey were presenting us with a whole range of "partly-baked ideas" in the sense given to that expression by I. J. Good in the first issue of this journal. One may complain that the text does not divide easily to show where one "p.b.i." stops and the next starts, but apart from that ought we to object to the presentation of p.b.i.s in theological writing and not in the philosophy of science? I think so; for if in theology ideas are only partly baked that has the effect that nothing is ever properly followed up. Ramsey relates the disclosure idea to a p.b.i. according to which novelty or creativity is likely to result from the juxtaposition of the association fields of two or more metaphors. Again, there is a suggestion that the disclosure idea might afford us a way of escape from the rigid positivist categorization of scientific knowledge into hypothetical propositions or sets of propositions on the one hand, and empirical verification on the other; and Ramsey tries to use the disclosure idea to suggest a third category which he calls "ontological commitment". Yet another of Ramsey's p.b.i's is his answer to the natural question how a typical scientific concept can be exhibited as having a personal aspect (which arises from his dualistic outlook that is sometimes dominant). Ramsey gives certain examples from classical physics. He gives, for example, Lenz's Law, which is one of the rules for deciding in which direction a simple electromagnetic action will take place. The rule states that the forces generated by a motion of a conductor in a field will be such as to oppose the motion. Ramsey says that the idea of *opposition* here is essentially taken from human experience, and is therefore personal. However, it is rather difficult to imagine any physical explanation that could *not* be seen as having an analogy with human experience if we are to go as far as Ramsey goes in this direction with his treatment of Lenz's Law.

There are more p.b.i.'s than these. In addition to my general objection to p.b.i.'s in this kind of writing you may make the scholarly objection that they ignore considerable literatures which have been written on closely analogous subject matter; that they are elusive; that they jump from one thing to another instead of working something out properly. But to say all this is only to say they *are* partly baked. Nothing in this criticism seems to warrant my opening strictures about Ramsey trying to make life safe for sermon-talk. On the contrary, some of his p.b.i.'s might liven sermons up quite a bit.

The real objection comes where Ramsey turns his back on the p.b.i. method. For Ramsey refuses to provide a p.b.i. to account for the God/man relation (which is the obscure idea that is in fact presupposed in all theological discourse and which needs to be given intellectual content before you can even start on the traditional path). Instead, he puts forward a "meta-p.b.i." to suggest that you are actually exhibiting theism when you skate precariously from one p.b.i. to another and avoid getting tied down to any definite one. Logically this position is untenable, and practically it is far too like an attempt to make Christianity safe for vague thinking.

Reply by Ian Ramsey

Joan Miller rightly remarks that in *Models and Mystery*—and, I would add, in all my books—I am concerned with "understanding a mystery". But, she remarks, "it makes no sense to talk of a mystery which is understood". Now I agree that it would make no sense to talk of a mystery which was *completely* understood, but I cannot see that this precludes us from a partial understanding of something which in the last resort eludes us, and what I say about models is an endeavour to spell out something of what such a partial understanding may be. It is not that I hope (in Ted Bastin's phrase) "to make Christianity safe for vague thinking", as that I hope to give some account of how we may talk, and more reliably than less, about what he calls "spiritual things". I hope in other words to give a recipe for the "bread of understanding spiritual things" which will satisfy men's hunger without giving them indigestible tit bits or overcooked food. If we must have our reference to Wittgenstein, what I try to do is to give a logic of theological stammering.

A model then, on my view, gives us a partial understanding of

what is mysterious; and that which is mysterious, which models help us to understand, is given to us in a disclosure situation. So the key terms in my approach are models and disclosures. But this leads us immediately to questions like those which Joan Miller pertinently asks: How do models lead to such an understanding? If all understandings are partial, how do we distinguish between better and worse? What, in any case, are we understanding? What are we talking about?

Richard Braithwaite is right to see that of my two key terms disclosure is the more fundamental. But, as Joan Miller asks, what is a disclosure? My first answer would be to take the example which I have often given, and which Richard Braithwaite rightly uses, viz. that of David coming to himself when Nathan had talked in such a way as to disclose a moral claim, which hitherto we must assume was unnoticed, around the pattern of events which was David's behaviour towards Bathsheba. With a disclosure of obligation went a self-disclosure which matched it. Objectively the situation "came alive", the observable pattern of events recalled by Nathan took on "depth", an obligation was disclosed. It is this obligation which David discerns; he becomes aware of what did not impinge on him before, of a challenge, of a moral claim he did not recognize before, of what, as other than himself, challenges him; and with that disclosure of a claim is matched a self-disclosure, a coming to himself, a self-revelation. A disclosure situation will always have this "objective" and this "subjective" element. We come to ourselves as and when the "objective" features of a situation take on depth, when we are then aware of being challenged, being confronted, and for that very reason, aware of something other than ourselves. The point may be expressed alternatively by remarking that while "facts", observable, "objective facts" are there to be looked at, what there is also includes what discloses itself to us. But what is this?

To answer that question let us notice that disclosure situations are not monolithic in character; when a "flat" predecessor takes on "depth" when it becomes a disclosure situation some feature of the earlier situation is high-lighted and I should have thought that there was then an obvious reasonableness in talking about what is disclosed in terms of this feature, though it is a point about disclosure situations that, when they occur, *no new* "observable fact" is presented; it is rather that some challenge, some claim, something other than ourselves emerges from, arises out of these "facts", being disclosed around them. These self-selected, significant features of a disclosure I call models, and for now let it suffice to

say, by way of defence for using the word "model", that this word always carries overtones suggesting that which enables us to understand something that at the moment puzzles us, that which enables us to answer questions which we ask about some puzzling existent. It is in terms of these "models" that we specify, talk about, "what" is disclosed: though with what is disclosed we are "directly acquainted" in the disclosure.

But this does not complete the story. I come to myself on being greeted at the official Reception as and when—to my "astonishment" as we would say—the foreign notable turns out to be an old friend; or we may come to ourselves when, as we would say, the conclusion of a particular argument "strikes us" (what phrase could better express objectivity than that?). Such a disclosure however is obviously restricted, finite, limited. Now in contrast to such "finite" disclosures, it is only an all-inclusive disclosure which will on my view suffice as the empirical basis of assertions about God. That there are such "cosmic disclosures" will (I hope) at least for the sake of argument be readily granted; in any case their existence is indicated by phrases which people use in situations of this kind. A friend may be the occasion of a finite disclosure (as we have already mentioned); but if we say (and mean it) "You are the whole world to me" we point up its all-inclusive quality. The same point is made when we recognize the all-compelling character of Duty: it is a cosmic obligation when we say, *contra mundum* as it were, "Here I stand and can no other".

Now if a disclosure is cosmic, all inclusive, in this sense I cannot see the grounds on which it would be reasonable to posit more than one object, more than one referent. I am not saying that this at once leads to an assertion about God. But I hope now to outline the route to that point, to say how we come to specify, interpret, talk of the one "object" of all cosmic disclosures as "God".

Suppose we call what discloses itself, X, so that X gives the reference of any and every cosmic disclosure. How then do we talk about X? My answer is, once again, in terms of the model—the feature which the disclosure has high-lighted. Sometimes, it will be because the disclosure has been generated by a particular strand of discourse; at other times the model may be given as the self-selected feature of the disclosure situation.

Of the first alternative, and using Joan Miller's example of God as the loving Father, two accounts are possible. We may talk about fathers, and loving fathers, approaching as it would be said the "ideal" as closely as we can engaging no doubt in a thousand specifications and modifications. If at the end a cosmic disclosure breaks,

we will reasonably talk of X—what the disclosure discloses—in terms of the model of "loving father" for (*a*) the observable patterns located by father-talk, is the context out of which the disclosure has arisen, and (*b*) there is no more reasonable alternative. But quite plainly (*c*) this only gives us that a phrase cannot be used univocally, for the disclosure situation is something novel. Further, we have, so far, no more than at best a minimal theology. Theological discourses, in its full flourish, arises as multi-model discourse which has been developed from a countless number of models by uniting into the most comprehensive, consistent, coherent and simple discourse all the elemental theology which each and every model supplies. In this sense Ted Bastin is right. I think that theology does "pile metaphor on metaphor", though I would rather say it embodies discourse taking its rise from different models, and, as I have said, having formal criteria of reliability. I will say something about empirical criteria presently. Meanwhile if it were the case that every physical explanation could be "seen as having an analogy with human experience" (I recognize that Ted Bastin is suspicious of this, though in relation to my remark about Lenz's Law, I would point out that it is the *reciprocity* of the opposition, and not the mere opposition which is important) then perhaps it means that personal models will always have a central place in any adequate discourse—even scientific—about the Universe. In short, perhaps there is some fundamental plausibility about a personalist metaphysics. But this would not be the grounds on which I would defend personalism, and for some account of the relation of my concepts of disclosure to a personalist metaphysics, I would refer the reader to my articles in *Prospect for Metaphysics, Biology and Personality* and more recently *Prospect for Theology* (ed. F. G. Healey).

If it be asked: but even now can we be sure it is God who is disclosed, my answer would be that to settle this question "God" needs to be contextualized. We shall reasonably claim that "God" (in a certain context) has disclosed himself in so far as our X context resembles the God context, the major difference of course being the fact that "God" occurs in one context where X occurs in the other.

The second way of reaching a cosmic disclosure situation which is the empirical basis for talking of God as "loving father" would be to bring loving patterns of fatherly conduct—caring, providing and so on, alongside certain patterns in the Universe hoping that the isomorphism of the patterns would lead to a disclosure, that they would "click", and that through the "click" God (as the word

might be used in the kind of justification given above) would disclose himself.

Finally, not only are there the formal criteria of theological language which I have given above; there are empirical criteria as well. That discourse talking about what a cosmic disclosure discloses will be preferred to some other in so far as it can "make better sense of", provide a better-fitting conceptual framework for, the events of the world around us.

This is *not* to say that theism is a scientific hypothesis (I think that this phrase used by both Richard Braithwaite and Ted Bastin is, any case, misleading) whose empirical success and reliability is measured by the extent to which the deductions made from it are experimentally verified. Rather is the theologian like the archaeologist or anthropologist or detective who sees how his theory "fits" a particular set of remains—though they may "fit" many other theories, and at certain points fit ill with the one being sponsored. But there can in particular be no experimental verification of the assertion that "A loves B"; no deductions whose verification or falsification are as crucial for the assertion as they are in the case of experimental science. It is this much looser kind of "empirical fit" which is closer to the theological case. Models, as Ted Bastin realizes, are all partly baked ideas—indeed theology which is too well cooked is disastrous. It has been the heretics who (if we may change the metaphor) have run models to death, or restricted discourse to a few models or a single model towards which they have had an inordinate affection.

But I hope I have shown, albeit in outline, that I do not "skate precariously" from one model to another; and while I think that a theology which has tied itself down to anything definite has generally been bogus, I do not think that I can be fairly accused of making Christianity safe for "vague" thinking. Christianity will always display approximate, tentative thinking as it tries to understand "mystery". But my whole endeavour is to provide criteria to test its reliability, and to avoid that vagueness which displays a lack of logical rigour and is quite undisciplined.

I hope that this outline of my position has illuminated some of the difficulties and provided some answers to the questions which Joan Miller and Ted Bastin and Richard Braithwaite raised. I will now develop it a little by way of facing one or two of the other questions which they raise.

For obvious reasons in outlining my position above I have talked only of disclosure models. But I think a word is called for about the distinction I make between these and picturing models.

I think that Richard Braithwaite recognizes the distinction I have in mind, and its applicability to science, when he speaks of the place of the creative imagination in science, though to accord with what I said earlier such creative imagination, if it has kinship with disclosure situations, will not be something "purely subjective" but will arise as a response to a Universe which discloses itself. We are creative as we are inspired. I am in fact quite unrepentant about saying that every experience being "of something" is "objective", though I readily admit of course that there are countless types of interpretation of what is other than myself.

If I have understood him aright, Ted Bastin has missed my point about "pictorial" and "disclosure" models though I naturally blame myself for not making it clearly enough. My point was that no one now thinks of scientific models as pictures which undoubtedly Kelvin did. With this, I think Ted Bastin agrees when he says, speaking of the water-drop model as a contemporary equivalent of Kelvin's vortex in the luminiferous ether, that it is a "crude analogy" which thinks of nuclear forces by analogy with surface tension; that compares (I would say "pictures") nuclear fluid as water. Further, even if this were a disclosure model, it does not follow that a model born in a disclosure is going to be immensely fertile, though I grant that on my view in such a case *some* disclosure—however minimal—must be licensed about the Universe which has given such a model what degree of self-authentication it has —however small.

I readily agree that the two models he mentions have no reliable place in contemporary science, and that this is because of their infertility in generating discourse. But it is another question altogether as to how these or any models secure such ontological reference as they have. Undoubtedly Kelvin and others believed that their scientific models referred as a picture refers, and this is philosophically untenable: how could two different and it may be incompatible pictures "picture" one world? My alternative suggestion is that the reference is disclosure-given through any and all models—the reference being that "world" or "Universe", or in a Berkeleian sense that "God", which all the discourse from the models with less or more reliability tries to understand.

I think that Ted Bastin's objections largely arise because either he does not see, or if he does, he does not think it necessary, right or important, to link this reference problem with models of disclosure. My point is that science can only claim to talk of the Universe if the reference of the facts and features verified by its discourse is disclosure given. If we ask what physics is *about* when it peddles—

most profitably—all sorts of models—the answer, I have claimed, is always disclosure given. I may not give an account of what many physicists in fact do, but this may be because their concerns and questions of those particular physicists are not wide enough.

Richard Braithwaite raised the matter of the Bishop of Woolwich and "depth". I think that on my view "objectivity" can just as well be given, "otherness" can just as well strike us, from an "inward" as from an "outward" position. What impinges on us can just as well make itself evident, disclose itself, *via* talk about "depth" as *via* any other way of talking about the Universe. Incidentally, on the immanence and transcendence issue which Richard Braithwaite also mentions, I would say that on my view, God is other than the Universe (let alone the world) as he who discloses himself in and through it, something like, though not exactly like, the way we disclose ourselves through our bodily behaviour. Self-disclosures are matches, subject-wise, for that which a cosmic disclosure discloses object-wise.

I fear that several other points I must leave undiscussed; but I cannot conclude without a word of gratitude to my friends for the critical and helpful attention they have given to some of my ideas.

Mystical Experience and Mystical Verse

F. C. Happold

My old friend and professional colleague, the novelist William Golding, is reported as having remarked recently: "I get so many letters that I am having to decide whether to try to answer them all or to write another book. I cannot do both". I am not so famous as "Bill" and happily I am not called upon to try to handle a "fan mail". As a result of my writing *Mysticism* and *Religious Faith and Twentieth Century Man,* I have, however, received not only a number of letters containing descriptions of mystical experience which their writers have undergone, some of great depth, which have provided additional evidence of the considerable extent to which the experience of "the timeless moment" occurs among many who are not "contemplatives", but also a collection of mystical verse by men and women of different temperaments and walks of life. It is this collection of mystical verse which is the theme of this essay.[1]

[1] The copyright of all these poems is with the authors.

In it I shall present my little garland of verse to the readers of *Theoria to Theory*. For the most part it will consist of quotations, so that the writers may speak for themselves. I shall, however, try to place the work of each in its individual setting, adding such comment as seems to me useful.

None of the writers of these poems would call themselves professional poets. Except for those of the last writer, I do not think any of them have ever appeared in print. All are, however, clearly the result of inner experience which has had a profound and lasting effect, so much so that it has been compelled to boil over into outward expression. For such expression prose would not have been adequate; only the language and rhythm of poetry could, however inadequately, express it.

Mystical experience? Mystical verse? What sort of experience can be without equivocation called mystical? What character must a poem have in order to be called mystical?

Neither question is easy to answer. The words mysticism, mystic and mystical, carry different meanings to different people, as I, as a writer on mysticism, well know. Writers on mysticism are not unanimous on what constitutes a true mystical experience.

Evelyn Underhill defined mysticism as the art of union with Reality. A mystic, she wrote, is "a person who has attained that union in a greater or lesser degree; or who aims at or believes in such attainment".

An examination of the available evidence reveals that there have been, and are, men and women of a spirituality deeper than that of most of us, whose awareness has been raised to a spiritual level far above that of ordinary men and women, so that they have been able to enter into those definite, and more or less permanent, states called Illumination and Union. They are the mystics in the fullest sense, the contemplative saints and seers. They are found in every age, in every clime, in every religion or outside it.

There are, however, many others, whom one would not label contemplative saints, who are not raised into the states of Illumination and Union, but who, perhaps only once or twice in a lifetime, have known that mystical experience which Warner Allen has called the experience of the Timeless Moment, which is clearly, on all the evidence, closely akin to that of the true contemplative, but is of less intensity and in no way permanent. Such experience stands out, however, from every other experience, and for one who has known it is unforgettable.

Further, there are others, who have never known the uniquely recognizable experience of the Timeless Moment, who have yet, in

their several ways, in my own phrase, "moved into the realm of mystical".

Some of those whose poems I shall quote have, I know, since they have described them for me, known the experience of the Timeless Moment; all, it is clear, have in some way "moved into the realm of the mystical".

When does a poem become a mystical poem? Some are clearly reconizable as such, for instance, the poems of St. John of the Cross, the poems of the Sufi mystics, Attar, Rumi and Jami, *The Mistress of Vision* of Francis Thompson (I would also include *The Hound of Heaven*), Vaughan's "I saw Eternity the other night", Thomas Traherne's poems, Wordsworth's *Tintern Abbey,* T. S. Eliot's *Four Quartets,* which I personally regard as the greatest mystical poem in the English language. One has only to read the *Oxford Book of Mystical Verse,* however, to realise how wide the net can be thrown; some of the poems included in that anthology do not seem to me worthy of the title of mystical. So let us not try to define too precisely, but let these unknown poets speak for themselves.

And first let me quote the latter part of a poem by an Irishman, who, after finishing his military service in the First World War, spent a short period in commerce and then became a school master, from which career he retired in 1950 and now lives in happy retirement in the West Country. He has during his life published a few poems and articles. This poem, written only recently as a result of reading the chapter, "Characteristics of Mystical Experience" in my *Mysticism,* recalls an experience which happened to him 70 years ago, which he has never forgotten, while on holiday with his parents at Armagh, the title of the poem. It has something of the simple directness and beauty of Wordsworth's *Lyrical Ballads.* I have omitted the opening lines.

. . . While there, without the slightest warning,
On a grey mysterious morning,
As I stood in the window gazing
Out at the garden, an amazing
Feeling came and filled my mind,
To paint which words are hard to find.
For while, the view a little muffled
By mist, I watched the long grass ruffled
In the light wind, I grew aware,
I, little Johnny-Head-in-Air,
Of a stupendous plane of being,

Beyond the reach of sound or seeing,
And yet with which I was in touch.
The vastness of it all was such
That I was filled with deepest awe
At what I sensed and almost saw.
I did not feel, as mystics do,
That all is one, that I and you
Are part of one tremendous whole;
And yet, in spite of that, my soul
Felt joined with that which was on high.
At once the feeling vanished. I
Was back in the tall window. Yet
That fleeting glimpse I can't forget.
I've not been quite the same again
Since looking through that window pane.

Again as a result of my writing *Mysticism,* which appealed to him, a very close friend showed me a little volume of poems, *Search for Peaceful Fields,* he had had privately printed years ago, some of which appealed to me very much. I do not think that he claims to have known any unique mystical experience, but all his life he has been what he calls a "gleaner". It was in a spirit of searching for some reality beyond, yet perhaps within, that of sense phenomena which impelled him as a young man to go out to Australia so that in the loneliness of the wide spaces of that continent he might perhaps find that for which he was searching. Out of this small volume he has chosen for me those poems in which he feels he has expressed his religio-philosophy most fully. I should have liked to have printed my own favourite, "To the Waters of Leichhart" (to which those who drink them are said to return). It is, however, rather long, and I have chosen some shorter ones, the first of which, *Gleaning (at Jabiru)* is his own favourite :

See ! O'er the rolling downs stand
Distant, dim . . . .
And through the dark scrub brooding
Silent, grim . . . .
Cathedralled in tall gum trees
Silver, slim . . . .
Primaeval altars raised to be the hod
For us; where life's insurgent, fierce vitality
Aye thrills increasingly its truthful hymn

In praise of God . . . . altars first raisèd from the sod
With His Reality aeons ere we
Who, if the last conceived, are first to be
Unmindful of this vital unity.

The second is entitled *My City* :

I am free of that City, ever fresh wonder,
Which forges the future in creative strife;
Where the fusion of forces makes lasting thunder
And the pavements are thronged with hurrying life.

But each time I visit, the citizens slumber;
And shrouded in mystery without loss of might,
That strange City, so silent, seems to lie under
Spells born of my echoing footsteps and night . . . .

Yet times I am able to burst these asunder
And catch a swift gleam of my City by day;
Then—such are the stores of its riches to plunder—
Most wondrously laden, I hurry away!

The next two poets I shall quote write in a different and more involved style and at a deeper level. Both give the impression of struggling with words in order to express what they want to express.

The first, a poultry farmer, now in middle life, has sent me several of his poems. I have chosen one, which, though perhaps not technically perfect, is of great beauty. It is entitled "Kiddy Kars at Sunset" :'

Jack's car is red, and Jane's is green,
There's blue, pink, yellow, orange, sheen;
Each leading each, yet each being led,
(Though steering to the curve ahead).

Then, quickly, as from winded shroud,
Dark hooded under lowering cloud,
Imprisoned till the end of day,
The colours of the darkening world,
Oppressed, break forth.

As not content with marvelling eyes,
The ever-lengthening rays arise
And rush towards the earth below.

Gold, salmon, pink on ivory, gleams
Till every feather fragment seems
A wavelet, spun on seas of pearl.

The sudden light beats on the eyes
And, as the steely harpoon flies,
A shaft direct on sure-bent course,
So flames a message to my brain.

Half mystified, and mute, they go,
Each child face bathed in wonder-glow.
Now is no beauty could compare
To sunset upon face and hair.

A message. Vague, but science fact:
The scouring of a river's track;
The settling mud; the birth of slime;
The growth of weed; vast fields of rime;
Each driven by omnipresent need,
Creating from a stenching gas,
Down avenues of space and time . . .

Sweet wonder-glow; and eyes, face, hair.

And as I stand, tears spring to eyes,
The moment flees, to leave surmise
That dreams upon the thing that came,
Came from blind space to mark the mind;
A flash, split from deep aeons of time.

Click-clack go rail joints, and the purr
Of motor drops to muted whirr.
(Twelve pennies gone will not be missed—
The sunset repaid more than this).

One instant flash before a brain,
Holding perceptive thought in train.
But? Should one marvel? For came there
Wonder-glow on eyes, face, hair.

Rosalind—that is not her real name, though she would see the connection—is a young wife, married to a struggling artist, with a small infant who plays a big part in her life. Like many highly sensitive young people of this present time she has not found it easy to find a meaning in life, so much so that not long ago she was reduced to a state of black depression and despair. The whole of existence seemed to be malicious. She found it impossible to

come to terms with life and felt herself completely isolated from other people, even from her own family. From this desperate state she was delivered, at a point when she could not bear it any longer and simply gave in, by a mystical experience of great intensity, which resulted in a sense of reconciliation, acceptance and joy. In a very vivid description of the experience, she writes : "I no longer felt that existence was malicious, but that, if only I could trust it, I should belong to joyful Love. I no longer feared my own isolation. I no longer feared to love and be loved by my son and I felt that vulnerability was the key to open the door which had held me in isolation".

The first of the poems printed below is the first part of a longer poem; there is an influence of T. S. Eliot; it is followed by shorter pieces.

Suspended animation between no two points
Of actuality is our existence.
In our conceit we say, "*Now* is what matters.
The past produced us, the future lies for us".
This is not so.
We snatch from the Mysterious
Only that which she deems fit to lend us.
We name it, call it "time", or "purpose",
And assume that is an end to the matter,
Set our clocks at seven
And rise refreshed
To ransack the ocean for orient pearl.
The sun swings round
And we presume that it is in the nature of things
That existence be punctuated
For the convenience of our senses;
And we forget, as if we ever knew,
That the passage of aeons affords no distinction
Between mutation and mutation.
It is fear of the monotony which drives man
To claim that he is upon a business
Which is, in fact, not.
"See, I hold a calendar. Here is yesterday.
I have actuality at my fingertips".
Tomorrow the hand will slacken in compliance
To stiffen again on Another's terms.

The birth came suddenly
After the waiting.
The barrier of flesh is broken
And a moment decides the separation.
"I'm scared"; and he was born.
There is no relief.
For the body there is relief.
But that is because my body is a passage
Through which perpetuality passes
As I watch. We are all onlookers
And watch our own destiny more clearly in another's.
His breath on my arm!
His first sucking!
His complete newness!
And yet it is so old,
So utterly old, this newness.
So tired!

And so I came
To meet you
As one meets with a dream
In the morning;
Between dreaming and awakening
Is a barrier
And in the crossing
Have not you, and I, suffered change
In the no man's land between two experiences?
How, then, shall I know you
In the morning?

The little poem, *The White Rose,* which is printed next, is by a lady who, once in her lifetime, had a most profound mystical experience, which she has described for me with great vividness. Many years ago she entered the Roman Catholic Church because, she tells me, she felt that most of their books and their mystical knowledge was superior to the Church of England. "Now I am older (and I hope wiser)", she writes, "I do not care much for labels of any kind". The experience described has many of the characteristics of some of those described by the great contemplatives. She was vividly conscious of a perfection of absolute harmony, love and unity in everything. "The 'poles' of life had completely disappeared, and there was nothing but Omnipotence and Glory. All the time I was aware that I was I, yet a complete One with all those

others. I received knowledge, which I could not express even now; in fact I hardly know what it was, except that *I knew*, and knew that I should from henceforth always *know*". She adds: "How stupid this looks in writing".

Behold, the lovely, snow-white Mystic Rose,
That blooms in secret on the hills of life;
Sprung from the soil of sorrow, pain, and strife,
Watered with tears, she slowly grows
Within man's life.

Breathing sweet fragrance deep within the heart,
She spreads her glowing petals to the Light;
So sensitive, so radiantly bright,
She leads the soul to realms apart,
And gives man Sight.

The last two contributors to my garland of mystical verse I intend to quote at some length. The first of them is a lady, now in her seventies, the daughter of a member of the Calcutta High Court. For two and half years, from 17, she lived in India, where she came in contact with the ideas of Hinduism. She returned to England to study at the Royal College of Music and for some years was a professional musician, specializing in violin/piano and viola/piano sonatas. Since 1920 she has lived in Australia as the wife of a Senior Lecturer, now retired, in Electrical Engineering at the University of Sydney. Of the composition of her poems she writes: "I am neither a scholar nor a poet, but from time to time I have experienced an opening up of my consciousness. I become intensely aware of certain ideas and rhythms which possess me until I have woven and re-woven them into permanent form. Sometimes this has happened when meditating, or at night, or during illness. As I have little or no contact with people interested in such matters, the poems have, for some years, been relegated to a shelf and there they remain. Actually when I look over them at rare intervals, I cannot believe they came throught my pen!"

On the poems little comment is called for; they have spiritual beauty and directness. The first one is headed by a quotation from Augustine Baker's *Holy Wisdom*. I have discovered that the first verse has a "mantric" character; repeated several times, it has a distinct "breaking through" quality. I am using it with effect in individual and group meditation. The last little poem seems to me to be completely perfect.

"O Serena Lux intimorum meorum!
Tu in fundo animae meae habitas"

Serene Light shining in the ground of my being,
draw me to Yourself!
Draw me past the snares of the senses,
out from the mazes of the mind.
Free me from symbols, from words,
that I may discover
the Signified
the Word Unspoken,
in the darkness that veils the ground of my being,
Serene Light!
Serene Light burning in the ground of my being,
draw me to Yourself!
Draw me past the snare of Time's memories,
out from my yesterdays.
Free me from grieving, from tears,
that I may discover
the pulse of joy—
rhythm of the Eternal—
in the darkness that veils the ground of my being,
Serene Light!

Ocean of Light and Life. . . .

Ocean of Light and Life from Whom my being stems!
In Whom I breathe and feel and think and move:
Your gift to me the world wherein I dwell:
Your gift the lowliest task of mind and hand.

Spring daffodils unfold You and returning day
resolving night. Your voice is heard through pain:
felt deep in love of furred and feathered tribes:
You, Friend of friends, in heart of every friend!

Through man-made threats of war, prevailing gloom,
and ugliness extolled, what should I fear?
You hold the worlds secure. My little world
no chance betides. It, too, is in Your Hands.

The seasons turn with Time: Wheel turns through youth to age:
beyond, Death waits, Your gift, the gift of Rest,[2]
the consummation of a journeying
through one of many Days. So, welcome Death!

[2] The mystic's "Rest most busie". (Author's own note.)

Heart of the Universe. . . .

Heart of the universe, O Sacred Heart!
in You the worlds are set to rise and wane;
each orb a shimmering arabesque of light
that dancing, circles on its wingful way:
"Heart of your Heart am I . . . and I . . . and I . . ."
So chant the worlds—like bubbles move in space—
within your Heart where shines the Father's Face.

Heart of the universe, O Sacred Heart!
in You our birth, our being, our destiny;
each soul, a glowing spark of Primal Fire,
life of your Life, sings, gathering into flame:
"Heart of your Heart am I . . . and I . . . and I . . ."
So chant the souls of men; as crimson life-buds they
course on within your Heart through night to day!

After a Ceremony

Beyond the scarlet splendour and the gold,
and rise and fall of age-old cloistered chant,
the Centre is, unnamed, unnamable:
unseen, unspoken, challenging a quest.

Beyond the beauty of the manifest,
and shadow of the truth no form may hold,
the Centre is, remote from shape and shade:
unseen, unspoken, calling for a quest.

Beyond the teacher and beyond the taught,
the shifting knowledge of the wisest men,
abides the Centre, point of every quest,
where silence leads and darkness folds her in.

Beyond the gate, the signpost and the chart,
the written word, the footprint of a guide,
the Centre is, for man's eternal quest:
where day is not nor flow of any tide.

Seek not His gifts, the more to be
Made one with Him who gives to thee:
no gift can fill the heart as He.

And when no light illumines prayer,
then through the darkness grope and dare
unseeingly to find Him there.

This last group of poems is from a volume entitled *Poems to His Blind Mistress,* a Sequence by R.P., which was first printed privately abroad in 1940 and then for public sale by the Oxford University Press in 1945. They have been long out of print. Their author is a man with a distinguished career behind him, which was rewarded by a knighthood and several decorations, and is a polished scholar, well read in the Greek, Latin and English Classics. On the evidence of the poems he is clearly an intellectual mystic whose mysticism has kinship with that of Plato, Dante and Nicholas of Cusa. As benefits a classical scholar, his poetry is exquisitely polished. He has told me the story of how this long sequence of 75 poems came to be written :

"It was first thought of in '21—or even earlier—as a prose work, a restatement of Plato's teaching on love, seen through twentieth-century eyes and freed of its homosexual associations. I came to see that it would be more effective as poetry. As time went on the notion of a long didactic poem was discarded, as also that of a sonnet sequence. Drafts slowly accumulated until, in the middle thirties, they began to group themselves in something like the actual form, recalling the structure of a symphony. . . .

As you will have observed, the *Vita Nuova* was a strong influence and largely responsible for the inwoven story, but the narrative element, part reality and part dream, is progressively muted as the music grows more grave. By XLV the girl of the Roman studio has been succeeded as leitmotiv by the Anima Mundi, which in turn gives way before *auto to theion kalon* (the Divine Beauty and that yet again before *Agia Sophia* (Holy Wisdom), all potentially manifest from that first moment recalled at LXXVII where the Coda, with its abrupt change of measure and mood, evokes the boy of 1913".

It is impossible by a few quotations to give any idea of the beauty and depth of this long sequence, nor is it possible here to quote more than a tiny fraction. I will limit myself to its latter part, when it moves into its most mystical phase. And first I will quote two pieces of—would that there were space for much more—the long blank verse poem of nearly 500 lines, numbered L.

The poem opens with the Gospel story of how the man, born blind, recovered his sight by washing, at the command of Jesus, in the pool of Siloam. Now that he is no longer blind, he finds himself in a strange, new, puzzling world. He longs for darkness and with the night darkness comes. But not the darkness he once knew. For the first time he sees the night sky and, as the clouds roll away, the moon shines forth, "undimmed, serene, in royal loveliness".

. . . First wonder held
Him as he gazed on her, and then a knowledge
Of sure tranquillity, a peace beyond
All that his life had known; freed of all thought
And memory, scarce conscious of himself,
He yielded all his being to that flood
Nor even knew he yielded, wholly stilled
Within the candent spell of her enchantment.
Borne on her light he knew at length the stars,
Turning his gaze on this side and on that
To search their company, until his eyes
Rested in contemplation on one fire
That influent by his new found sight attained
His inmost spirit, so that thus fulfilled
He was no more, but seemed only to be
One with that light. Clean of his finite self,
As Siloam's pool had washed his eyelids clean
Of sealing clay, stripped naked and alone
His soul participated in that life;
Not whelmed, not separate, but as a note
Has its place in the chord thus heard complete,
Nor is itself the less but, no more single,
Shares in a deeper life, a brighter flame,
Knowing fulfilment in that harmony. . . .

Not only that, he sees the whole earth transformed as "a finite reflect of the infinite". Then through a long section inspired by Nicholas of Cusa's doctrine of "learned ignorance and the co-incidence of opposites", the poem moves to its close, which, in a few lines, sets out a complete mystical religio-philosophy :

. . . The source
Of grace and truth and beauty lies beyond
All revelation, yet from God proceeds
That Wisdom unto Whom may man approach
In contemplation, and therein be made
A living part of the all-seeing vision,
A flame of the eternal light, a star
Set in the glory of that plenitude
In whom all life is one.

The poem ends with a prayer :

Lord God, set Thy sweet clay upon these darkened eyes
That healed they may perceive the light of Paradise.

In the concluding lyrics the inspiration of Plato's *Symposium*, which first suggested the composition of the Sequence, the ascent through earthly beauty to that Absolute Beauty which is eternal, is dominant. It is clearly evident in the three lyrics with which this essay ends :

Truth is the unslaked light of that which is,
Essence divine beyond all accident
Of man's perception; and co-une with this,
Full nature of its substance, immanent,
Is that on which all life's desire is bent,
Transcendent righteousness, that Grace whose bright
Presence unveiled by finite complement
Were blinding darkness to our mortal sight.

And beauty is the splendour of that light
Burning through all creation, ultimate
Pledge and assertion that the empty night
Passes and life's desire is consummate :
In whose dread sacrament shall man draw nigh
And look upon the face of God; and shall not die.

Think not because life's dawn was from the sea
That wisdom lingers in those depths profound;
Nor seek by scaling the high heaven to free
That chain in which thy soul is straitly bound.
Nor there nor there shall thy desire be found,
But close before thee; shining through thy tears
The vision trembles; even now the sound
Of that strange song is instant to thy ears.

Not in the chartless cypher of the spheres
But in his soul shall man devise the word
To set aside that veil in which appears
So dimly now the spirit's light outpoured;
And by himself reflected shall he find
The order of that thought which forms creative mind.

Who turns himself aside and would refrain
From this world's loveliness, does but secure
And rivet ever closer the cold chain
Whose shackles bind his spirit. To abjure
Beauty's enchantment and her strange allure

Distilled in time's dark cruse is to blaspheme
The benediction of that light whose pure
Radiance is mirrored from life's broken stream.

For only grace responsive can redeem
The loss of our dispersal. Who denies
The gleam within his heart denies the gleam
Heaven sends upon the earth in earthly guise.
The thin flame of man's soul must lift its head
Towards that transcendent flame from which all light is shed.

The Poetry and Humour of Mountaineering

Michael Roberts

This article first appeared in *The Alphine Journal* for 1940, and is reprinted by permission of the editor and of Michael Roberts' widow, Janet Adam Smith, who has written this foreword for us:

"Michael Roberts was a poet, a scientist, a teacher. Beginning as a mountain-walker, he soon made himself a sound mountaineer, leading parties of friends or schoolboys on British hills or the mountains of Dauphiné and Savoy, tackling with a guide the classic routes of the Alps. He was elected a member of the Alpine Club in 1937 and 'The Poetry and Humour of Mountaineering' was a paper read to the Club in May 1939. Of what the mountains were to him I wrote in the Introduction to his Collected Poems (1958).[1]

"First of all the mountain itself stood for that integration which he so passionately sought. His continuous effort to find a philosophical basis for his poetry and politics, to understand where one side of his experience fitted into another, to make the way he lived fit in with what he believed, was not just an intellectual exercise but a need of his whole being. Climbing was the living metaphor of this effort: to reach the top of a mountain is to reach the point where all the ridges come together, and all the impulses which brought the climber there. But the top is not reached once for all. Each time the climber stands there, it is by a new effort in conditions which are always changing . . . .

[1] Quoted here by permission of the publishers, Faber and Faber.

"When he was off with his equals on a hard climb, then he was doing what he wanted to do in his life as a whole—using his faculties to the full—and it was at such moments that he seemed most himself, most at home in the world. 'Il faut tourjours faire le plus difficile' *was a great watchword of Ottone Bron, the Courmayeur guide who took Michael on his first big climbs and who became one of his closest friends.* La Meije *was written for Ottone after he had been killed on the Glacier du Géant in 1938, when a snow bridge broke under him and he fell a hundred feet. The poem speaks of those who are content to keep to the roads and hotels of the valley: then—*

This was our pleasure: to climb among loose stones, to cut steps in ice,
To find a new alternative to the mauvais pas;
Their's was simpler, and we despised it.
Perhaps we were right:
A man should use every nerve and muscle,
A man should puzzle out the hardest questions,
A man should find words for the thoughts that no one knows."

* * *

On a foggy August morning some years ago, three of us set out from the Vittorio Sella hut intending to do the Grivola by the ordinary route. For guidance we were relying mainly on an Italian 1 : 100,000 map, a picture-postcard view of the S. face, and our own determination to avoid the "deceptively easy-looking" N.E. ridge. As we came up to a plateau at the foot of the mountain, the mist lifted for a moment: "That peak's as good as ours", said No. 3, with unusual rashness; but all went well till we got to the foot of the rocks. True, we crossed the glacier in five minutes instead of the twenty we had expected, and the ribs of the mountain seemed to be running up the wrong way; but the map made it clear that this *must* be our mountain, and after some glib talk about retreating glaciers and the curious effects of perspective, up we went. I knew there were falling stones on the S. face of the Grivola, and when I found myself with one finger and the toe of one boot in a small crack with crumbling edges, I had leisure to listen to their vicious "whing" as they invisibly whistled by at the rate of fifteen a minute. I did not like them. No. 2 announced that I could not be held: No. 3 pointed out some of the stones were hitting the next ledge, fifty feet up. The mist lifted again; anybody would have sworn that one could walk up the N.E. ridge in half an hour. But we remembered the words of Coolidge, and, very

much ashamed of ourselves, wriggled down and went over to the S. ridge. That was grand: towers, spurs, caves, all littered with letter-box and jug-handle holds; there seemed to be stirrups, ears and noses everywhere; sometimes, when the mist thickened for a moment, we climbed a gendarme by mistake; then the caravan would reverse and No. 3 would lead us into a pulpit or up a flying buttress. The sun burned its way through a few remaining wisps of vapour; rock towers and gargoyles stood out bright red against the deep blue of a clear sky; and suddenly No. 3 climbed up into a cave and emerged through a trap-door on to the summit. "We are deceived in our peak", he said; and sure enough, a mile away and a thousand feet above us, we saw the Grivola, and at our feet there was the Trajo Glacier, the best part of a kilometre wide. We were on a peak not marked on the Italian map. We ran down our "deceptively easy-looking" N.E. ridge in ten minutes and did the Grivola next day.

Better men than myself have done that sort of thing: it is annoying and humiliating (it happens even to airmen flying round Everest), but these exhibitions of our own foolishness are an intrinsic part of climbing, and some malicious humorist might well take a number of narratives, like my story of the accidental ascent of Punta Rossa, and then work them up into a useful and chastening book, *The Climber's Guide to the Wrong Mountains*.

Whilst we are thinking of that great unwritten work we might turn aside for a moment to consider its companion volume: *The Climber's Guide to Imaginary Mountains*. It would deal not with mountains like the 13,000-ft. Mont Iseran, whose existence (like that of some Alpine huts) is purely cartographical, but with those nameless symbolic mountains that haunt our imagination. As the Wrong Mountains belong to the domain of humour, so the Mountains of Imagination (if we are cautious enough about the word "imagination") belong to poetry. One can go astray among these mountains as easily as one can among the more material Alps, and our sense of humour, which often helps us to deal with hardships and humiliations, can also serve to check our wilder expeditions into the Mountains of Imagination, and to give us warning when we approach too near the point at which the sublime turns into something else.

I am not altogether a disciple of Hobbes: I do not share his distrust of poetry, his grimly practical view of religion, and his gloomy view of human nature; and though I agree, as any climber must, when he says that "men are wont to laugh at mischances and indecencies wherein lieth no humour at all", I wonder what he

means by humour, and whether he would prefer us to weep and curse at all misfortune. For it is plain enough that most jokes *are* concerned with difficulties and mishaps: they remind us brutally of human limitations, they preserve our sense of proportion, or give it expression, and they restore us to reason when we are thinking of suicide or murder because we have stubbed our toe. Humour is often the seamy side of poetry, and a poem that cannot stand up to a joke or a parody with its brutal recollection of "mischances and indecencies" is a bad poem.

Hobbes would have been a bad companion on a rope: there is a wildly non-utilitarian element in mountaineering which finds no place in his philosophy; there is a good deal of scope for poetry; and there is also something inherently funny in a sport in which you get up at 2 a.m., bruise your shins, blister your face, get one ear nicked by a falling stone and, after getting soaked in a rainstorm on a three-mile-long moraine, blunder into a hut after dark, only to find the Chasseurs Alpins sleeping on every inch of floor and table. When we explain that we do all this for pleasure, the psychoanalyst will always give us a special kind of look, and the ordinary citizen will feel that there is a joke lurking about somewhere, and that if there isn't, there ought to be. But this joke is the one joke that is missing : each of the separate pains and penalties of climbing has its classic joke, but the transcendental joke, the joke of transfinite order that would reconcile outsiders to our incomprehensible passion, does not exist. Our justification, if it is to be found at all, must be found in poetry; but the English as a race prefer humour to poetry, and we might find that if we billed ourselves as the world's ultimate practical jokers we would more often escape the awkward "But *why* do you do it?"

Meanwhile we have all the separate constituent jokes of mountaineering : the Alpine flea, now less virulent than in the sixties (or are we a more hardy generation?), the sardine-tin on the virgin summit, the glacier that goes down faster than the climbers go up, the mountaineer who doesn't feel very well at the foot of the big crack. There is even the search-party joke—and anybody who has ever taken part in an unnecessary search party knows how necessary that joke is. It takes its best form, I think, in Dorothy Pilley's *Climbing Days* :

"The ground above the Cascades des Ignes is famous as a place for benighted parties. There is the remarkable story of the man the search party could not find. When in despair they went back to Arolla, there he was sitting in the hotel garden. 'Wherever have you been? How did we miss you? Didn't you hear our shouts?'

they asked. 'Yes', replied the benighted one, 'but they sounded so terrible and angry that I hid under a rock till you had gone by'."

All these are what I would call functional jokes; I do not know whether to include in this category the story of Mrs. Aubrey Le Blond's traverse of the Zinal Rothorn, in which she got nearly down to Zinal, and then had to go back over the mountain to Zermatt because her skirt had been left under a rock on the Trift Glacier. It can hardly have been a joke at the time; in the middle distance it may have seemed excruciatingly funny; and now, when ladies are allowed to enter hotels in trousers, it seems quaint rather than funny, and creeps into the class of historical anecdote concerned with personal peculiarities rather than with climbing itself. The same may be said of the description of Coolidge as "the American who climbs with his aunt and his dog", or of that former President of the Club, to whom the innkeeper ascribed immense political powers as "il presidente di Londra". Conway's guide, too, will be remembered as the man who said "It is the natural instinct of man to run from gendarmes"; and Hope and Kirkpatrick will survive in Alpine legend as the inventors of the aluminium collar-stud. But a whimsical, nostalgic flavour finds its way into these anecdotes and appellations: they become tinged with regret for an age in which men could roam over the Alps making new ascents every other day, when frontier guards were a nuisance, but not a danger, and when male climbers would no more think of entering an hotel without a collar stud than Mrs. Le Blond would go down to Zinal without a skirt.

The personal anecdote, the incident or phrase that reveals a character and at the same time helps us to make light of our own troubles and difficulties, finds a natural home in narratives of climbing. Tilman, in *Nanda Devi,* after weeks of difficult climbing and still more troublesome descents through bamboo jungle, exclaims characteristically at the sight of the first mud village, "We shall be down in time for tea". A more scholarly and no less effective manner was that of Buxton on the first ascent of the Aiguille de Bionassay. He spent the day arguing about Greek and Sanscrit roots, and halfway through a cold, uncomfortable bivouac he first agreed with Craufurd Grove that inasmuch as all things have an end, even a night on the Bionnassay must finish some time, then added thoughtfully, "that in the present case the question was, which would finish first, the night or ourselves".

Here we are back at the functional joke, which is grim, spontaneous and necessary. The works of Samivel are a *locus classicus* for such jokes, and they will be needed as long as climbing

remains painful, laborious and enjoyable. But there is another kind of mountaineering joke which is far less common. Elaborate and painstaking intellectual foolery has often been one of the expressions of our national distrust of logic; but I know of only one example of such fooling applied to mountaineering, and that was not the work of an Englishman at all, but of an advocate from Lyons who one wet afternoon filled three pages of the hut register of the Refuge Félix Faure with a variation[1] on a theme supplied by the guardian :

"Le gérant du Refuge Félix Faure ayant attiré l'attention des alpinistes sur la présence au refuge d'escargots disponibles à toute heure (5 francs lá douzaine) la question s'est posée de savoir de quelle façon pouvaient être utilisés au cours des ascensions ces intéressants gastéropodes".

With this kind of joke we leave the region of natural humour and enter that of literature : we are climbing not the Wrong Mountains, but the Mountains of Imagination, or, to placate Coleridge, let us say the Mountains of Fancy; we are using words not merely to report material happenings but to build up an experience that is not visible to the outer eye at all. Between the extreme outposts of the Mountains of Imagination and the brutal realities of the Wrong Mountains there is a turgid bog of purple prose and watery verse to which I must at length return, but at one point the two chains are connected by a delicate snow ridge. Pre-

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[1] The variation is as follows:

L'escargot (*Helix somatea*) présente en effet deux propriétés avantageuses à notre point de vue : la puissance adhésive et la faculté de laisser une trace visible.

La seconde peut permettre à une cordée accompagnée d'escargots d'effectuer facilement son retour malgré la survenance du brouillard.

La première est inappréciable pour gravir les roches lisses verticales ou même surplombantes.

Toutefois l'expérience a révélé qu'on ne saurait attendre aucun service des escargots sur le glacier, le froid les saissant par la base et les faisant rapidement rentrer dans leur coquille, dont aucun procédé persuasif ou même coercif, ne peut ensuite les extraire. Un alpiniste chinois avait suggéré, il est vrai, de remédier à cet inconvénient en tiédissant au préalable par un moyen quelconque la surface glaciaire que l'escargot doit parcourir, mais ce procédé serait coûteux, peu pratique et tout à fait opposé aux meilleures traditions de l'alpinisme français.

Au contraire, des résultats intéressants ont été obtenus dans le rocher par l'emploi d'escargots, lequel comme celui de l'artillerie, se fait par masses. Le nombre d'escargots à employer pour enlever un poids déterminé est obtenu par l'application de la formule $n = \sqrt{(t\overline{Xa^3})y^3}/\pi + k$, k une constante suivante l'hygrométrie du rocher.

cariously poised halfway along this ridge stands the French barrister, immobilized for ever with his retracted snails; and near by there is a party led by A. D. Godley. They too have had experience of the Wrong Mountains and they have seen the Mountains of Imagination: they know the pains and the pleasures of climbing, and they are too experienced to try to describe directly the feelings they most value.

The deep satisfaction that we get from climbing is something that many of us would like to express in poetry rather than in prose, partly because the rhythm of poetry is the more memorable, and partly because poetic rhythms encourage us to pitch our sentiments a little higher than we can do in prose without falling into the lush verbiage of that familiar purple bog. Those who have tried know it is very hard to write that kind of poetry. There is a poem by James Reeves, called *Climbing a Mountain,* but that scarcely meets our need, for it describes the feelings of an inexperienced amateur. In the more traditional measures appropriate to unqualified enthusiasm there are the poems of Douglas Freshfield and Geoffrey Winthrop Young. Even the most modest descriptive poetry has its dangers: the rhythms run away with us, the mood sweeps up into the false heroic, familiar epithets come away in our hand, and before we know where we are we have stepped off into the empty air.

Most of us would be content to avoid the problem if we could escape as elegantly as Godley, who uses the familiar, high-sounding epithets half-comically, half in earnest. He pokes fun at himself and his friends for feeling so strongly about it all, and he reminds them that "They will dine on mule and marmot and on mutton made of goat". It is a mood familiar in the light verse of English academic writers—among others, Calverley and J. K. Stephen. It is not the mood of enthusiasm, but the mood in which one smilingly deprecates one's own enthusiasm, without being ashamed of it.

The central problem, of plain unwhimsical description, remains; and beyond that there is the problem of imaginative writing. Wordsworth's lines on the Simplon, Shelley's *Mont Blanc,* and Coleridge's *Hymn before Sunrise* all contrive to express imaginative insight without falsifying or distorting the material vision; but all these belong to the poetry of mountains rather than the poetry of mountaineering. Perhaps, in the end, pure descriptive poetry, whether of mountains or of mountaineering, is not possible: the underlying significance that we read into our experience is inseparable from the experience itself. Certainly Freshfield and Geoffrey Young are seldom content with simple physical description. But it is just here that the dangers of falling into empty air are most

acute: the precision and brevity of prose are lost; writers who would never venture to exaggerate or over-emphasize in a "paper communicated", are tempted to throw off the rope and abandon honest climbing for a titanic struggle with the infinite cliffs of the wildly impossible. Poetry, when it rises above the level of accurate reporting, differs from common speech in something more than the use of metaphor and rhythm, for the poet writes under a sense of compulsion, and sometimes disregards the claims of reason and material fact; but the poet who will not take the trouble to make accurate concrete observations is not likely to get any depth of meaning into his allegories and metaphors. "Aesthetic distance" is not the same thing as a colourless abstraction; and a strong and precise emotion is not communicated by a hackneyed style eked out by wild exaggeration. Like the prophet and the dreamer, the poet is all the better for keeping his eyes wide open in his ordinary waking moments.

In this matter the prose writers of mountaineering have something to teach the poets: consider the accuracy of Tyndall's observations, and the vigour of his images: "Veils of the silkiest cloud began to draw themselves round the mountain, and stretch in long gauzy filaments through the air, where they finally curdled to common cloud, and lost the grace and beauty of their infancy". Or turn to Craufurd Grove, when he speaks of "the gradual extinction of sound all over the glacier as the cold became more intense". The word "extinction" is right not only scientifically but also sensuously: the middle syllable suggests both the cold and the last sharp cracks as the glacier freezes; and imaginatively also, for the sound does not merely *stop*: it is extinguished in another element, the encroaching silence.

In modern writers we find the same capacity to choose the illuminating word or phrase: Dorothy Pilley tells us that the rocks of the Devil's Kitchen are "rather like slippery and brittle toffee", or that she herself, after being pulled out of a crevasse, walked "for the rest of a day as though on a soap-film". If we try to give the impression of extreme delicacy by direct description—"I walked more carefully than I have ever done before or since"—we are left with the same information, but we no longer have the *feeling* of the experience. A good metaphor or simile plays upon our senses, and no amount of exaggeration, no deliberate working up of the tawdry vocabulary of purple patches, will do the work of one apt phrase.

Wordsworth, Coleridge, Tennyson find such phrases when they write of mountains, and so at times does F. W. H. Myers, but on the whole the poetry of mountains shows all the vices of bad

description. It is bloated, pompous and sugary, and the explanation seems to be that it deals with the Wrong Mountains—not the Wrong Mountains of material reality, but the Wrong Mountains of imagination. It expresses a kind of sham religion, a sentimental daydream in which brutal realities are not transcended but conveniently ignored; and as one kind of blindness or evasion leads to another, this easy-going religiosity finds expression in images and rhythms that are as crude and limited as its theology.

The phrase "the religiosity of mountains" is Mr. Arnold Lunn's, not mine, but I would like to explain more fully what I understand it to mean. From the earliest times the loneliness, immensity and permanence of mountains have made men think of a power beyond themselves. The superhuman force of cataract and glacier, the gloom of mountain forests, the sudden contrast of the minute mountain flower, and the pure contradiction of snow and sunlight, have all helped to fascinate and terrify; and the difficulty of reaching the heights, with their wide vision over a landscape of towns, fields, rivers and all the world of ordinary life, has made the climbing of mountains an image of life itself, with its difficulties, dangers, and moments of unexpected insight.

Material imagery is always necessary to the writer who is concerned with spiritual reality; and it is natural that the religious writer should turn to mountains for his imagery—the gods dwelt on Olympus, and Dante's Earthly Paradise was set on a mountain. The Austrian poet Rilke, in one of his poems,[2] uses mountains explicitly as symbols of human existence and the struggles of the human spirit:

"Exposed on the mountains of the heart. Look, how small there,
Look: the last village of words, and higher,
But still how small, yet one remaining
Farmstead of feeling. Can you not see it?
Exposed on the mountains of the heart. Bare rock
Under our hands. Yet here too
Something blooms: from the dumb precipice
A plant unknowing blooms singing into the air.
And the knower himself? Ah, he began by knowing,
Now silent, exposed on the high hills of the heart.

And here, with undistracted mind,
Roam many creatures, sure-footed mountain beasts,

[2] The translation given here is adapted from Mr. J. B. Leishman's version.

Pausing and passing. And the great bird dwelling in secret
Soars round the pure, forbidding summits—beyond all shelter,
Here, on the high hills of the heart."

More often, as in Wordsworth, the symbolism is implicit, but whether the symbolism is explicit or implicit, people are apt to take the imagery for the reality, and the great nineteenth-century movement against the Christian religion, influenced perhaps by the kind of pantheism that we find in Wordsworth, served to encourage the error. The symbol was taken for the reality, and while ordinary people talked of listening to the sermons of Dr. Greenfields, the climber began to talk about mountaineering as a religion.

Mountaineering is a game, a sport, a recreation, the best of recreations. It takes all our energy and attention, it sets us a job that we can do, but only just do; for the time being it reduces the complexities of life to neat simplicity; it calls for qualities that are valuable in civil life; it gives a harmless outlet to instincts and desires that might otherwise turn to evil; and it offers an experience rich in symbolic significance. But it is not real life and it is not religion. There is no virtue in the exercise that it gives to valuable qualities unless we turn those qualities to good account when we are no longer playing; and there is a real danger in the experience if we confuse the act of submitting ourselves to the conditions and difficulties of mountaineering with the act of submitting our will to a spiritual power beyond ourselves. Mountains may be symbols or images of some other reality, but the worship of images as if they were something more than images is a form of superstition.

Often, in mountaineering poetry (and sometimes in prose), this pantheistic heresy is combined with another. I mean, the doctrine of the unreality of evil. There is a sense in which the religious poet is concerned to show the transcendental good arising from the struggle of good and evil; but to say this is not to deny the reality of evil. The existence of evil, in the world and in ourselves, is as real and demonstrable as the existence of crevasses in the Mer de Glace and bad rock on the Matterhorn; and to ignore it is to live in a fool's paradise. It is natural that the kind of poetry which expresses what is sometimes called an optimistic view should ignore the real humiliations of climbing—the blisters, the occasional belly-ache, the foul air in the huts. A make-believe religion is imaged by a world of make-believe—a world in which all Hobbes's "mischances and indecencies" are not transcended, not treated as part of the material out of which transcendent good arises, but merely ignored. To select pretty details, as Tennyson does in his lines on

Monte Rosa, is harmless : a selection of that kind is still fundamentally true, and it would not be wholly upset by the intrusion of some realistic detail taken from the seamy side. Poetry can be honest without treating the intrinsically ugly equally with the beautiful. The danger begins when selection becomes distortion of fact, so that the poem falsifies both the sentiment and the world described, and rests on a religion that is bad because it cannot be applied to the real world.

Judging from internal evidence, the writers of this sentimental poetry are seldom climbers. It would be unkind to take an example from the minor offenders of our day, and for me it would be unfair, for I have served my time as a reviewer and my feelings about bad poetry are exceptionally strong. Let us turn to Matthew Arnold, who would certainly agree with most of our contentions, but sets us a bad example in *Rugby Chapel*. In that poem he has a long descriptive passage :

> "Cheerful with friends we set forth :
> Then, on the height, comes the storm"—

Bad judges of the weather, evidently, Arnold and his friends; and they pay for their imprudence :

> "Friends who set forth at our side
> Falter, are lost in the storm".

But there is no practical nonsense about trying to rescue them : the note is too romantically heroic to admit common sense :

> "With frowning foreheads, with lips
> Sternly compressed, we strain on,
> On, and at nightfall at last
> Come to the end of our way"—

Happily, they arrive at an inn, and the innkeeper, who seems to know the ways of this kind of traveller, asks whom they have left in the snow :

> "Sadly we answer : We bring
> Only ourselves ! we lost
> Sight of the rest in the storm.
> Hardly ourselves we fought through,
> Stripp'd, without friends, as we are;
> Friends, companions, and train,
> The avalanche swept from our side".

We don't really talk of disasters in that tone of voice, and, to put it mildly, disasters don't happen like that in a well-organized party.

Arnold knew quite well that the whole passage was only a metaphor for his real meaning: he was trying, as he always did try, to say that life was a struggle, and that difficulty and danger were inseparable from life, or at all events from any life of value; but it would have been far more convincing if it had been more practical, and if it had contained less of the Excelsior spirit and more of the cheerful acceptance of real indignities and sufferings.

There is another interesting point in *Rugby Chapel*. Here, as in many passages of this kind, the heroes are travellers, presumably with some good reason for making the journey. The mountaineer seldom has any such reason: his climb has to be its own justification, and in this it symbolises life even better than a journey does. Climbing derives its most profound symbolic meaning from its gratuitousness, its apparent pointlessness. The climber, however tentatively and reluctantly, accepts risks as well as discomforts and indignities, and unless he is a professional he cannot say that he is compelled to do so. He makes a free choice, and deliberately rejects greater safety for less. The final entry in Hartmann's Nanga Parbat diary is one that inevitably turns our attention to this aspect of climbing. Hartmann had spent the day making a track up to Camp V, and in his diary he writes:

"June 14. It was wonderfully fine and I was making height so easily without breathing spaces, and that moreover in snow where usually I broke in more deeply than the others and had consequietly to undergo greater fatigue. I wondered at all this and was confident and grateful. I think moreover that I smiled all day to myself—well, it was because of my son's birthday! Slowly, one after the other, came the Sherpas, each throwing his load down on the ice nose".

Hartmann had no designs on the reader, and it is only our knowledge that those were his last words, and most likely his last thought, that gives them their special poignancy. "I think moreover that I smiled all day to myself". The words are not poetry, yet they make a great deal of mountain poetry look silly. They are not sentimental, for the sentiment is neither exaggerated nor misplaced, and yet it would be almost impossible for them to occur in poetry without being grossly sentimental. No one could use such an incident in poetry without first answering the question the whole disaster makes us ask: What right has anyone to throw away his life like that? Granted that a good climber, once he decides upon his mountain and his route, uses all his skill and knowledge to minimize every kind of risk, what right had he to take the risk at all?

I think there is an answer: but all the subsidiary reasons we give,

all the adequate reasons that justify our scampering up and down familiar Alpine peaks, are ruled out. It is plainly inadequate to talk of the view, the exhilaration of physical effort, the satisfaction of escaping for a time from all the problems and annoyances of daily life and losing oneself in a job that takes all one's thought and skill. If climbing were nothing more than a brief escape from worry and responsibility it would be the same as any other sport, but the fact that we can talk of the poetry of mountaineering and keep near to the subject of great poetry shows that there is an element in climbing that is lacking in golf or motor-racing. If climbing were valuable merely for its contributions to scientific knowledge, there would be no excuse for our prejudice against dynamite and iron ladders. If it were merely a healthy exercise, there would be no excuse for occasionally risking our necks. To justify mountaineering in the fullest sense, we must justify the loss of life, the deliberate taking of risks. And I think the only answer is in the sheer uselessness of the loss: man can preserve his dignity only by showing that is not afraid of anything, not even death.

To take a stupid risk in crossing the road or to amuse ourselves by drawing lots for suicide would not satisfy the condition, for it would show merely that we did not value life at all. There must be something to set against the risk, and something adequate; and there, I think, all the other reasons for climbing are thrown into the scale. The sacrifice is not necessary: the risk brings no material gain, but it offers something—the exhilaration, the sense of clear vision—which partly excuses the risk. And then, for the rest, the risk excuses itself. It is a demonstration that man is not wholly tied to grubbing for his food, not wholly tied by family and social loyalties; that there are states of mind and spirit that he values more highly than life itself on any lower level.

A simpler explanation might be offered: it may be said that our appreciation of life is keenest when our hold on it is most precarious; and certainly a psychopathic passion for living in a state of artificial intensity may account for the conduct of some climbers. But for most people it is only a small part of the explanation: the whole explanation cannot be grasped unless we have a sense of intrinsic value such as we find in religion. A thing is not good for any purpose or end, but just because; and sacrifices are good because they show superiority to all mere utilitarian values: they show an excess and overflow which is really a gesture of confidence and vitality. The primitive man who sacrifices his last loaf to the gods is not necessarily a fool: he may die of starvation, but he shows the spirit of a race that will not die.

This relation between mountaineering and religion is one that almost everyone has felt, but it need not be mistaken for identity. If we are to use mountaineering as a symbol, let us keep clear the distinction between symbol and reality, and let us at the same time preserve the vitality and scope of the symbol by frankly admitting both the mischances and indecencies of climbing. In this way we can do something to ensure that our interpretation of life is not a sentimental daydream but a comprehensive and adaptable philosophy : if we use our sense of humour wisely, we can use it not merely to save us, as it saved Godley, from an embarrassing public exhibition of private sentiment, but also to remind us that mountaineering, even when it supplies the symbols of our religious thought, is still distinct from religion. The Guide to the Mountains of Imagination is distinct from the works of Ball and Coolidge, but it should be no less practical, and to guard against our own vanity and exaggeration this Guide to the Sublime should be read in conjunction with the Guide to the Ridiculous.

The Small World: Raw Stress Part I

Tim Eiloart

This report was written during and after the crossing of the Atlantic by balloon, from Teneriffe to Barbados. The voyage itself has been described in "The Flight of the Small World" by Arnold Eiloart and Peter Elstob. The four crew members were Colin and Rosemary Mudie, and Bushy (my father) and myself. The Mudies were old friends and the idea came from them. Bushy masterminded the operation. It took two years to devise and build all the special gear needed. He had a balloon pilot's licence and was captain in the air. Colin, who has very wide experience at sea, was captain during the sea voyage.

To maintain a balloon in mid-air is unexpectedly difficult. There is no equilibrium level and the weight must be adjusted all the time, by letting out gas or throwing ballast. It is comparable to the problem of weighting a buoyant object, so that it doesn't float to the surface or sink to the bottom. For the voyage we overcame

the equilibrium problem to a certain extent by not floating freely but trailing lines behind in the sea. As the balloon rose so a greater weight of line was drawn out of the water. This extra load of line compensated for the extra buoyancy of the balloon. We were however subject to thermals which were so powerful as to overcome our line-towing technique. The balloon supported a boat-like basket for making the crossing under sail. After four days in the air we released the balloon in a storm. We sailed the rest of the distance in the next three weeks. We were short of water due largely to my own preference for food, which in the event we didn't want to eat. Half a pint of fluid a day and eat-whatever-you-like is a very effective diet indeed.

I was most apprehensive all the time in the sea, as opposed to the air, and my weight dropped from ten stone to seven. (I am six feet tall.) I was the only person on board who was really depressed and clearly nervous, and I was the only person to lose so much weight, although I actually ate and drank more than the others. I was ill for a short while and did not stand my watch, the main symptoms being diarrhoea and lassitude. After the voyage I was unable to hold my food and had to be put on a special low protein diet. This is quite common in cases of semi-starvation. For the first week or so after the crossing my frame of mind was generally self-indulgent and very unstable. I wrote section II during this period. The crossing had created a great deal of interest and we were the centre of attention. After about two weeks my mood was triggered into one of complete euphoria, with all the accompanying effects of acute over-awareness, irresponsible action and delicious creativity. This was when I wrote the commentary which follows. The paragraphs in italics were written at later stages. After several weeks of euphoria, during which section one and all of section III were written, I returned to Great Britain and had a very trying period of adjustment, lasting about two months. At its worst I was far from happy and very poor company. This period was characterized by ludicrous insight and behaviour, against which friends and relatives reacted quite understandably. I was mildly depressed for a few months after that, not in such a way as to cause me any real worry. My behaviour was still tempered by occasional eccentricities, the only one I recall being that I once decided to try and speak to the superintendent of the factory where I worked and reverted to sitting on the floor outside his office until he came out. The personnel officer invited me in for a chat and persuaded me that he could handle my problem and I would lose points by laying siege to the superintendent.

Section 1

(Written during euphoric phase)

It was an experience for you? It was very exhausting? You must have been very frightened. And so the questions roll on. But for me the answers now are never positive or negative. Like Professor Joad I want definitions of all the words in the question. But this maddening precision is not simply to annoy, because I know it teases. To me the trip is a set of memories, a set of accounts in the press, a sheaf of vitriolic notes in my file. There are calculations at my Cambridge home showing that the original project was impossible; there are letters from Royal societies which employ simple intuition to confirm the calculations. There is a telegram "Victory . . ." from my mother Mary that still causes honest tears if I do not send it home to its little box of my memory as soon as it escapes.

I will assume that Peter[1] has assembled all the relevant pieces of paper and try to add to his account anything that may seem interesting and unique to my own memory.

The take-off was requested by me, under vile conditions. If I had known just how vile they would be I doubt if I would have had the courage to make the request.[2] In fact that was the most dangerous part of the whole trip as far as our balloon was concerned. But by achieving the take-off at night time we increased our final chance of an Atlantic crossing in the air enormously. I can remember the feeling of real tension that I felt as I sat on the floor at Bruce's in Santa Cruz. We were talking about nothing in particular at eleven o'clock in the evening waiting for the phone to ring. I felt sure it would, and I could hardly dare to trust my own judgment. "I'm almost sure the wind must drop tonight but I just can't believe we will take off I feel nervous almost, for the first time. I suppose we must just sit and hope for the best".

Ten minutes later Bushy telephoned the wind was dropping and I told him that we had better try and take off that night. I felt slightly ludicrous and from the coolness of Bushy's voice he seemed to be feeling unreal, like two people finally giving the OK to a plan to start a world war. That night we failed to take off; the next night we managed it.

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[1] Peter Elstob.

[2] Balloons have to take off under certain weather conditions. These never occurred We had to decide to take off with distinctly poor conditions, and the decision was mine.

On the second night I went to the boat to have some sleep at about nine o'clock; Peter woke me with the news that they were going to continue inflation, I lay and compared myself to a worm, "here I am in a black hole with all the time in the world to work myself out of this blue funk". The fear of looking an idiot soon overcame the fear of the voyage, and I recovered the strength to crawl out from underneath the tarpaulin and do my best to help. I behaved like a bastard that night and I knew it. I wasn't in any mood to consider anyone else's feelings. I remembered biting off other people's heads who wanted to do the sandbags correctly as opposed to quickly; I remember giving orders indiscriminately to interpreters, to everyone in the crew, to helpful Spaniards who couldn't speak a word of English. Perhaps I managed to spare the feelings of some people. I tried not to offend the two professional launchers, Booth and Jerry, but I was taking some orders out of their hands in my haste to get the job finished.

On board the boat I felt slightly heroic, ashamed of my heroism, and again unreal. We took off and started to throw out tins of calcium hydride while there was still water in our water bath. This was largely my fault and it was the first thing for which I felt guilty. Had I thought carefully about a night launching I would have started with an empty water bath. Jerry Long had tied the neck with me and as we rose to 1,800 feet I remembered his last words "For goodness sake remember to untie that, or you'll burst as soon as you begin to rise". He described a German balloon which had done the same; I contemptuously wished that he would cut the illustrations and trust us just a little not to be that moronic. As soon as there was any time I wanted to discuss the things we ought to do. "I'm just writing a list of the things we seem to be going to have to do".

"Good god, I'm amazed" said Bushy.

"Well you are the one who always used to go on about making lists".

"Oh I don't object to it at all" (he was in fact all for my doing it). For the first time I felt the disappointment that I was going to feel again and again during the trip. Bushy had taught me the list making habit, and about a month before take off, when my wall in Cambridge was covered with lists of jobs for every day until take-off, Bushy had, to my horror, more or less given up the habit. I have lost the lists, they were for example—fix the met. instruments —lower the mast—etc.

For the sake of efficiency I now include my original notes written

on board, with comments in italics. (N.B. The comments were written during the euphoric phase.)

Written after our first thermal.

No bits of boat left.

Reseized quick releases.

Tied the balloon lines above the quick releases to an accessible position. *We tied the neck line, rip line etc., in positions where we could use the quick release without fear of being capsized by one of these. I think our first attempt at this job was inadequate (i.e. the one described here). This entire passage seems to have been written at night or it would not be so repetitive.* We ate a meal. I had prepared a polythene bag full of nice things for me to eat during the day. I handed round my nosebag of food as we recovered; we discussed the analogy of Hitler's success and our failures, we always hope the end is in sight. Bushy described Hitler's run of successes and their treatment by the Press during the war, how every step was anticipated as sheer lunacy and found to be only too clever. After a series of "mighty" generals had been licked by Rommel they sent out Montgomery and Bushy had had the feeling that perhaps they really did trust Monty to put things right, or surely they wouldn't have given him the same build up as all the others, unless he really was exceptional. We ate a decent meal and decided to make two water bags, one soft one hard. We were bouncing along, we pulled in the mast and hose. For about two hours Colin tied the two together. Rosemary reminded us that the spirals on the mast would cause a propellor action. *This was one of Rosemary's very few suggestions, like a drowning man clutching at a straw I wrote it down so as to have a record of all the intelligent things she said. I never really thought that it was important.* At the time we changed the layout of the rope which was tied to the mast so that it went straight along one side of the mast and did not go round and round it in a long spiral.

The voyage is over now and I am not going to bother to distort my feelings or to spare people from criticism. I hope I will not "judge", which for me is criticism and hate.

We agreed to try a "weighted bag" Rosemary got cross because of food, and took an inventory, still cross. Bushy in fact supported the idea wholeheartedly (*that we should trail a bag full of ballast which would hit the water before we did and prevent us touching it.*) Colin was against having no expendable ballast but also supported it. We were aiming to fill our bag with all the expendable ballast on board, Colin could not envisage our managing without

expendable ballast, he argued with Bushy for a very long time about this. Rosemary discovered a sugar/water slime in the food bag, and heaps of nearly destroyed biscuits, she packed them in the red bag out of the rain. We had 73 lb. left, not much and we have 70 lb. water and the Permutit[3] packs. We had brandy to cheer us up, also at quarter distance (i.e., quarter of the way across). When you wake up for your watch.... This brandy was taken to celebrate our first achievement. Rosemary had been trying to fix the calcium hydride.[4] She was cross because the food supply was given priority. *She almost wept with rage as far as I remember, and insisted that the ballast bag would be needed that evening as we lost our super heat and the calcium hydride generator the next morning.*

After the storm we agreed that we had been very lucky to discuss the question of my giving Bushy advice. *We agreed that my theories on the physics of balloons were preferable to Bush's experience so that I should in effect be given the job of physics adviser. I was told to confine myself to physics. The main thing was that the onus of arguing on physical matters no longer fell on my shoulders so I could no longer be blamed for all the arguments I was involved in. Prior to this I had been scullion in the crew and not entitled to views other than Bushy's or Colin's.*

Storm story.

I feel there must be discontinuity in the story here.

Calm after storm and trailed along and picked up bucketwise, Bushy did this and Colin and Bush insisted on bouncing and in the event we only just succeeded in staying down. As night fell we had prepared the second food bag of junk and stripped the boat of ballast. The night was spent making WL (water lifting) bags, Bush and I sat up making a very strong one. *The writing becomes illegible because this was written in the darkness, however perhaps one day I'll find the energy to try to decipher it. I did try and write out the illegible stuff in daylight.*

I spent a long time trying to fix an electrical supply using a marked 4½ volt battery plus a 1½ volt battery. Not surprisingly this was pretty feeble in a 12 volt bulb, I must have been half asleep. For about four hours I thonged (that is struggled with rope thongs to

[3] Permutit makes fresh water from sea water.

[4] Calcium hydride and sea water could be used to generate hydrogen.

tie it together) and swore with my hot lumpy fingers inside a water lifting bag. I made a very complicated non return valve. Bushy tried to save time by holding a bulb where needed. He always found it impossible to really do the job dead right.

I asked him to make food for the whole day. *All these notes were written with some idea of publication in mind, this rewritten passage was in fact a fair copy. I aimed to show that I was a writer here and I was not intending to improve on the original.* He said that there was too little light. He then buttered ships biscuits for me. I asked him for jam, he said I was too fussy; I pointed out that "I'm always busy trying to get my theories adopted, e.g. water ballast bag etc. This makes it impossible to eat. Then he agreed sympathetically and said I'd just have to be a hero and eat what I was given. "I suppose Jenny gave me the feeling that I would have things just as I want". "Jenny is a wonderful girl and can put up with anything". "Guess so". Then in the silence I found I couldn't prevent myself asking for more jobs done. "I would like the quick releases right and knives sharp". "Yes I suppose that will be OK". "But can *you* raise the point? Also can it be *you* that asks for a reinforced ballast bag? I just hate having to drive people who don't like my theories".

At 3 we had a small rain squall, but it cost no time or trouble really. We had to waken Colin and Rosemary to open the starboard bung hole. Bushy and I had our talk afterwards. I mentioned that I felt that the food was operated by a "food prevention committee", Bushy made me hush quite viciously. He must have sensed or seen someone listening. I did feel that my meal was being ruined because all attention was being given to keeping the food shipshape—i.e. hard to get at. If attention to detail is needed it should have been attention to the condition of the food. Sugar was ruined by rain, biscuits also. Bushy and I had also discussed my relations with the crew. It may not be putting it too lightly to say that I was commanding ship from the position of cabin boy. Rosemary and Colin slept till 6, we agreed then that we had to waken them because the first paleness of dawn could be seen, we had a ballast bag out of the water which touched it occasionally. We decided we must take on water till the ballast bag was always immersed, and thus be ready for super heat.

"Time to get up Colin, time to get up Rosemary" said Bush loudly, it was a no nonsense request. "I've been awake since 3 o'clock because of your talking Tim, it is the essence of good seamanship to keep watch in silence" she said. A long painful silence followed, I wanted to say the essence of good crew relations is not to

have every one of the crew afraid to tell his thoughts to two members. Colin broke the silence with a joke about bus fares or something, Rosemary was a bit unpleasantly beastly, and, as ever, Colin put everyone at ease. Colin produced a water lifting bag which became known as the weightless wonder, I tried my bag, *the water bag I had made in the night,* in the rigging in order to make a net for it. All morning we hauled in water using Colin's bag; it needed a very small alteration and worked perfectly, very good. Mine was lowered once hastily and did pick up an enormous weight of water, but the very first hoist destroyed its valve tying. A useless invention! *This self criticism slightly overdoes it, I could have mended the bag in about* 15 *minutes.* We had a very pleasant day, Bushy tried shaving but found it too painful, $2,000 *were at stake. Pictures of Bushy shaving with his electrical razor were going to be faked up. I was angry at his cowardice.* I asked him to sharpen the knives, after 20 minutes they came back like razors. Bushy also fixed the quick releases *I asked him to change the hemp for nylon, an unpleasant job and at the time I thought it most unlikely that he would do it without being asked because no one was expecting to need it.* And I tied the ladder, the valve line, the neck line, the rip line, and the tube from the calcium hydride generator out of the way, where they could not catch the boat if we quick released. I also had my way about tying up all the sides as pockets for bits, this meant we could sit in comfort aft and fill the side pockets forward. *Mother advises me against being over critical because this will reflect on me I rejected her advice but I admitted to her after that it would have its effect. Peter has asked for an objective account of the voyage: but he has one in the Daily Mail already, I therefore choose to write whatever comes to my mind. Peter will be given the result and I must apologise if it is utterly useless. You may burn it Peter. I hope you will get some pleasure out of it, and find it helps your book. But I also hope that whatever you do with it will not destroy the memory of how much I enjoy writing, nor upset me in any way at all.*

Remingtons had asked for Bushy photographed while shaving; we rigged up an electrical supply from the alarm switch and took the photos. I was told to get a meal at midday and enough in my nosebag for all day. The others had a meal while I busily went on shipshaping. *I was tying up the side pockets trying to organise the Minifon.*[4] Rosemary said that the food was a problem because it was so dull *Mother's comment "A problem she should have faced about*

[4] A very small tape recorder

2 *months earlier", my comment "If Mary knew just how busy we all were she wouldn't be quite so carefree about the way Rosemary should have spent her time".* I reckon it ought to be prepared with a bit of trouble before the meal, it ought to be put on plates before eating, and made to look as good as possible and also as though there were enough, I don't see why we shouldn't eat lots as ballast *I was always hungry and I saw no reason why we shouldn't put the food though ourselves rather than throw it overboard. The water ration was one pint a day at this time.* Good resolutions were made when we used my food bags after the storm, none appeared to be in the keeping. That day we saw a beautiful double rainbow which we tried to photo. *This was two separate rainbows, not a twin rainbow.* I kept a long watch in the afternoon, the balloon was rising and falling gently and belting westward, I kept "Weightless Wonder", which now had a nice long string on it just ready; if we seemed to be rising I would lower him level with the food bag, and then pull him in as we fell. Other people slept or relaxed. I timed the intervals between the ballast bag bounces, one and a half minutes seemed ideal; when they became more frequent I slung out a little water. It seemed to me one of those odious occasions where less panic produced smoothest results, as in lead wiping, glass cutting, etc. I felt proud of myself, and Bush congratulated me. Bushy took over, I was woken fairly soon, a panic was occurring, Big Bertha was being prepared for use, all hands were considered necessary to get him over the side, I was sulky about getting up, Colin gave me a short sharp rocket and Bushy a long sour one, both were well deserved. Before Big Bertha could reach the sea we started to fall and he became not so necessary. (Big Bertha was my large water bag.)[5]

I kept a watch that evening for some hours; she went like a train and I began to get my old smug feeling back. She was oscillating between 100 and 300 feet with occasional 400 feet peaks, I had the altimeter, a torch, a bearing compass, and a bucket, I tossed out half a bucket of water whenever we seemed like nearly touching, it all seemed easy and set fair for America. I went to bed at about 10 in the evening. *There is far more here than meets the eye, I have been overkind and overcruel. By this time I was getting desperate for someone to start paying attention to the problem of fatigue. When I was woken it really wasn't necessary to get me up. Big Bertha could have been lowered to near the water by two*

[5] A water bag is intended to lift water out of the sea. Initial designs without a non-return valve failed. Hence the decision to make Big Bertha and Weightless Wonder.

people, and I myself had kept it over the side all the time when keeping watch alone. Four people were hardly necessary to put it there and I thought of too many cooks as I struggled out of my sleeping bag. Nonetheless I should have got out without grumbling. Bushy took over and kept her going in this way until 11.30 GMT, then she did a large rise at the bottom of our final cloud. Bushy was having trouble reading the altimeter.

He woke me and as soon as I knew the position (1,200 feet or so) I told him to release gas. *Bushy woke me with the idea of using Big Bertha as soon as he realized that this was not just another swing in our normal oscillations. I was horrified that he had allowed himself to be landed without any certain means of reading the altimeter. At over a thousand feet he was not sure if we were at* 1,300 *feet or at* 300 *feet. No one had expected trouble at night but it was symptomatic of the whole voyage. I had read the altimeter with absolute certainty during my watch as part of a "Belt, braces, suspenders, sticky tape" treatment to try and be safe. Watch keeping without light had cost us too much sweat the night before. Bushy had no such apprehensiveness. I looked up and saw that the shade flap was billowing up and being blown all over the place.* The balloon was in a terrific upthrust, she just rose and rose and rose. *I was reading the altimeter and found it so easy that I decided Bushy must have fallen asleep. He had no glasses on. I think that was all that reduced him below par.*

I had the altimeter and gave it to Rosemary. Colin and she had been fast asleep and Colin was comforting her on the port quarter. I broke them up, kindly I hope, with the words "come on kids we've got to get weaving". They seemed quite grateful for the urge and buckled down immediately. Then I got into the neck, climbing the ladder. It is a climb I've quite forgotten except that I remember the blue gas shield up there was blowing like Billyo. *I can remember a struggle against my own fear on the way up. It was quite hard to get onto the load ring in the rain and the dark. I was tempted to climb down because I was aware that it looked very hard indeed, but it was far less difficult than a number of things that most people have done with no very good motive. I had had no time to tie myself on with a safety harness, but a man would have been very unfortunate to have fallen. I reckoned that even if I did fall I would be an ass not to catch hold of something on the way down.* The neck was tied. By 3,000 feet I had it untied, but there was so much relative wind that it remained closed. The balloon stopped rising at 4,600 feet, still tossing about below me.

I told people to unplug the bung holes and throw off all the

ballast available; we were in dense cloud. I held the neck closed as we came down. We were falling at a frightening speed. Then Rosemary began to find it difficult to see the altimeter, the neck needed no holding because of the wind on it. I climbed down and found a new bulb for Rosemary, I told her—quite nastily—to give us the readings. At about 1,000 feet we came out of the cloud. Bushy had prepared the quick releases and Colin had checked them. Everyone was very afraid of the rate she was falling. Rosemary kept yelling out heights like a Trojan. I counted 10 seconds out between 350 and 450 feet, 10 feet a second didn't seem too bad to me. I told people to throw out the calcium hydride and started to do it myself. Quite carefully. That was idiotic. I should have realised we had 35 seconds before hitting. I should have been quicker. I heard Rosemary saying that it was hard to see the altimeter about 300. Bushy yelled "It's O.K. I can do it by eye now. I can see the sea". I turned round at about five seconds to splash-time to ask people to help me with the calcium hydride unloading. Then we hit with a scrunch. It was much less bad than we had had it before and I was congratulating myself on getting the ballasting so right. I looked up to check the balloon and had a terrific surprise to see the envelope away, about 40 feet in the air. We were still dancing about and at first I thought we were airborne. Just before giving orders to throw out more calcium hydride I relized that we were sitting in a black treacle tossing and pitching. Then I realized that this was the sea and we were on it.

Skip this if you are not interested in the fate of the envelope. Either it sunk or it reached land. I do not think it could rise fast enough to burst. I would be amazed if the turbulence tore it. Certainly it must have been intact when we hit or our landing speed could never have been so slow. The "jerk" at release was in fact a sudden release of tension and I don't reckon it tore the cloth. The load ring would keep the neck from turning uppermost, except in the most fantastic turbulence. I believe that the balloon would have ended up by tearing itself on the land, or on a cliff. I think it unlikely that it crossed the water line in the air. It is not impossible that it could be found anywhere on the surface of the earth. No one has pointed out any blunder in the long chain of arguments that lead me to these conclusions. I certainly don't attach any importance to the problem, but I'm prepared to defend my position if it will make anyone any happier.[6]

[To be continued]

[6] N.B. No longer the case. I now forget all about it.

Computer Programming for Literary Laymen. I

Robin McKinnon Wood

A great deal has already been written on the subject of computers, particularly in those fields where the computer's tremendous speed and storage capacity can be used to carry out calculations which could not otherwise be done. Too much has been written about computers as giant brains, in some ill-defined sense of this word, and this has tended to lead people not associated with computers and in particular those people who are not mathematicians, to consider that computers are a subject too difficult, and too mystical almost, for them to understand. I saw recently an example of this in a Sunday newspaper. The correspondent was describing a business game being played by some sixth-form students. In this game, the students were running a business selling washing machines. In the article the following statement was made:—

> "The game, based not on a computer, but on a mathematical model of the hypothetical dishwasher market, has been designed to reproduce real life business situations as closely as possible".

The impression that this might well give, is that in this particular case, the running of the business game was not operated by the computer, it was operated by a mathematical model, presumably constructed by some human being. At long last we humans are clever enough to have done something which previously could only have been done by a computer! This, of course, is very silly. It is evident that any business game, or for that matter any computation or for that matter any field of activity which any machine could possibly ever do, is based on some model constructed in the first place by a human being. If we decide to use a computer, this is because we believe that this will be a faster and more efficient way of doing it than some other way. That is, the computer is used as a tool, just like any other tool.

For many years now, the computer has been used as such a tool in fields where rapid calculation, and, latterly, the holding of large quantities of information such as payrolls, stock control, production control, and so on, were required. In many cases some of these calculations could not have been performed in any other way,

because they would simply have taken too long. As a result of technical developments, the cost of computation is decreasing very rapidly. The speed of computation is increasing very rapidly, and the amount of storage space or memory space which the machine may have is also increasing very rapidly while its cost is falling. It has thus recently been possible to use computers as a tool in ways which might at first seem to be much more trivial but can be much more interesting, than that of calculating numbers. An example of this is the use of computers to co-ordinate air line bookings, which is now done on a very large scale.

The present state of computer technology is such that it is now worth while considering the use of the computers as a tool not only for scientists and for large business organizations, but also for small business organizations and even for individual people. In order to do this a number of points must first be considered. The first is the question of language, the language in which a person can communicate with the computer and in which the computer can communicate with the person. The second point arises from the very large speed of the machine. This speed today is typically of the order of one micro-second, one millionth of a a second. In the next generation of computers it is expected this will go down by a factor of perhaps one hundred. As opposed to this, the speed of a human being is measured in units of one tenth of a second. That is, people compared with present day computers are one hundred thousand times slower. On the other hand, the ability of people to make decisions, to recognize patterns, to recognize speech, quickly, cannot even be approximated to by a machine, notwithstanding the speed with which it works.

Thus we have on the one hand, human beings, who can, as it were, compute only slowly, but who can take decisions, assess facts, recognize patterns that they had not seen before, very quickly, and the machine that can do straightforward computations very very fast but is unable to perform these essentially human functions. Ideally we wish to have a combination in which a person and the computation power of the machine can work together. Because of the tremendous time scale differences between the behaviour of people and the behaviour of modern machines, we have two choices. We may either allow the machine to run the person, to force the person to take decisions at the speed at which the machine requires them to take, or we may allow the person to be in charge. As it is the machine that is the tool it is the second choice that we wish to make.

This can, however, be expensive. The cost of the machine is

reckoned in micro-seconds. If the person takes five minutes to come to a decision the cost can be prohibitive. What is required here is a system in which it is possible for more than one person to communicate with the same machine, so that as one person is taking decisions or deciding what he wishes to do next, some other person can be using the machine. In this way the machine's time is not wasted, but the human being has the feeling that the machine is entirely his and he can waste as much time as wishes. In some ways this is similar to any public service, such as the telephone, gas or electricity services, where each user of the service believes that he has the entire capacity of the country behind his supply. But in fact, if too many people decide to use it simultaneously, then the system will break down. In practice it does not break down because people do not all wish to use the service at the same time. Systems of this type, known as multi-access systems, have now become technologically feasible. In these systems it is possible for one machine to service a large number of separate programs involving different people.

The third point which must be borne in mind is that of the cost to any individual user. Computation costs are decreasing rapidly, and it is expected that this decrease in cost will continue as technology advances and as more and more use is made of the machines.

Taking these points in reverse order, the last one, that of cost, is being taken care of by technology. The second, that of using the machine efficiently, is currently being solved by multi-access systems. The first point, however, that of language, is the one which creates the most interesting problem, and the one which I should like to discuss here.

In the very early days of these machines, the language used was at the engineering level. The machines were made to produce the results required by physically putting pins into plug-boards and connecting them with wires, thus setting up the logic of the particular problem which was required. A vestige of this remains today but as this is mainly limited to the connection of input-output devices this language level can be safely left to the maintenance engineers and operators of the computing system.

The first real development of computer languages came about when it was realized that the logic formerly embedded in a plug board by a set of physical wires could be stored in the machine's own store. From this there developed the concept of pure machine code. This is a code which on the very early machines was written directly in binary notation, that is, using only noughts and ones,

and this was stored in the store of the machine and replaced the plug-board of wires and plugs.

It was now possible to make a machine do a particular job by writing marks on paper, which could then be punched on to cards or paper tape. There was now a *written language* in which the programmer could set up the logic of the machine to do his particular job. For the machine, this language is very efficient, but for the person writing in it the restrictions imposed are unnatural and arbitrary, and involve considerable drudgery which could well be done by the machine. The next step was to make the machine do more of the work, and this is done in an assembly language.

An assembly language is a language in which each statement written corresponds directly with some binary code inside the machine; that is, some instruction which the machine can carry out and which it will obey whenever it is reached. In this sort of language, at least some of the characteristics of a human being are taken into consideration. For example, human beings like to write in symbols, such as sets of alphabetic characters, which can represent larger concepts than those possible in binary notation. Thus the person can behave in what is to him a more natural way, though he is still subject to very severe restrictions, and the machine itself is made to interpret these higher level concepts and convert them to machine code. This conversion is done by a program called an Assembler. This is in fact the first case where the machine itself is used as a tool in the production of a machine program from a text given by a human being. Even on this very simple level, the problem of translation has come in. There is a text given by a person in ways which are more convenient to him, and the machine converts it to a text in machine code which is convenient for its own logic. An assembly language is still, however, heavily biased to the engineering of the machine, and to its efficiency. rather than to the ease with which a person could write in it. It soon became clear that the constraints which a person would have to accept in order to make use of assembly systems were too great, and the need for high level programming languages was recognized.

As an example of the type of man-machine interaction which a multi-access system on a computer with a suitable high-level language makes possible, we have a simplified program to translate English phrasings into French. This program is written in the TRAC (Text Reckoning And Compiling) language, developed by Calvin Mooers in Cambridge, Mass., and on which my colleagues and I have been working over here. A simplified version of this language is implemented on the I.C.T. 1202 Computer at the

Cambridge Language Research Unit, and the example given below is the machine output of this translation program.

When using the program, the operator, who does not need to know any French, types in the English phrasing, and then calls the program by typing

V(CL & TRAN)

This is a statement in the TRAC language in which the V is a signal that computation is required, CL gives the operation that is to be performed, in this case a CALL operation, and TRAN is the name of the program. The operator then types in the phrasing form, where XX denotes variable words which will be given later.

The machine looks this form up in its store, and finds that there is an ambiguity which must be resolved if a French translation is to be achieved. It thus asks the operator for a decision. The operator makes his decision, and then types in the variable words. If these words are unambiguous, then the French translation can be printed out. If there is further ambiguity, then the reactive question-answer move is repeated, as is shown with the word PROOF. (See page 312; and the explanation of each step is on page 313.)

The program to do this is a very simple one, and leaves out a great many problems. For example, the machine could easily discover the correct genders of the French nouns, rather than printing UN/UNE. The example does show however how a human decision over matters which are not decidable by the machine can allow the combination of man and machine to achieve results which could not have been done otherwise.

In this present article, I have tried to show how computers can be adapted and developed to allow for their use by a far larger set of people than is usual today. The problems of cost and efficiency are being solved by advances in technology. The remaining problem is to secure that the use of these machines can be mastered without special skills or training. This means that people must have something nearer to natural language in which to work, and to achieve this sets problems that are far from solved. But I believe that "Do It Yourself" computing is becoming possible, and will prove even more valuable than the present scientific use of these machines.

However, before these advances can be put to use, another advance has to be made. It is not enough to create a programming language which only resembles natural language; it is necessary to

```
                THERE IS A FLAW IN THE PROOF
                V(CL&TRAN)
START
                THERE IS A XX IN THE XX
START
                        DO YOU MEAN
                        A  CONCRETE OBJECT IN ENCLOSURE
                        B  CONCRETE OBJECT IN LOCATION
                        C  EVENT IN FUTURE TIME
                        D  ERROR IN ARGUMENT
                D
START
                FLAW
START
                PROOF
START
                        DO YOU MEAN
                        A  DEMONSTRATION
                        B  TYPOGRAPHIC PROOF
                A
START
                        THERE IS A FLAW IN THE PROOF
                        IL SE TROUVE UN / UNE ERREUR
                        DANS CE / CETTE PREUVE
END
```

The operator types in the sentence to be translated.

The operator calls the program called TRAN.

The operator types in the phrasing form.

The machine replies by printing a question designed to remove ambiguities which must be resolved in the French language.

The operator answers by choosing choice D.

The operator types in the value of the first XX.

The operator types in the value of the second XX.

The machine questions the word PROOF.

The operator answers with choice A.

The machine prints the English sentence, together with the French translation.

create one which contains the basic attributes of natural language. For this, an understanding of the use of symbols in language is essential. In a sequel to this article, I shall outline some research that is being done by my colleagues and myself which provides one interesting way forward in the development of machine methods which succeed in exhibiting this basic use of symbols.

Letters

(In the editorial to T. to T. II we referred to work by Gordon Allport on religious attitudes and prejudice, e.g. racial prejudice. This showed that people with nominal religious affiliations showed more prejudice than those outside the religions; but that in each religious group studied, those whose commitment was strongest showed less prejudice that those outside. We asked Gordon Allport to write us an article on this: instead we have his permission to print this letter.)

"First let me thank you for a copy of *Theoria to Theory*. It seems to be a highly original and timely publication with considerable freshness and zip!

The article, 'The Religious Context of Prejudice', which you refer to, was likewise published in the *Journal for the Scientific Study of Religion* (1966, Vol. 5, No. 3, pp. 447–457). This periodical is more accessible than the *Graduate Journal* that you mention.

The actual research referred to is in press. The article is by G. W. Allport and M. Ross, entitled "Personal Religious Orientation and Prejudice". It will appear in the *Journal of Personality and Social Psychology,* but I am not sure whether the issue will be February, March, or April, 1967, or even perhaps later. In a few months I could, I hope, send you a reprint of this study if you will jog my memory.

About all I have to say on the topic is summed up in these two articles and, therefore, I would not want to undertake the extra assignment of writing that you suggest.

Let me thank you for your interest and send all good wishes for the continued success of your unusual periodical".

GORDON W. ALLPORT

Department of Social Relations,
Harvard University.

I should like to try translating Ninian Smart's 'quartet of possibilities' into more familiar terms. In the nature of the case these must be approximate, but they may help. If we translate bhakti as devotion to a divine (or angelic or saintly) person, and yoga as progress towards a condition of freedom from the limits of personal identity, it will be clear that in any combination of the two, whichever is the superior factor, the goal is union with God. If adoration is never completely left behind, it is clear that in the Christian context the thought of Christ or the Spirit praying in us has often been dominant, in some strains of Evangelical as well as of Catholic piety. Smart's generalization that 'the combination of bhakti with yoga with the latter in the first place yields absolutism rather than theism' is right in a context where the gods are less than the absoute, but at any rate less obviously right in Christendom and in Islam, where the Sufis seem to have provided a valuable corrective to a view of God which made him entirely external to the universe.

To my mind the comparative study of the histories of religions, like the study of our own religious history, ought to be able to help us to detect a want of balance in our own religious attitudes, but the usefulness of church history is limited because most Christians approach it with set attitudes to their own and other religious traditions. They gain most from the discovery of something outside their immediate surroundings, like Eastern Orthodoxy. On the other hand the usefulness of the study of comparative religion is limited by a general belief that different religions are about entirely different kinds of experience. 'The scandal of particularity' relates to the difference between an abstract 'natural religion' constructed in the study and historical Christianity, but so far as I can see all religions are scandalously particular in their insistence on the importance of something that has happened somewhere. If Christians attach a special importance to some physical circumstances, this is because of their general idea of the relation between God and nature. They would understand this better if they paid more attention to ideas of divine incarnation in religions other than their own.

George Every, S.S.M.

Kelham, Newark, Notts.

Reviews

F. C. Happold on Mysticism

Dr. Happold's two books are closely interrelated. *Mysticism* (Pelican Books, 1963, 1964) contains an essay and an anthology of mystical writings from the Upanishads to Teilhard de Chardin. *Religious Faith and Twentieth-Century Man* (Pelican Books, 1966) outlines a philosophical theology, in which mysticism is given central place. Between them, these books provide a rich and useful collection of data and reflection about mystical experience—predominantly Christian in character, but not exclusively so. What they bring out most dramatically—to this reviewer at least—is the extraordinary and baffling ambiguity of mystical writings, their impressiveness and hauntingness on the one hand, and the extreme difficulty of appraising them, placing them epistemologically, on the other hand. Are mystical experiences *cognitive* experiences; or are they a range of non-cognitive moods, states of mind and emotion? Neither the accumulation of testimonies, nor (to my mind) Happold's apologetic arguments, really succeed in resolving that ambiguity. But this is to anticipate.

When we talk of what ultimately exists—Happold argues—of that which *is*, we talk of what must be "unknown and unknowable by the human intellect". We can construct only inadequate images of the Ineffable, and speak of it in paradoxes. But if our discourse about God is paradoxical, Happold adds, the same is no less true of contemporary *scientific* discourse, accounts of complementarity for instance. In general, science has given up a world of knowable "stuff" and replaced it by one of energy, knowable only by its effects. That is to say, a common partial agnosticism unites the physicist and the mystical theologian.

If the universe is "no longer thought of as made of solid stuff", with "no room for spirit", it may now even "be said to have become . . . a 'spiritual' universe". We are helped to understand our search for the interpretative images, through which that spirituality can be grasped, by Jungian psychology with its account of the "collective unconscious" and its archetypal symbols. The "psychic God-image" is referred to the reality of God, an "unconditioned . . . transcendent-immanent Deity"; though the validity of this "faith-equation" cannot be logically demonstrated. It can nonetheless be a "reasonable hypothesis"—involving an "intuitive perception".

A key concept for Happold (and an imaginatively suggestive one) is "intersection". By this he means "an attitude, characterized by

intellectual clarity and humility" in which the personality "is thrown open to the influence of every spiritual and intellectual impact, so that by an inner participation in them they become part of one, no longer other but integrated". For its "most profound expression" we must look to the "intersection of the timeless moment", the moment in which man's spirit intersects with God's spirit.

This summarizes only a part of Happold's total argument; but we can perhaps bring out from that summary what is most challengeable in his apologetic in general. For example: the agnosticism, both of Happold and of some of the mystics anthologized, often threatens to go too far for them to retain any positive assertions about the object of mystical experience. Secondly, the concept of the "spiritual" is not introduced carefully, rigorously enough: so that the reader is given no very clear idea what it is for a universe to be "spiritual" or to have "no room for spirit". Thirdly, the discussion of Jung does not deal in any detail with the many serious criticisms that have been made of Jung's meta-psychology, the status of the archetypes, etc.: and the logical and metaphysical problems of *referring* an image or archetype to a transcendent, infinite deity are not set out in their full complexity.

Between mystics' experiences of *conviction,* on the one hand, and the *justification,* authentication of their claims, on the other, a great gulf lies. I doubt if these studies really take the measure of that gulf, and of the difficulties in spanning it. "When [a mystical experience] happens to anyone . . . it carries complete conviction; [and is] . . . felt as something given". "Contemplation has a profound noetic quality". Reading the descriptions of mystical contemplation, we "subconsciously feel that what is described is something utterly real". The mystic may not be able to tell us what he knows; but he is "convinced with absolute certainty that he does know". Today, however, we cannot help being uncomfortably aware how delusive such senses of conviction can be: both because they can be experienced *vis à vis* logically incompatible beliefs, and because they can be experienced out of relation to *any* determinate belief—as in "anaesthetic revelations" and in certain psychotic states, whether "natural" or briefly induced by drugs. What we ideally want, but lack, is a set of criteria—independent of the sense of conviction itself—to help us discriminate between the cognitive and the non-cognitive alternatives, between "objective" and "subjective" readings of mystical experience.

Even if the reports of mystics from widely different traditions are near-unanimous, the problem of objectivity is not much reduced, if at all. Mystical experience might still be no more than one

peculiarly impressive (and widely manifested) affective state of the human psyche.

Admittedly, the problem of objectivity is extremely difficult even to *formulate* with respect to mysticism. Mystics often claim that subject-object relationships are "overcome" in mystical experience: they may reject the language of perception. But, *very* roughly, we want to say that if mystical experience is not an affective state only, then the "One" with which a particular mystic claims to be united is that "One" with which *other* mystics too are united. Such a claim clearly cannot be made good by autobiographical accounts of the quality of inner experience alone.

Mystics themselves sometimes reveal an agnosticism over just this issue—an agnosticism that is both engaging in its frankness and troubling (or *should* be troubling) to the apologist. St Teresa for instance: "Here there is no sense of anything but enjoyment, without any knowledge of what is being enjoyed". Richard Jefferies: "This may be the end; my soul may sink like rain into the earth and disappear . . . Let my soul be but a product, what then? I say it is nothing to me.... If I pass into utter oblivion, yet I have had that"—the mystical experience itself. Yet again, Happold quotes a passage from the *Paradiso,* Canto xxxiii, in which comes a fascinating simile:—

> As from a dream one may awake to find
> Its passion still imprinted on the heart,
> Although all else is cancelled from the mind,
> So of my vision now but little part
> Remains, yet in my inmost soul I know
> The sweet instilling which it did impart.

The analogy is indeed close: a sceptic will say, *too* close for the comfort of an apologist. Could the theorist of mysticism be building upon data no more substantial than the half-forgotten components of a dream?

As the mystics' testimonies pile up through the 250 or so pages of the anthology, these problems are not diminished. Happold is certainly aware of them, and disclaims any slick solutions. His own discussion, however, is too rapid-moving to tease out the cruces in the necessary detail. He is aiming at a general readership; and his accounts of various philosophers and theologians (Kant, Heidegger, Bultmann . . .) are very sketchy and often derivative. The anthology itself is certainly more successful: for it brings together, in readable translations, a great many normally elusive or inaccessible texts. Dionysius' *Mystical Theology* is there, complete;

Sufi mystical poetry, and of course such mystics as Eckhart and Ruysbroeck, Dame Julian, Nicholas of Cusa and William Law.

RONALD W. HEPBURN

They Survived. A Study of the Will to Live, by Wilfrid Noyce. *Heinemann*. 1962.

This book was written five years ago, and I am writing about it here not so much by way of review as to call attention to its relevance to the interest we are hoping to develop about what happens to people in conditions of stress—both as individuals and in their relations with each other—and whether religious ways of living can make them more adaptable, less pre-occupied with themselves, and so better able to cope with these conditions. Wilfrid Noyce, himself a distinguished mountaineer, gives us a study of cases where people have survived under extreme conditions of exposure or deprivation, on mountains, in a coal mine, at sea, in a concentration camp. He brings out that it is not always the physically strongest who survive; adaptability calls for intelligence, imagination, and skill in making use of unfamiliar conditions so that the person forms a system with his environment. This at least is so in cases of physical exposure, in mountains or at sea. In the case of the concentration camp, where the environment includes people trying to break down one's will, there are of course, some things to which one must not adapt; here above all, means of securing detachment through keeping one's private interior life going will help (Bettelheim, writing about his experiences in Buchenwald in *The Informed Heart,* is very good on this). Also, in all the cases studied, the sense of community with other people, whether physically present or not, strengthened resources making for survival, even though in some cases the presence of the others looked like cutting across the person's own chances of preservation.

In many of the cases prayer helped; this was not asking for help so much as an experience which Noyce describes with the help of William James' *Varieties of Religious Experience* as one of drawing on resources from a deeper self that may also be continuous with power beyond oneself. He quotes R. G. Hodgkin, in *The Guardian,* November 1961, "The very act of letting go of fear and launching out on a dangerous but skilful act is akin to both art and prayer"; and the French philosopher Alain, *"Vous vous confiez; vous flottez un moment dans un grand univers, vous vous laissez porter".* Noyce thinks the energy that may so come to us may also come from the remote selves of other people, who can affect us on this level. (This could bear on the question of intercessory prayers.)

To me, the most interesting study was that of Tiira, a Finn who escaped overboard with a friend from a French Foreign Legion ship in the Indian Ocean and was on a raft for 32 days. He survived while his physically more powerful companion did not. They quarelled, but also knew they needed each other. When Tiira finally threw Ericsson's corpse overboard to the sharks, he found himself praying, "then, thinking he was dying himself, he felt that the words he had tried to whisper had put him somehow at rights, both with Ericsson and with the universe of which they were a minute floating scrap". . . . "Later, when his conscious mind was convinced that he would die, the small something in Tiira crystallized as a subconscious refusal to accept that conviction. He was convinced he must live one more day and then he was picked up". He did not look on this as the answer to prayer, but rather that the prayer had been a reconciliation.

Noyce's accounts of these people *in extremis* is descriptive, rather than analytic; and no doubt those who find themselves in such situations will seldom have been trained to analyse their responses. But if they can describe what happened, how they reacted, and how they were helped and hindered, their accounts can be taken up by those who are concerned theoretically as well as practically to understand these problems of stress and survival.

DOROTHY EMMET

SENTENCES

From *The Pilgrim's Progress.*

They went then till they came to the Delectable Mountains, which mountains belong to the Lord of that hill, of which we have spoken before. So they went up to the mountains, to behold the gardens and orchards, the vineyards and fountains of water; where also they drank and washed themselves, and did freely eat of the vineyards. Now, there were on the tops of these mountains shepherds feeding their flocks, and they stood by the highway-side. The pilgrims, therefore, went to them, and, leaning upon their staves (as is common with weary pilgrims when they stand to talk with any by the way), they asked, "Whose delectable mountains are these, and whose be the sheep that feed upon them?"

SHEPHERD: These mountains are Emmanuel's land, and they are within sight of His city; and the sheep also are His, and He laid down His life for them. (John x. 11–15.)

CHRISTIAN: Is this the way to the Celestial City?

SHEPHERD: You are just in your way.

CHRISTIAN: How far is it thither?

SHEPHERD: Too far for any but those who shall get thither indeed.

CHRISTIAN: Is the way safe or dangerous?

SHEPHERD: Safe for those for whom it is to be safe; but transgressors shall fall therein. (Hos. xiv. 9.)

CHRISTIAN: Is there in this place any relief for pilgrims that are weary and faint in the way?

SHEPHERD: The Lord of these mountains hath given us a charge not to be forgetful to entertain strangers (Heb. xiii. 2), therefore the good of the place is before you.

I saw also in my dream, that, when the shepherds perceived that they were wayfaring men, they also put questions to them (to which they made answer as in other places), as, "Whence came you?" and, "How got you into the way?" and, "By what means have you so persevered therein? for but few of them that begin to come hither, do show their faces on these mountains." But, when the shepherds heard their answers, being pleased therewith, they looked very lovingly upon them, and said, "Welcome to the Delectable Mountains!"

The shepherds, I say, whose names were Knowledge, Experience, Watchful, and Sincere, took them by the hand, and had them to their tents, and made them partake of what was ready at present. They said moreover, "We would that you should stay here awhile, to be acquainted with us, and yet more to solace yourselves with the good of these Delectable Mountains". They then told them, that they were content to stay. So they went to rest that night, because it was very late.

NOTES ON CONTRIBUTORS

Anthony Bloom was the son of a Russian consul in Persia, and trained in medicine in Paris. He took secret monastic vows while continuing in practice as a doctor. He is now Metropolitan of Surozh and exarch of the Russian Patriarchate in Western Europe.

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Michael Roberts was trained as a scientist (University of London and Trinity College, Cambridge) and taught at the Royal Grammar School, Newcastle-on-Tyne. Before his death in 1948 he was Principal of the College of St. Mark and St. John, Chelsea. Author of *Critique of Poetry* (1934); *The Modern Mind* (1937); *T. E. Hulme* (1938); *The Recovery of the West* (1941) and *The Estate of Man* (1951). His *Collected Poems* were published in 1958.

Janet Adam Smith, widow of Michael Roberts and now Mrs. Carleton, was at Somerville College Oxford, and has been literary editor of *The New Statesman and Nation.* Among her books are *R. L. Stevenson* (1937); *Mountain Holidays* (1946) and *John Buchan, a Biography* (1965).

F. C. Happold was at Peterhouse College, Cambridge; and until recently was best known as a historian and educational pioneer. He has written extensively on historical and educational themes Since his retirement from the headmastership of Bishop Wordsworth School, Salisbury, he has become known to a wider public through his Pelican books, *Mysticism, a Study and an Anthology,* and *Religious Faith and Twentieth Century Man* (see review).

Ian Ramsey read Mathematics and Moral Science at Cambridge, and has been tutor of Christ's College, Cambridge and Nolloth Professor of the Philosophy of the Christian Religion in Oxford. He is now Bishop of Durham. His books include *Religious Language, Models and Mystery,* and *Christian Discourse.*

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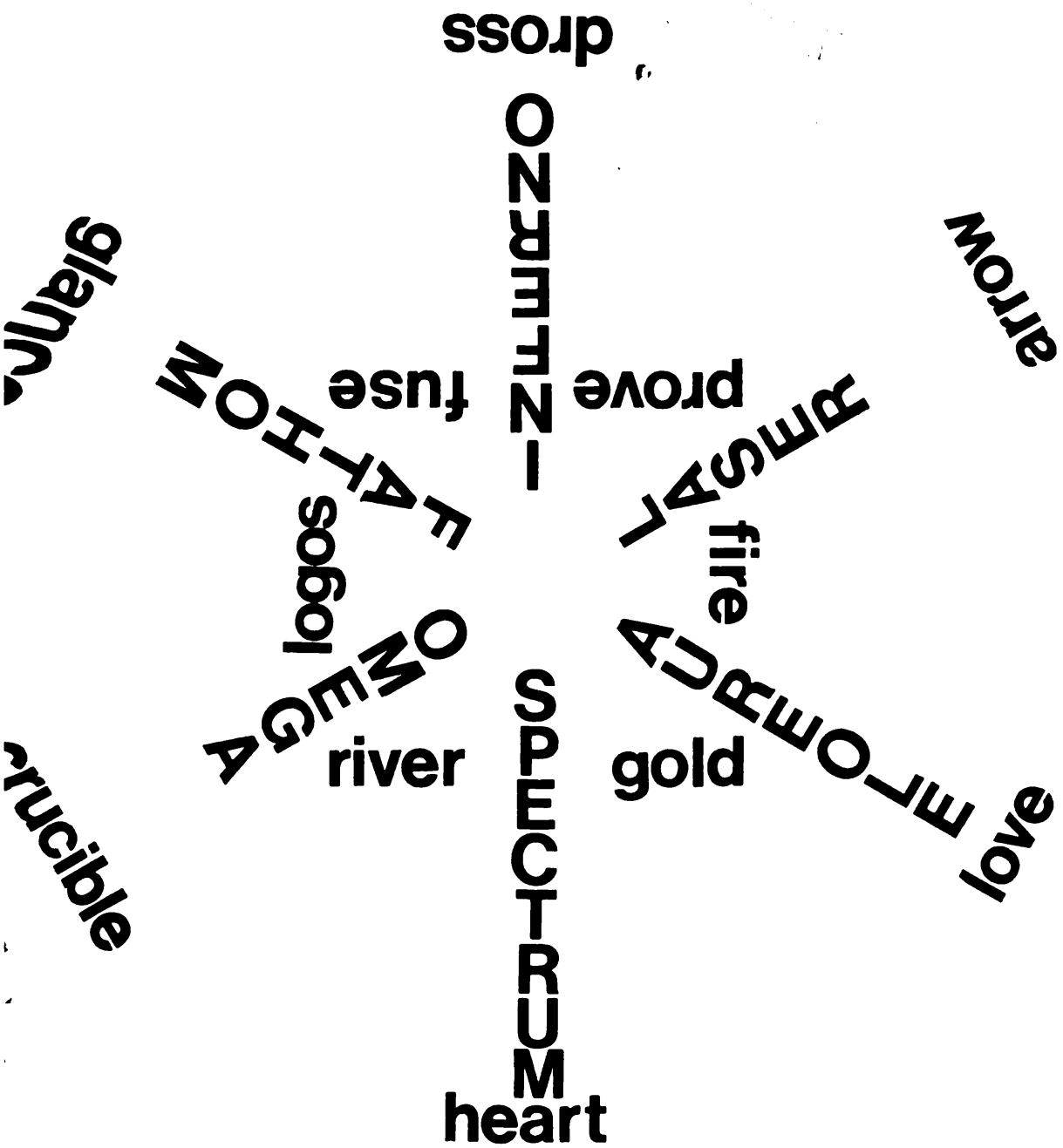

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THEORIA TO THEORY

Volume 1 Fourth Quarter July 1967

Editorial

With this number we complete our first volume. The title "Theoria to Theory" has been attacked as barbarous or esoteric. It has also been defended as original, and not politically aligned. We stand by it as saying exactly what we are out to achieve. A title of the popular "Soundings", "Findings", "Hintings" variety would not do this; and if you want something simple, you can always say T. to T.

* * *

T. to T., without meaning to, appears to have started what Guy Wint, in a letter to one of us, called a new art form. It has acquired a shape with characteristics. These are (i) that it goes in quatrains, only here these are fours in which the features match but none of the lines rhyme; at least we have completed one quatrain and hope that there will be others; (ii) it has a Dialogue; (3) it has a serial; (4) it has a scientific article; (6) it has an "adventure story" article; (7) it has Sentences from one of the great religious classics. It has also twice had two or three people commenting on the same text. We intend to maintain this shape, at any rate for one more quatrain. We find ourselves now in the position in which most people who start a journal are in before they start; we know what is going to be in the next number. We hope to have a dialogue between Thomas Corbishley, S.J., and Alasdair MacIntyre, probably on "Authority"; later we also hope to have one on "Stress" between Mrs. Evelyn Derry, priest-leader of the Christian Community, London West (founded on the principles of Rudolf Steiner), and the writer Guy Wint, author of *The Third Killer*.

We are planning a new serial based on questions raised in some of the chapters of Sir Alister Hardy's Gifford Lectures, "The Living Stream" and "The Divine Flame". These draw attention to crises in the contemporary sciences of man in evolution. They are (i) the concept of homology in terms of similar genes handed on from a common ancestor has broken down (Vol. I, pp. 212 ff). (ii) The role of habit in relation to bodily structure (Vol. I ch. VI). (iii) The biological relevance of parapsychological data at the cellular level (Vol. I, pp. 255 ff). (iv) The current uneasiness among social anthropologists concerning their former methods of interpreting religion as an instrument of social control (Vol. II, ch. III). Seen from the religious point of view, this series will take us into Teilhard de Chardin country, but in an English manner, since we live in a

situation of sufficient religious freedom not to have to keep on using Teilhard de Chardin's name as a flag.

* * *

As a result of recent advances in molecular biology, the chemical structures of genes and their primary products have been elucidated together with the mechanism of gene replication. Moreover, many scientists believe that advances in our knowledge of the physical bases of embryology and brain function, on the molecular level, will be equally spectacular in the next few years. As a result some leading scientists in these fields are making the "triumphalist" claim that physics and chemistry as we have them now are adequate for a complete understanding of life, thus extrapolating at one jump from the cell to human society. An additional appeal to computer theory is usually thrown in to account for organization, adding the triumphalism of the artificial intelligence men to that of the molecular biologists. Francis Crick (see *Of Molecules and Men,* University of Washington Press, 1966) strongly advocates this approach, seeing it as the only alternative to vitalism. Jacques Monod (*The Listener,* March 2nd, 1967) argues in a similar way, but with more emphasis on the computer analogy. This in spite of the fact that general purpose digital computers, as opposed to special purpose servo-mechanisms, cannot even justify their costs within industry, let alone replace human agents. We shall critically examine such claims in our next few issues. We shall also have to consider the related contention that computers will soon compete with men in creativity and intelligence. (Our present exceedingly soured point of view is that we only wish they could). A typical popular article was written on this point of view by N. S. Sutherland (*The Observer*, 9th April 1967).

* * *

When it comes to practical matters, sociology is, as we all know, of very little help to us because sociologists and social psychologists are largely obsessed by the "normal" man integrated within a social group. If you are not "normal" you are some kind of "deviant". However much these terms are said to be purely descriptive and not evaluative, they have in fact "value-laden" overtones which suggest a fantastic view of life, one result of which is that sociologists have little that is helpful to say about the relations between the religious individual, especially the creative religious individual, and his society. They write about Stress, but more as something unfortunately inevitable than as something to be welcomed as an

enhancement of life and condition of growth. There is much that has not been sorted out here. This gap, together with the overworked state of practising psychiatrists, is probably a factor in our failure up to date, in spite of efforts, to get any adequate analytic article on the problems of Stress. The Anthroposophical movement of Rudolf Steiner has startled everyone by what it has done about Stress, especially in its work among spastics, and we are looking to Evelyn Derry to help us. Meanwhile, we continue in this number with two more "field" articles: one by John Hunt, who led the Everest Expedition of 1953, and one giving the latter part of Tim Eiloart's "Small World" log.

* * *

On the religious front certain theologians still seem engrossed in getting rid of their own basic concepts. "The Death of God" continues in the news. In an interesting article in the current *Modern Churchman* William Nicholls has a more sophisticated notion of what in fact is dying: it is the God of neo-orthodox Protestantism. He ends by saying:

> "If, as it seems, we are reaching the end of the period dominated by Protestant neo-orthodoxy, we shall have to be brave enough to break its taboos. Mysticism is the first, and perhaps with it might even go the taboo on metaphysics which has lasted since Kant. In any case, those areas of theological history most rejected by the neo-orthodox giants may be the ones we stand most in need of today. I mean the negative theology of the Greek Fathers, which is the most serious attempt so far to relate mysticism to the biblical tradition".

We shall also be publishing in T. to T. V, an article, "The Death of God and the end of History", by the writer and Cistercian monk, Thomas Merton. He of course, like us, wants not only "negative theology" but positive insight. We are pleased to record that he and other Roman Catholics of stature are willing to collaborate with us. Perhaps we are prejudiced in his favour since in his April news letter from the Abbey of Gethsemani in Kentucky he called T. to T. "the most promising venture of its kind which I have seen". Another news letter from a theological college, by the way, says: "Of new magazines *Religious Studies* at 30/- a go is going to be valuable and dignified. *Theoria to Theory* at 7/6 is risky, nubbly, and perhaps more religious". Besides the special features, and Thomas Merton's article, which will be our "Theism" article in the

next number, we expect to have one on intercessory prayer (Julia de Beausobre); a mountaineering one (Peter Rowat); and a scientific one, on the brain-computer analogy (John Griffith).

* * *

You may have been brought up (we were) with a picture of Byzantium as an ossified world in which fractious monks quarrelled and people were tortured into conformity with the imperial doctrinal preferences. Have you also been told (we hadn't) how far they went in mathematics and medicine, and how their mathematical thinking in geometry and optics was worked out in technical innovations in art and architecture to make possible their basilicas, mosaics and icons? If you haven't, then read Gervase Mathew's *Byzantine Aesthetics*; he sees these Byzantines as bringing mathematical vision into religion. The church of the Holy Wisdom, and the mosaic designs into the apses and roofs of Byzantine churches—themselves seen as "icons" of the cosmos—would not have been possible without mathematical passion as well as precision. We are hoping to draw Gervase Mathew to write about this for us later on. Here is a part of the Christian tradition in which people were educated for the public service through mathematics, philosophy and sometimes medicine, and where people could pass to and from this service and the centres of monasticism within a common intellectual culture.

* * *

The dialogue in this number makes a start in opening up the problems of parapsychology, which we are going to look at in more detail later on. John Pearce-Higgins and Chris Evans have had the courage, as well as the curiosity, to look seriously at "spiritualist" phenomena. We said in the first editorial that the dialogues would try to present controversial views on which people feel strongly one way or the other : this is certainly true of this particular encounter.

* * *

We are grateful to the people who have sent designs of concrete poetry for the cover. There has been one for each of the four numbers; with the new volume in October we shall try something quite different : a computer drawing produced by Desmond Henry. He will be prepared to select from variations on this which readers may send in for the next number by using a spirograph, as Andrew Rawlinson has selected concrete poems this year. Various people have written saying that they do not see that "concrete

poetry" is *poetry,* though they see it as making a pattern which pleases the eye. Would any concrete poet like to write and put the case for the defence?

* * *

The experience of launching and building up a journal from scratch has given us field work in Raw Stress. That we have survived is due less to any insight we have obtained on the nature of Raw Stress (see above) than thanks to all the people who have bought us, read us, written to us, criticized us, abused us and otherwise encouraged us in all sorts of ways.

CORRECTION

Kathleen Russell writes that she lectures at the Institute of "Choreology", not "Choreography". "Benesh defines Choreology as 'the study of all dance made possible through the instrument of notation'. The work of the Institute extends beyond dance, e.g.: into medicine. The word 'choreography' now means the creation of the movement part of a ballet or theatrical dance; it doesn't now mean any kind of writing". (We apologize for this mistake in *Theoria to Theory,* Vol. I, ii, p. 208).

Dialogue between John and Chris: A World of Spirits?

John Pearce-Higgins, Vice-Provost of Southwark Cathedral; Christopher Evans, Principal Research Fellow, Autonomics Division, National Physical Laboratory.

John: I suppose you are not interested in the mind-body relationship, are you?

Chris: On the contrary, I'm very interested.

John: This seems to be the basic crux of all our religious troubles today. The Church goes on pushing out all sorts of beliefs and dogmas without having ever considered the nature of the mind or consciousness with which it is dealing. So I think half of the stuff they say carries no conviction because so many people have at the back of their mind the behaviourist position.

Chris: Well has the Church *really* made it clear what it means by the mind-body problem?

John: It never discusses it. It assumes automatically that if it pronounces theological dogmas or theological statements that these are valid.

Chris: You are criticizing the Church now?

John: I am very critical of official theology.

Chris: Let me say what I understand your position to be. I think you and what you offer as an approach to modern religion is precisely right. I think you are doing what the Church should have done 100 years ago. It is because it didn't take up the challenge of psychical research that it is where it is today. The Church's decline started, some people say, with the dispute between Huxley and Wilberforce, but I think it started really when the scientists, people like Crookes and Lodge and that lot, took up the topic of psychical research in the nineteenth century and took it out of the Church's hands. Suddenly there were people claiming to prove what the church had been pontificating about for 2,000 years. And what happened? Scientists moved in and conspicuously clergymen kept out. They were jealous and annoyed that scientists were poaching on their preserves.

John: Yes, and if you look at the Presidents of the Society for Psychical Research you have got most of your leading philosophers

and a good many leading scientists, and I don't think a single Churchman, except Bishop Boyd Carpenter in about the 1890's. My tragedy is that I still can get very few of my colleagues to be interested at all.

Chris: Now where I suppose we would start to disagree is that I don't believe there is such a thing as a "spiritual" world. I think we exist in an entirely material universe in the most basic sense of the word.

John: I believe we *use* the physical body as the instrument whereby we communicate on this plane with other "spirits", to use the theological term—other units of consciousness—which we always or almost always meet in connection with physical bodies. This is what the army calls "the usual channels" and we normally use them. The whole case for Extra Sensory Perception is that it is possible sometimes to communicate without using the physical channels. This would be the strength of the church's position if it would use this argument, and if E.S.P. were proven.

Chris: How would you bring E.S.P. to bear?

John: It has to do with the relation between the inner entity I posit to exist and the material world. The evidence for this is to be found in mediumship, particularly in clairvoyance and clairaudience, where to all appearances the sensitive switches off the physical senses, and appears quite genuinely to be listening to and hearing things which are on a different wavelength altogether.

Chris: You mean the good evidence for the existence of the spiritual world or aspect of the universe is that there appear to be certain people who can tune in to it?

John: I don't much like this word "spiritual" any more than I like the word "miracle". I have to use it because it is the current word. It is a supra-sensible dimension.

Chris: This seems to me to make the issue very clear. It comes back to my original question of what is your evidence, and your answer is the evidence of mediumship.

John: Not only mediumship. I would say among other things death bed visions and out of the body experiences.

Chris: The trouble is I'm not clear what this evidence is.

John: Well, the evidence is widely scattered, of course, and can only be assessed by detailed consideration of many different sorts of cases. But for the moment I am only concerned with the soundness of my logic, and this is important from my point of view as a member of the Church.

Chris: This is what I would call the old-fashioned view of the universe, which in the nineteenth century began to change very rapidly.

John: Well of course the whole trend of modern theology, the sort of stuff that Bultmann and the demythologisers and John Robinson and John Wren Lewis and many theologians in U.S.A. are putting out, is an endeavour to produce a religion without knowledge of the suprasensible, which means of course getting rid of all interaction with a presumed suprasensible sphere, and the elimination of all that we call miracle and anything of a paranormal nature. And they seem awfully vague about the Deity too. You know what the French translation of *Honest to God* is: it is "Dieu sans Dieu". We hear a lot about "God is dead" in these days.

Chris: I think you are right that this type of religion you are talking about is hopeless, and you are right in pushing what you are pushing not because you are right *in fact* but because you are giving people what they want.

John: John Robinson, you see, talking about his God in depth, seems to feel that in the ordinary loving intercourse with people in need that he is contacting God, and quite frankly I very much doubt it, or if he is, it is only *one aspect* of God's love.

Chris: And you therefore wish to push him towards taking an interest in normal phenomena?

John: Yes, oh yes. But I can't. I've tried over and over again without success. You see, I think myself that if you are going to theologise about the Deity, who is an object of thought, I suppose, but also a subject of experience, you have got to have the God unmanifest about whom one can only say that He is, you cannot make any qualitative statement about him—you can only sense His existence—and then you have got somehow to have God manifested in the world of Maya, of appearance. (I think this view lies at the back of the Trinitarian doctrine as far as I understand it.)

Chris: All this is fine, but it doesn't say anything to me as a scientist as to why I should *believe* any of it.

John: Well no, we should then have to have some sort of evidence for the phenomena. We have got to start off with my units of consciousness—with persons in various states of need and various states of development, moral, spiritual, intellectual, physical and so on, and if there is going to be any interaction it will be very largely in response to need. This explains my attitude to the question I am sure you are going to bring up, of the difficulty of

repeating paranormal phenomena. So many of the claimed paranormal phenomena, crisis apparitions, phantasms and so on, seem to have arisen in response to emotional and spiritual needs. These things are very often acted upon, for instance a foreman has a hunch that somebody working in a distant trench is in trouble and he is inexorably impelled to go there, and he finds the chap's hand sticking out where the mud has fallen on top of him and he rescues him —all the time the chap in the ditch had been sending out telepathic cries for help to his boss. Now these things are a part of human destiny, and you can no more repeat an experience like that than you can repeat the battle of Waterloo.

Chris: Very well. But if they are chance happenings and they really are unrepeatable, they have no scientifically evidential value.

John: I really must know what you are saying here. Are they really "chance"? Are you saying that because they can't be repeated they never happened? Because honestly that seems to me a ridiculous position.

Chris: If they are happenings which follow any sort of rule, the rule must ultimately be discoverable, but if they don't follow any sort of rule, they are really random happenings and they are not part of experimental science.

John: Well, I would say, as a Christian, that they *do* conform to a rule—a dimly perceptible "providential" pattern. But on a lower level wouldn't it appear from a study of the field that what Rhine said was right : look for the gifted individual. In other words this may be a faculty that a comparatively small percentage of people possess. With those people you will probably be able to get repeatable experiments.

Chris: I wish then that these people were around. I don't consider that there are any repeatable experiments, though there are occasional people who have done one experiment twice.

John: What do you think of Vasiliev's experiments?[1] They seem to me to be infinitely better conducted than anything Rhine or Soal did.

Chris: They fall into the category of experiments which take place in a different country and some time ago, and which one really can't get to the bottom of.

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[1] A review of Vasiliev's *Experiments in Mental Suggestion* appeared in *Theoria to Theory* I, p. 113. He claimed to have done repeatable experiments in telepathy.—Ed.

John: But why, because they happened twenty years ago, are they unreliable? As for being in a different country, this is Chamberlain's Munich argument about Czechoslovakia being a long way away! Really, Chris, this is ridiculous—if Newton's apple had been observed in Japan it would still have led to the conclusions about gravity.

Chris: Fine, but if Newton's apple had only fallen once or twice and then only in Japan, one wouldn't in fact think a great deal of the theory of gravity. As for Vasiliev, the real difference between his and the stock parapsychology experiment is that he uses hypnosis; he says this is the way to get E.S.P.

John: Vasiliev did not, as far as I understand, use hypnosis to obtain extra E.S.P. sensitivity—he used the mental suggestion sent telepathically from a distance to patients who were hypnotised in order to send them to sleep.

Chris: All right, but hypnosis is considered to be a significant variable all the same. Well, there are 50 million people in this country alone. If Vasiliev has found some important rule or rules about the nature of E.S.P., why can't one find, out of this huge population, at least a *few* reliable subjects?

John: I'm not at all sure that the big Black Spider of the S.P.R. hasn't frightened some potential Miss Muffets away. Sympathy is important here. I have had a great many sittings with mediums and I move in the most deplorable spiritualist circles; among these simple people you often get some very astonishing stuff. They trust me because I am sympathetic. The bond is so tenuous, and so easily emotionally upset, and this is where I think these mechanical experiments of Rhine and Soal are so much open to criticism. Take the case of Eileen Garrett, who, I believe, did experiments with Rhine and with Soal and was an absolute duffer at it, because she said, "There is nothing coming off these cards that I can get. There is no warmth that I can pick up. Occasionally I get something about the chap who packed the deck of cards". I think that the whole structure of these experiments is misconceived. I had a talk with Alister Hardy the other day; he is trying to devise some new experiments which are much more emotional in content.

Chris: Alister Hardy surely doesn't think he is the first person to try and introduce some emotional content. There were some people in the S.P.R. who used cards with, I think, some very strong

sexual significance or some very strong overtones of violence to see whether the emotional content came over, and I don't think they found anything special.

John: Yes, the kind of thing Carrington did with pictures and drawings seem to me a much more successful kind of experiment.

Chris: I'm sure I don't need to point out how vulnerable all this makes you, especially when you consider the many cases of fraud which have been exposed over the years. There is no point in this discussion in my bringing up one fraudulent case after another and your either countering it or else alleging other non-fraudulent cases. Both of us know both sides of the argument all too well.

John: Is there some *logical* point, however, which you wish to make?

Chris: Yes, there is. You see, once there has been exposure of fraud on the part of one respected person of high standing, then one is bound to see the situation in quite a different light. And there have been several such exposures. It is against this background that we have to see your assertions about the sensitiveness of mediums and the need for achieving an appropriate emotional setting.

John: The worst frauds have been in the case of physical phenomena—"materializations" and so on. And I wouldn't like to rest my case on physical phenomena except in the much neglected field of psychic healing, which is a most important field of interaction between the spirit, mind, and the material world.

Chris: As the conversation is going, it seems you don't attach much importance to physical phenomena?

John: I deplore that the evidence isn't as good as we should like it to be. Here the S.P.R. critical type of approach seems fully justified. You asked me earlier on what sort of evidence I should base my case on. One would base it first of all on those mediumistic communications the content of which would appear to be completely unknown.

Chris: Cross correspondences?

John: Yes, and Xenoglossy (speaking in a foreign tongue unknown to the medium). I am not referring to proxy sittings either. I think however that Vasiliev's experiments show very clearly the fact that if there is a mental bond between the sensitive and somebody else, it might be that the information could be telepathically obtained from the person who commissioned the proxy.

Chris: I will concede to you that I find the cross correspondence stuff very puzzling, and I find one or two experiments in parapsychology very puzzling and difficult to explain. Not *impossible* to explain. You can explain anything away if you believe people are sufficiently credulous or culpable. I think a point comes where, if you find yourself with one or two really tough cases—which is frankly all I believe there is—then one has to make some kind of decision as to which side of the fence one is going to come down on. I still don't see what there is in this that should make me as a scientist . . .

John: I think you, as a psychologist, are trying to put into the laboratory something which ought to be still in the sphere of field work. What Rhine and Co. are doing with cards is not genuine E.S.P., or if it is, it is *some* sort of E.S.P. but not like what we find in spontaneous telepathy or clairvoyance.

Chris: But how reliable in fact are these stories? If you say these things are repeatable, where are they?

John: They are all over the place. These spontaneous experiences are happening. It may well be that the only person who has done successful emotionally linked experiments is Vasiliev. We should be doing it in this country.

Chris: Then if these experiments are what ought to be done, why aren't they being done?

John: You are behaving as if, just because you have said something, it is true, and I am sorry—it isn't You mustn't pontificate like this. Let's take a perfectly simple repeatable experiment you could go and do tomorrow with Mrs Ena Twigg. Every time I go and have a sitting with Mrs Ena Twigg I get at the lowest estimate a most fantastic display of E.S.P. She tells me all sorts of things about myself and my states of mind. And I have sent any number of patients—people who are in trouble—to her, she knowing nothing about them at all, and they say she has told them all about this, that and the other thing. She has so many people she can't possibly have known about them all before. Suppose that you selected a number of people at random—they would have, I think, to be middle-aged—and you proceeded to get down what she could tell you about them, this would seem to me to be an excellent experiment.

Chris: I think that your position is perfectly right in the sense that it is logical, except that the kick off to it is some kind of belief or special personal insight and not based on what I would normally

call evidence. You see whenever I press you for examples of the sort I do call evidence, then you say that this is just the type of experiment which you don't want.

John: If I have any "faith" it lies in the interpretation, rather than in the initial "kick off" of the facts. I suppose I take the evidence, being a lawyer's son, in the legal sense. I have my Phantasms—cases—I read the extremely meticulous and careful evidence of people who seem to me to be eminently worthy of credence, and I would have thought that in a court of law the evidence of the great majority of cases, say in Tyrrell's book *Apparitions,* would be accepted. Another compelling type of phenomena is "haunted houses", I myself have cleared houses which have been infested . . .

Chris. Infested with what?

John: Footsteps, disturbances, noises. In every case I have gone along with a medium and in every case we have contacted somebody who has been accurately described and recognized as a former occupant of the house. We have helped him to depart, and the phenomena have ceased.

Chris: Can you tell me about one such case?

John: Yes. A house in S.E. London where a gentleman and his wife were living and they took in as lodgers a foreign family. The wife died, and the widower was winkled out of his flat by this lodger, who introduced a brother and his family into another part of the house and he was finally driven down to the basement. Then about six months after he had died, there were bangings and steps and disturbances. I went along with a medium, who, not knowing anything about this story, contacted the old man. The medium said, "The old man has come back, he is very fed up with what they did to him, and he has come back to give them hell". So we spoke to him and encouraged him to depart and not stay around, sprinkled the place with holy water and said a few prayers, and that was that. I have done two vicarages, one where the vicar was hanging around, a very distressed character, and taking steps up and down the stairs, terrifying the children. You may say this is all pure suggestion, but the medium, Mrs Ena Twigg in this case, gave the most accurate description and reported clairaudiantly what he had said to her. She had never met him and I didn't know him at all. He knew all about the furnishings of the church (which she had never been into): he described all the changes that had been made in the decoration of the house, and then we had a dramatic scene when he

wept bitterly and said he didn't know where to go, which seemed a very odd thing for a Christian priest, and finally the whole atmosphere lightened, and he said, "Thank you very much for coming; you have released me and now I can arise and go to my Father". He then blessed the vicar and his wife; he then turned to Ena Twigg and said, "Had I known you while I was alive I would have said you were of the devil". He then said he was going off and asked us to pray for him, which we did, and the disturbances have ceased.

Chris: I'd like to make two comments on that. First, this seems to be entirely consistent with the picture of the world which you hold, and which the Church holds. Secondly, to me it seems to be the most awful nonsense. I admit Spiritualism, from what I can tell, is having a bit of a revival, but Parapsychology is dead. What I find significant is the interest of young people in the topic, and they don't give a damn about it.

John: Well, I do an immense amount of going around to Young Wives, Youth Clubs and so on. I am going on Thursday night to the Young Conservatives at Thames Ditton for the second time, and they are absolutely thrilled by this sort of thing. It does seem to fit in with people's experience; there is this sort of spontaneous guidance in the world. It fits in with the whole course of Biblical History; it fits in with the whole course of Oriental Religion too, for that matter. I wouldn't want to confine myself to the Bible. But the whole Bible is based on the hypothesis that there is a constant interaction between the unseen world and the world of appearance. The thing that interests me is that the phenomena that I think are reasonably authenticated today can be paralleled by Biblical ones. I don't think that Balaam's donkey talked, but I think it is quite possible that Balaam had an experience in which the donkey jibbed at something and then he saw the figure. And of course I am extremely interested in all this paranormal healing which is an essential part of the Gospels. The other night on television Robert Robinson said, "I hadn't read the Bible since I left Sunday School, but as I was going to have this interview on Meeting Point with Dennis Nineham and a Roman Catholic Bishop on the New Testament and its authenticity, I re-read the Gospel, and the impression I got of Jesus was of a rather bad tempered healer", which seems to me fair comment, even if I would disagree with the adjective!

Chris: But you are talking about personal experiences and these are not in fact the basis of science.

John: Surely all science is based on personal experience and observation? Anyway my position remains that these E.S.P. spontaneous experiences are turning points in the destiny of an individual, and you cannot demand that they should be repeated. While experimentally you may be right—I won't say you are—that parapsychology has got up a blind alley as a scientific study, the fact remains that these spontaneous things are occurring all the time. They exhibit a certain common pattern, or regularity, even if they are not repeatable in your strict sense, and are happening all the time. And if the thing was dead as mutton they ought to be dying out, and they are not. The answer is that E.S.P. should be studied with infinitely more attention to depth psychology, and that it must be done on the personal level, because it is perfectly obvious to me, having got into the world of parapsychology, that every book you read has to be evaluated according to the personality of the writer.

Chris: If that is true, it is indeed a very unscientific topic.

John: What are you defining science as? Would you say psychiatry was "unscientific".

Chris: Yes, I think it is most unscientific though some aspects of it certainly work. I wonder if I could go some way towards meeting the requirements of both of us. In the 1950's Gertrude Schmeidler did this sheep-goats experiment. She divided her class into two groups and she gave them questionnaires, and she classified them according to their belief or disbelief in E.S.P. She found a very interesting difference; those who believed in E.S.P. got more E.S.P. In any other science that would be the break-through point. The deduction would be made that it depends on attitude. Now if this experiment is significant, why hasn't it been repeated?

John: Mind you, you have got to take Schmeidler's experiments against the whole background of what I have been saying about spontaneous stuff working between emotionally linked people.

Chris: Let me put you this question. If the attitude of the tester and those tested is important—and you have suggested it may be—then this should manifest itself each time, shouldn't it?

John: All you are justified in saying is, "I think these look to be very significant experiments; I should like to see them repeated", but you know you could repeat the sort of experiment I suggested with Mrs. Twigg or any other good sensitive any week you liked.

Chris: Which brings us back to the beginning for it was the atttempt to break away from the non-quantifiable mediumistic experiments that led parapsychology into the drudgery of millions of card tests.

Theism as a Scientific Hypothesis, IV

Margaret Masterman

The Six Stages of Creative Science

It is often asserted that science really started from early forms of technology, such as irrigation, building, navigating, surveying, or medicine; and/or from alchemy; and/or from magical practices; and/or from metaphysics. I do not want to enter this controversy, all the more so as I think that the trends represented by the historical and pre-historical facts are conflicting, difficult to interpret, and complicated. I want merely to try and describe what happens in science now; and especially, to try and describe what happens in the early stages of development of new lines of research.

The overall scientific creative process, as envisaged by me, has six stages (or sub-processes) within it, not just three, as has often erroneously been thought to be the case.

These first three, usually overlooked stages are :

(i) *reception of the icon,* either by eye, as an inwardly seen picture,[1] or by ear, as an inwardly-heard word.[2] I tried to give some analysis of this in *Theism III.*

(ii) *creation of an iconic vehicle to match the icon.* This iconic vehicle is an artefact. It can be an actual picture (e.g. a wooden icon, or a mosaic) : or what scientists call "the picture", or an actual model of the plasticine-and-string sort. Or it can be a piece of paper (or e.g. tablets of stone with words written on them) if the icon was ear-given in the first place.

This iconic vehicle can be, but need not be, as exact a match as possible with what was seen in the inner "vision" or heard in the inner "audition". It has, however, one totally necessary characteristic : it is *concrete.*

Thus, a poem can be an iconic vehicle : whereas an algebraic formula, just like that, can't. (In other words, and with reference again to *Theism III,* the concrete structure which I am now describing, is the Orthodox icon, not the Peircean icon.)

This is the human race's predicament : scientific revelations, as well as religious revelations, come to the human

subconscious in a form which is concrete, whereas the kind of thinking which goes deep into the heart of reality, in both spheres, is abstract.

I am by no means denying mathematical revelations can occur in abstract forms; all the more so as there is a large and interesting literature on this very subject[3] including much discussion as to whether the first stage of a mathematical revelation, as of a scientific one, is or is not concrete. What I am saying here, though, is (*a*) that this second stage of any scientific revelation, in the typical case, is concrete when, in many ways it would be much more convenient were it abstract; and (*b*) that it can be shown that there is a concrete component at the heart of any scientific research line, or at the heart of any scientific theory (see below).

So now we have a seeable and touchable concrete artefact, corresponding to—perhaps even closely matching —an inwardly derived, equally concrete "revelation"; a "revelation" which came to its recipient, tinged with awe, from a deep psychological surround.

The question is now : given our iconic vehicle, what do we do with it?

(iii) *interpretation of the iconic vehicle.*

Here is the crux. Here is the step in which the true scientific enterprise, the true artistic enterprise, and the true higher-religious enterprise, all alike part company from their primitive counterparts; namely, in realizing that, even in a true revelation, the iconic vehicle will not do as it stands, but needs to be interpreted. In the museum or the art gallery we need to wait, and look at the picture until the true meaning dawns on us; in practical and social matters, we need "to wait and see what in practice it all works out as". In scientific matters we need to reinterpret the iconic concrete structure abstractly as a fundamental scientific analogy.

People have always known this; in the great ages of the arts (including pre-eminently that of the Byzantines from the fifth century onwards, from whose civilization the very notion of an icon derives[4]) multiple-interpretations, or interpretations in successive levels of iconic vehicles have gone very far indeed. Moreover, in all the higher religions (and, probably also, in many which in our

still barbarous arrogance, we presume to call "lower") the founders, prophets and seers have reiterated that revealed raw icons ("visions and revelations") are not to be trusted as they stand: they can be false: ("the devil can also send them"); also they are frequently liable to be misinterpreted, especially if acted on prematurely ("no-one should trust his own unaided judgment, in interpreting a vision or locution"). There is a large literature on this.[5]

Unfortunately, however—since in this matter of evaluating our own depth-psychology, we are our own experimental animals—this insight, that concrete iconic vehicles have to be interpreted, has only been sporadically, and not stably attained. Visual art deteriorates and so we get literalism; so also does sociological custom, and so we get taboos instead of directives; so also does current psychiatry—and so mental patients get compulsory drugging instead of rational comprehension[6]; and so also, notoriously, does primitive religion. A primitive religion is not in the least a religion practised by a non-literate people, or a religion which uses one set of symbols rather than another; it is a religion whose practitioners have sat down and worshipped their own iconic vehicles, instead of waiting and seeing how truly to interpret them.

In this sense, as is now being progressively made clear in current anti-religious and South Bank literature, both Catholicism and Protestantism (and now also, alas, Orthodoxy, in spite of its splendid origins) have regressed back into being primitive religions. Catholicism, in particular, increasingly uses the raw icons revealed to its saints and seers either to promulgate new devotions (with new iconic pictures from which it is taboo to deviate[7]) or to crystallize new dogmas (with new iconic locutions, from which it is taboo to vary[8]). So, in general, seers are now no longer able to lead the human race on to seeing, but only back to sometimes infantile forms of praying,[9] from whence it comes that among many, many other evils which result from this primitivism so many who could have been seers are now in mental hospitals.

* * *

From this point I cross over from the universe of discourse of depth psychology of revelation into the universe of discourse of the

philosophy of science. The last three stages of the full scientific creative process are therefore expounded discursively and in more detail below. These are (iv) the creation round the (often metaphysical) interpretation of the concrete icon, of an analogical *and/or* a mathematical envelope; (v) the connecting or intermeshing of this with a research technique. (Sometimes the research technique itself exhibits or embodies the analogy or the envelope; sometimes it does not, since science is complicated); (vi) the development or refining—or sometimes in the long run the rejecting—of the now envelope-embedded scientific icon by a series of specially-devised experiments. If the experiments work, the research line tends to give birth to a cluster of technologies; if they do not, or if the envelope cracks, then (see below) you get a scientific revolution.

Thus the Peircean icon is an envelope-embedded Orthodox icon, according to me, neither more nor less; and the process of connecting up a "revealed" concrete icon with truth consists of re-interpreting it as a more abstract analogy. You then either develop the analogy itself in a Peircean manner so that inferences are drawn from it, the truth of which can then be tested by observation or experiment; or you embed the analogy in a mathematical envelope, and develop that, testing the result at every stage by observation and experiment.

* * *

This recurrent making-of-connections-at-intellectual-junctions-and-changing-trains, so unhappily characteristic of this essay, is exceedingly unsatisfactory in that it leaves a lot of argumentative ends untied, criticisms unanswered, and avenues unexplored. But the appalling state of religion-and-science thinking in this mid-twentieth century is not to be remedied by one essay, and, contrary to what seems to be thought by several of my critics, is not all my fault. On the one hand, on the religious side, we have a gigantic corporate regression to the infantile; a state of affairs run by children for children, of a kind analysable by, though not attractive to, any social psychologist.[9] Humanists are not far out when they call it "beneath contempt".[10] On the other side (the scientific side) you get a gigantic banausic[11] lacuna; a conformist and servile clinging to a set of habits (see below); an utter refusal to launch out, to suffer, to speculate, to court unpopularity. The result is that in most scientists the higher faculties progressively atrophy (unlike computers in which at least the library of tested and debugged subroutines does progressively increase), until in the end these scientists have attended so many international conferences and talked so

much, and sat on so many grant-giving committees, that they have totally forgotten what it would be like really to think at all. In the name of protesting against "politics", they practice politics; under cover of condemning religious naiveté they are themselves anti-religiously naive; violently reactive against sermon talk, they cloud their own minds and the mind of the public with streams of anti-sermon sermon talk; clamouring for scientific liberty they persecute true curiosity.

After this manifesto I now continue, generally respected through being equally unpopular with all.

* * *

The Rôle of Paradigms in normal and in extraordinary science.

It is not to construct a new theory of scientific creativity for its own sake that I am writing this section of this essay; but because I want to make subsequent use of the successive stages of a scientific method which I here expose in order to tackle the fundamental scientific concept of "information". For this notion of "information" is currently in such a mess that icons, intepretations, pictures, journalistic expositions and mathematical models of it, are all disconnectedly jostling cheek-by-jowl with one another in contemporary science's foundational bowels; and it requires a very full and sophisticated pre-analysis of science itself and in general to see that it is different *stages of sciences* which we have here, as well as different *kinds of sciences* occurring in different fields. However, if we are to re-lay the whole foundations of science on the notion of Information, as many increasingly desire, we must start by collecting and interpreting a raw icon of it, i.e. at the beginning : and not try only to go backwards from the various mathematical models, i.e. from the end.

Of course, in a settled and established discipline, such as natural science, the aim, even in a new line of research, is not to start with the raw icon : it is to start with the already interpreted "picture" or "colloquial hypothesis".[12] To do this, as I have said, the "picture" or colloquial image is used non-literally, as an analogy.

Then the analogy is developed *by ordinary thinking,*[13] until some features of it turn up which can be recompared with the facts. For instance in the evolutionary case, fossils of intermediate stages of life are looked for, because points corresponding to these stages occur on the phylogenetic tree : and fossil evidence of the existence of the required intermediate stages is either found or not found, thus strengthening or weakening the case for thus schematising the tree. However, concurrently with ordinary thinking, further pro-

cedures can be employed. The concrete analogy (which don't forget, came from the "picture" which in the end, far back, probably came from someone's raw icon) can have a mathematical system mapped on to it, or otherwise hung on it; and then it is the mathematics, not the original analogy, which has to be developed and reinterpreted until it gives statements which can be tested by experiment and either verified or falsified.

I will call this mathematics, which is hung on the underlying analogy, the *mathematical envelope*. And the point which I want to sustain here is that *all* science—i.e. mathematical "hard" science, as well as analogical or "soft" science—has a concrete component at its core; namely, the basic analogy which starts the whole train of thought off, and upon which the mathematical envelope is then hung. Of course, the convolutions and complexities of actual scientific argument, especially in the hard sciences, make it hard to discern, and easy to forget, what the original generative analogy, in any research line, really was: all the more so as ancillary concrete "models" and "pictures" are also used at all stages both for teaching purposes and also to simplify calculations—and sometimes just for fun. (Scientific drawing and model-making is now almost an art on its own; and a lot of science, though not all, is a sort of inspired playing about with new toys.) Nevertheless, that this is so—i.e. that all sciences start by developing a crude analogy with some part of the real world, and not in merely abstract terms—this was stated, most firmly, by the physicist and philosopher Norman Campbell, in his now classic survey of scientific thought *Physics, the Elements*.[14] Alone of philosophers of science—who, as a race, tend to be logicians or pure mathematicians, not working scientists—Campbell was worried at the vagaries which always tend to develop in mathematical envelopes. Either you tend to get a great deal too much mathematics, with the greater part of the possibilities of proof which the system gives you plain irrelevant for the scientific purpose which you have in hand; or, worse, although some of the mathematics really does help with the science, other parts give you inferences which are scientifically false. (Thus, in my Boolean lattice of the Trinity, in *Theism III*, it could be inferred that the Holy Spirit P in his supremum, $(P \cup G)$, included the Father: i.e. $(P \cup G) \geqq F$[15]; but I have purposely not made this inference). Letting sleeping mathematics lie; inventing neat devices so as to get as much juice as possible out of what will do in the maths., while neutralizing or lopping off (or forgetting about) to the greatest possible extent what will not do—what the scientists themselves call

"cooking the theory", this activity constitutes quite a part of the actual activity of handling any piece of mathematics occurring within a science; but it normally remains unremarked-on by philosophers of science. However, Norman Campbell did remark on it; and from it inferred the real use of the underlying analogy, which is, according to him, to act as a guide, and especially as a restrictive guide, to direct the theorist to develop only what is relevant in his progressive handling of the mathematical envelope.

Campbell's conclusion differs from the view of a whole series of philosophers and pure mathematicians, and notably of Duhem[16]; and the whole issue, in the form of "Is an analogy, or model, really integral to the development of a scientific theory, or only ancillary to it?" has been brilliantly discussed by Mary Hesse in her short book, *Models and Analogies in Science*.[17] This discussion, which is written in exceedingly distinguished English prose, takes the form of a dialogue between a Campbellian and a Duhemist in which the author tries to keep up an impartial attitude. But in fact, the dialogue very convincingly shows that unless you do have a model or an analogy at the heart of your theory, and one which has an ascertainable relation to the real world, you will have no criteria for making your theory predictive of more fact. According to Hesse the "predictive theory of science" (in a particular sense of "predictive" which she defines), and the "analogy theory of science" go together; and now Max Black has reinforced this type of argumentation in his sequence of philosophy-of-science essays, *Models and Metaphors*.[18]

However, there is an age-old trouble here which the "analogists" did not deal with, and that is "how do you actually calculate and/or solve problems, using an analogy?" In other words, the Campbellians had not tackled with sufficient detail or care the two questions, (i) "*How* is the mathematical envelope hung on the initial analogy?" and (ii) "How are scientific problems solved with precision, in the analogical sciences in which there is no mathematical envelope?" This lack of definiteness at the core of their philosophy always lets them down; so that the sophisticated form of Duhemism, developed originally by F. P. Ramsey[19] and then by R. B. Braithwaite, and expounded in Braithwaite's *Scientific Explanation*[20] retains its hold upon philosophers who like to have precision and clarity in their philosophy of science—even if what this philosophy expounds is not quite like science. So, up to now, the philosophers of science have tended to fall into two groups; the first, the "Braithwaiteans" holding the Duhemist

"hypothetico-deductive" theory of science (the "H-D theory" for short) according to which scientific thought, ideally, takes place deductively and in pure abstractions, concreteness only seeping in (somehow) at a late stage, from the experiments which actually take place at the end; and (ii) the adherents of either the "metaphysical theory of science" (Karl Popper) or the "metaphor theory of science" (Hesse and Black) who say that, no, *something* must "come before", or lie at the heart of a mathematical envelope; either a metaphysical truth (Popper) or an analogy or model (Hesse[21]).

Into this scene then came a young man who looked at the whole thing with a new angle, namely, the physicist-cum-philosopher-cum-sociologist Thomas S. Kuhn. He said, "Look at this whole matter of how science occurs sociologically: that is, look at the kinds of things which scientists actually do, before you start building up, analytically, your picture of what science actually is". The resulting book, *The Structure of Scientific Revolutions*,[22] was simultaneously an instant success, and also a scandal. It was a success because working scientists all over the world having read it, instantly and joyfully cried out "Here at last is a philosopher who is taking the trouble to find out what science, for the man in the lab., or at the bench, is actually like". A scandal because the picture which Kuhn drew of science, as imitative, fashion-ridden, gang-run and, over the short-run, an authoritarian activity was so unlike what philosophers of science and pure mathematicians had imagined and hoped real science to be, and (as Kuhn said) so much more like what its enemies had always imagined theology to be, that some extremists even tried to run Kuhn right out of the philosophy-of-science academic world as a heretic to the empiricist ideal and way of life.

In one respect, they were right, and Kuhn was wrong: scientists do care very deeply about truth,[23] (so, also, in the great days of theology, did theologians). But in nearly all other respects Kuhn was right and they were wrong. And, in a sentence, what Kuhn said was that science, over the short run, consists in what he called "the replicating" and development of a *paradigm*. Now, seen sociologically, a paradigm is a set of habits; some "concrete scientific achievement", or new experimental research, which attracts other scientists to imitate it and develop it. And (said Kuhn) whereas you might think that the fact that a lot of people were working to develop the same paradigm might widen the discussion of it and create round the paradigm an atmosphere of openness and of liberty, the opposite is

what in fact occurs. The whole paradigmatic train of thought, with its permitted lines of experimentation, grows increasingly more rigid; a close in-group forms, which develops its own in-group jargon, and journals, and the many members of which now only write papers for one another; only the questions permitted by the in-group are allowed to be discussed, and research workers who will not follow the paradigm, either because they raise counter-examples to its truth, or because they think in other ways, are either shouted down or ignored, or, if they persist, slung out (to go off and found another research-line—if they can). Moreover, when the paradigm is world-dominant—as Newtonian Mechanics was, and as (e.g.) Molecular Biology is now coming to be—then even more extreme consequences of the concentrated world-wide effort to develop it occur. The first of these is that scientific problems, or facts, which before the triumph of the paradigm counted as being well inside the general sphere of scientific inquiry, are now dismissed out-of-hand as "unscientific" because they do not fall within the field of development of the paradigm. The second is that, in the scientific textbooks, the whole history of past science is rewritten, with minimal reverence for the facts as they actually occurred, in order to lead up to showing the moment of the eventual triumph of the paradigm.

Kuhn's revelations on this last point have shocked most of the scientific world. But they did not shock Kuhn. For, taking science for granted, he asked himself, "Why should all this happen?" "What is the great prize which the development of the paradigm yields, and to which so many other evident goods are sacrificed?" To which he answered "The paradigm yields a double prize; precision, and concentration in depth." The problem-solving activities (what Kuhn calls "normal science") which are generated by the paradigm—and a paradigm is valuable precisely in proportion to the number of problems which it first suggests and which, by using the methods developed under the paradigm, can be solved—result in the forging of a precise scientific tool with a powerful cutting edge, with the aid of which a deeper, more precise and more concentrated exploration of a particular area can be made than ever has been made before. And within that area, when the paradigm is a strong force, discovery follows upon discovery, in a quasi-miraculous way.

So that is the point of establishing and developing the paradigm (said Kuhn), and this is why science, of its nature, has to be paradigmatic. But, in the end, there is a price to be paid for this. For the paradigm is finite in extensibility. In the end, trouble develops inside it. Either its mathematical envelope begins to yield

contradictions; or (if it has, by that time, more than one mathematical envelope) these cease to fit together; or some awkward fact turns up well within the area of the paradigm, and exactly of the kind which the paradigm ought to be able to explain—and it can't.

This intra-paradigmatic trouble Kuhn calls *an anomaly,* and he brilliantly describes the set of procedures which are customarily undertaken by the supporters of the paradigm to try to resolve any emergent anomaly; the anomaly is treated as one more problem (Kuhn's preferred word is "puzzle") to be solved. Sometimes, indeed, it is successfully solved; in which case the brilliant solution of what seemed at first sight to be an anomaly further solidifies and indeed publicly enhances the paradigm. Sometimes, if the anomaly is an empirical one (i.e. a set of facts which ought to fit in but which don't fit in, like Newton's trouble about the moon and the tides) these facts are re-examined with a toothcomb (but scrupulously) and all the relevant experiments are repeated, to see whether the revised facts which then emerge continue to be as much nuisance to the paradigm as at first they seemed to be. Sometimes, again as a result, the anomaly disappears; sometimes it does not. Then the mathematics which have been used to develop the paradigm can be re-orientated or readjusted or otherwise complicated to fit better; and there are other things which can be tried. If all these fail, then *anomaly* deepens into *crisis* for it gradually becomes apparent to everybody that local repairs won't suffice; that, in fact, the whole paradigm is breaking down. Complexity (within the paradigmatic universe of discourse) proliferates faster than it can be resolved; technological applications (owing to the overcomplexity) begin to break down; the whole root—and history—of the paradigm, begins to be dragged out into the light; rival philosophical schools develop (though consisting of scientists, not of philosophical teachers) "pro-paradigm", and "anti-paradigm", and the general scientific situation, in that field, regresses back to being very like what it was in pre-paradigm days when the whole field was philosophical, i.e. before there was any established science in it at all.

This state of crisis develops until someone suggests a new paradigm (note Kuhn's use of the word "suggests" here); i.e. until someone has a new "way of seeing" (also Kuhn's word) which may be far more crude and less initially effective than the old way of seeing, but which is founded on, and therefore resolves, the anomaly. This solution, which begins of course by being a nine days' wonder, is sufficiently solid to attract supporters to it, to develop it, a new set of

scientific habits begins to be built up round the new paradigm; a life-and-death struggle sets in between the supporters of the old paradigm and those of the new paradigm—that which is at stake here being not actual scientific human lives, but scientific reputations; and if the supporters of the new paradigm win the struggle, the new paradigm gradually replaces the old, and a scientific revolution has been achieved.

The act of suggesting and developing the new paradigm Kuhn calls "extraordinary science".

Thus, according to Kuhn, science, does not progress as mathematics does, by precisely definable accretion; it progresses (if it does progress at all) in a series of bounds. (There are periods of rise, triumph and fall of any paradigm.) But because (contrary to popular belief) the mathematical statements which were thought to be true under the old paradigm cannot straightforwardly be transferred to the new one—and some of them cannot be transferred at all—it is impossible, even, to make an authoritative estimate as to what has been lost, in the revolution from paradigm to paradigm, and what has been gained, since paradigms are incomparable with one another (Kuhn's word is "incommensurable"). This total verdict of Kuhn's is over-pessimistic; science does progress, and everyone knows that it progresses—which fact Kuhn is willing to admit himself. The point is that it does not progress straightforwardly; and, as described sociologically by Kuhn, the full scientific creative process is very much more like an art than it is like a science; just as art (also as described by Kuhn) is very much more like a science than it is like art. In fact one of the overall effects on readers of the impact of Kuhn's book is that it tends to break down the dichotomy between art and science.

Now the act of suggesting and developing the new paradigm, together with his account of the psychological surround with which the new paradigm comes, both of these are strongly reminiscent of what happens when, in the Orthodox sense, a man receives a new revelation, or icon. And this fact brings out a trouble about the nature of a paradigm which runs through the whole of Kuhn's account and which can be indeed discerned from my description of it. Sociologically, a paradigm (see above) is a set of scientific habits which gather round a "concrete scientific achievement". But if this is so, how can someone "suggest" a new paradigm? You can't suggest a new set of habits; habits grow up. Moreover, how does a known concrete scientific achievement become a *known* scientific achievement if there is not more to it than a set of habits?

Because the initial pioneer scientists, through whose actions the habits develop, are the very ones who are performing the achievement. So, since they can't know that they will be successful and found a tradition before they even try, where does the whole thing start?

Concern about this went so deep in me that, at this point, I (the present author) entered the fray,[24] and pointed out that Kuhn's sociological sense of "paradigm" could not be the primary sense; there must be something logical which was prior to it. And indeed Kuhn (who, by common consent, is a poetic, rather than an exact writer) has indeed other senses of "paradigm"; the first, a very wide and abstract sense in which the paradigm is a very abstract "metaphysical picture", or "way of seeing"; and the second, a very concrete sense indeed, in which a paradigm is an actual artefact—perhaps even an actual piece of apparatus, together with a hunch as to how to use it—with which scientific research problems can be solved. And indeed (I said) this third, very concrete sense of "paradigm" must itself be the primary sense, if "normal science" is to consist of puzzle-solving. For you can't solve puzzles with a "metaphysical picture", only with an artefact; *unless some sort of artefact can be imagined which can itself metaphysically be re-envisaged as a "way of seeing"*.

Now this artefact can be imagined: it is a Peircean icon; incommensurable with any other icon, because of its concreteness and crudeness; finite in extensibility; but capable of being used for puzzle-solving, both because it is susceptible of interpretation, and because it has a structure. And a Peircean icon, if expressed visually, can be an actual picture: but if it has to be expressed in words, it must be conveyed by a metaphoric expression, or by a concrete analogy. Moreover (I said, using techniques developed within the computer sciences unfairly to floor the philosophical opposition, though only in the short run), I can develop even Black's sophisticated notion of metaphoric interaction, by using a digital machine on-line, in such a way that an analogy-or-metaphor in speech becomes an artefact; (i.e. I can put a Peircean icon, through not an Orthodox icon, on to a machine to show its structure, and to show also the sequence of algorithmic choices by which it can develop).

This ability also puts me in a strong immediate position to make a simplification of Kuhn's philosophy of science such that it connects back with the older, hypothetico-deductive conception of science. For this has, indeed, from Kuhn's point of view, the merit

(which Popper's philosophy hasn't) that with a hypothetico-deductive system (i.e. with a mathematical envelope) you can solve puzzles. This hypothetico-deductive conception of science, I said, is not wrong so much as defective; since it describes only a mathematical envelope, without discerning the concrete analogy (see above) on which the mathematical envelope is hung and which guides its subsequent development. This concrete analogy (which, don't forget, for me.with my machine can be also a Kuhnian artefact) I called the concrete A-concrete component of a scientific theory; and the other concrete component (i.e. the experimental interpretation of the theory in terms of fact) I called the B-component. These two, I said, can be clearly distinguished from one another if you take any science whatever *except* Newtonian mechanics. For Newton's *Principia* is exceptional precisely in the fact that Newton (himself a religious contemplative with a personal interest in prophesy and revelation) started straight off by developing and interpreting his highly counter-intuitive mathematical envelope, and kept quiet about his icon.[25]

Take, however, the case of Molecular Biology, with its Genetic Code. There the A-component of the theory is the analogy between Genetic Code and natural language. This analogy the Molecular Biologists have taken so far as to frame in terms of it, conceptions of a "word", a "letter", a "sentence", and "punctuation"; and it guides all their thinking in developing their theory. The verification of the theory, however (the B-component) is not in terms of language at all; it is bio-chemical. It is clear, therefore, that within Molecular Biological genetic theory—which is the most beautiful theory since Newton—there are two concrete components, A and B, both required for handling the theory, and sharply distinguishable the one from the other.

Well now, in terms of *Theism as a Scientific Hypothesis*, where do we go from here? I have set all this out at length to show that my contention is serious; that, judged by the strictest philosophical criteria, the Kuhn[26]–Masterman computer-aided paradigm version of the hypothetico-deductive theory of science is a very strong philosophy of science, capable of holding its own against considerable criticism, which I have no doubt at all it will receive.

But, to conclude this section, and before (after a break) I start using this wider paradigm view of science as a philosophical guide with which to try to see how to build a Peircean icon of Information, I want to say only two very general things.

I. There is no need to fear that the creative arts will be engulfed by science; for the creative arts have reappeared at the very heart of science—as also has revelation itself.

II. This most precious gift to the world—I refer to the full scientific creative process—comes from, and should (though not exclusively) return to Christianity. There is a popular conception that Christianity's great corporate gifts to the world are the supernatural virtues of humility and charity. This is not true; for, as Chesterton said, alas, they have never yet been tried. The corporate gifts which Christianity (once you think about it) undoubtedly has given the world are firstly, parliamentary democracy and secondly, scientific method. Both of these gifts in the long run, are precious and widely sought-after, but both are tending to become separated—to the world's detriment—from the deep contemplative root from which they first came.

A fully democratic Christianity, continually unfolding in new and fully creative basic sciences, the practical applications of these informed by love—is not this, more than any neo-Hinduism, what we really desire?

Would not this tower?

NOTES

[1] Cf. J. H. M. Wightman, *The Mystical Life* (1961). This book, with a preface by H. H. Price, is an exhaustive though controversial study of the process of "inward seeing".

[2] Cf. Frances Banks, *Frontiers of Revelation* (1962). Frances Banks, having been a Sister in the Community of the Resurrection, South Africa, for some 20 years, left it to do research work in parapsychology. In this book she sharpens the well-known distinction between "hearing" and "seeing" mysticism, by carrying it explicitly into the field of parapsychology, and distinguishing icon-receivers who are predominantly "eye-minded" and those who are predominantly "ear-minded". I have to thank Father Adrian Martin, S.S.M. (Kelham), sometime missionary in South Africa for bringing this book to my notice.

[3] See especially J. Hadamard, *The Psychology of Invention in the Mathematical Field*. Princeton, 1945.

[4] See Gervase Mathew, *Byzantine Aesthetics* (1963). In this authoritative survey, which might just as well be called "Byzantine Mathematics", a far more technologically and philosophically adult conception of Byzantine civilization is set out than any which had been previously available.

[5] If I had to choose from within this and on this subject, St. Teresa of Avila is the writer I should first make for; and Augustine Baker the second.

[6] Cf. R. D. Laing's *The Divided Self*, p. 12.

[7] St. Margaret Mary Alocoque (1647–1690) received as a raw icon a vision of the bleeding Sacred Heart of Christ, and painted an exact replica of what she saw. Similarly, she received as an auditory icon the command to initiate a new Catholic devotion and related the actual words she heard.

When the "validity" of her revelation was finally established with the Vatican authorities (after a period in which she was caused to suffer very much indeed) it was laid down (a) that all future pictures of the Sacred Heart (which was already a well-established Catholic conception) should be copied exclusively from the iconic vehicle or replica which St. Margaret Mary had made; and (b) that the new devotion should be established in exact accordance with the command she had received.

[8] Marian and other dogmas promulgated infallibly are just this.

[9] The whole idea that to penetrate the heart of the "Christian mystery" the adult must regress and return to the child-state ("except ye become as little children . . .") is still cardinally misunderstood both by religious people themselves and by scientists. In its true form it is found in all the great religions, and everyone should know it is a form of *reculer pour mieux sauter*.

[10] Cf. F. H. C. Crick, *Of Molecules and Men*, p. 91 (1966).

[11] I myself owe this word not to Aristotle, but to A. F. Parker-Rhodes, who correctly asserts that digital computers can only produce banausic (i.e. rude mechanical) mathematics. The same acknowledgement has to be made for the term "mathematical envelope" on p. 343 which is derived from the "Boolean canonical envelope" in which any other lattices can be embedded in finite lattice theory.

[12] Thus the mathematics of the dynamical theory of gases would have nothing to give it that shape and that deductive method rather than some other if it were not for the simple picture of elastic balls bouncing against the walls of a box and against each other (indeed the physicist would probably without hesitation say that the "picture" was what the mathematics was about). Beyond the current abstractions and generalizations of quantum theory, also there has to be a spatial picture of an atom with moving parts—even though this picture is no longer the planetary electron model—in order that the quantum mechanician can know how to apply his mathematics and what to apply them to. Further, underneath the purely logical matching processes of the genetic coding molecules in molecular biology there lies the basic analogy of the code with natural language.

[13] Everybody who has not done any science underestimates the extent to which, even in the mathematical sciences, scientists just talk and keep on talking. As defined in a recent nasty anti-scientific article in *The Cambridge Review*, "A lab. is a piece of apparatus which, whatever its origin, can be adapted to brewing a cup of tea".

[14] 1920, Reprinted as *Foundations of Science* (N.Y. 1957).

[15] Personal Communication from H. C. Rutherford. See also his letter in this issue.

[16] See M. B. Hesse, *Models and Analogies in Science*, p. 2, for the reference to Duhem, *La Théorie Physique*, ch. IV and V.

[17] London 1963.

[18] *Models and Metaphors*, ch. III and XIII (Cornell 1962).

[19] F. P. Ramsey, *The Foundations of Mathematics*: Chapter IX A "Theories" (London 1931).

[20] *Scientific Explanation*. Cambridge 1953; New York 1960 (Harper Torchbook).

[21] This is how I interpret Mary Hesse's paper "The Explanatory Function of Metaphor". *Proc. 1964 International Congress on Logic and Philosophy of Science* (ed. Y. Bar-Hillel).

[22] Chicago 1962. *International Encyclopedia of Unified Science.* This is a very difficult book, with no index. I therefore give the page references needed to support my argument below: On resemblances to theology, pp. 140, 161, 165, 169–172; on paradigms as achievements, pp. x, 11; as sets of habits, p. 10; on not looking outside the paradigm, p. 108; on re-writing past science, pp. 135–137; on "normal" science, pp. 7, 35; on paradigms breaking down, pp. 5, 52, pp. 90; on suggesting a new paradigm, pp. 86–87; on paradigms as ways of seeing, p. 121; as incommensurable, p. 67; on problem-solving in art and science, p. 160.

[23] I have taken this up in a paper to be submitted to the *British Journal for the Philosophy of Science,* "The strength and weakness of sociological persuasive argument. A discussion of T. S. Kuhn's view of the nature of Scientific Verification".

[24] "The Nature of a Paradigm", by Margaret Masterman. Symposium "Criticism and the Growth of Knowledge II". *Proceedings of the International Colloquium on the Philosophy of Science,* Bedford College 1965. Vol. III, edited by I. Lakatos (forthcoming).

[25] I allude here to what I believe to be the truth that Newton was able to solve the gravitation problem not because he could see it through his extremely counter-intuitive euclidean geometry, but because he had a very tangible feeling for continuously varying dynamical quantities, which became the germ of the differential calculus, with its for long formalized concept of the differential operator expressed in the old dot notation $\dot{x}$ for the time rate of change of the variable x. The contact between the two outlooks is provided chiefly by Proposition VII of the *Principia* in which an important dynamical result is derived for the case of a circle in order that the same result may later be used for other curves by regarding them as circles whose radius varies continuously—an essentially differential concept.

I owe the extreme sophistication of this note to E. W. Bastin and C. W. Kilmister, though they should not be held responsible for the sentiments expressed.

[26] Since T. S. Kuhn and I are currently taking steps by publications and by correspondence to determine to what extent we agree and disagree about the nature of a paradigm, the reader should suspend judgment on just whose version the one given here is. It should be made clear, however, that the main originality is Kuhn's, and that the main mistakes, if there are any, are probably mine.

I concede, for instance, that I am probably both more impressed and more knowledgeable about the detail of the Braithwaitean exposition of the H-D theory than Kuhn is, through having been married to the author of it for 35 years.

A Quaker looks at Spiritual Discipline

Damaris Parker-Rhodes

The mind and the senses are now beginning to be charted by physiology and psychology and such knowledge can form the basis for action. But the deeper levels of consciousness which erupt in most people as "hell", "heaven", intuition, musical genius, telepathy, clairvoyance, spiritual healing and religious experience—still elude man's understanding. Religious literature from early times deals with spiritual disciplines which can seek the harnessing of these powers of the unconscious.

In the religions, there is a common certainty that the uses of these spiritual centres are a higher mode of experience, bought "at the price of all a man hath". All declare that the power is obtained by the greatest loving desire, and is won as an endowment from "outside" from "the God within". Each in his tradition makes this point: "Not I live, but Christ lives in me . . .". "It is the work of the Over self . . ."(Hindu). "It shoots . . ." (Zen Buddhist archery).

Mystical and spiritual healing sources of Quaker origin in England today give similar types of witness, though they usually pass from individual to individual and are not readily declared in the Friends Meeting for Worship. As Bernard Canter (late editor of *The Friend*) wrote: "The meeting, it is always assumed, knows God best every time. Thus a *mystique* has grown up round the Meeting for Worship—that it is a kind of Mass or Eucharist; an external act as necessary for receiving the grace of God as to a Catholic or Episcopalian the bread and wine. In innumerable ways the Meeting becomes the centre of the higher piety of highest Christian wisdom. Hypnotised by the elevation of corporate worship, no one bothers much any more to look beneath the surface of the corporate and learn what is happening in *personal* discovery, in the privacy of a member's experience, right away from the Meeting on Sunday morning. In the Society it has become almost indecent to confess to personal experience, much less to share it. Somehow there is no longer a place in the Society of Friends for talking about such things".[1]

[1] *No Time But This Present*: Studies Preparatory to the Fourth World Council of Friends 1967. "A Great Dream" by Bernard Canter. Published by Friends World Committee for Consultation, Woodbrooke, Selly Oak, Birmingham 29.

"Only believe and try—and never mind the reason why . . ." thus William Blake, firmly rooted in the mystic tradition, indicates the way in widely differing traditions and cultures, to the use of these higher centres.

This "Only believe . . ." does not demand faith in a set of dogmas or the holding of any particular picture of the structure of human personality, or man's destination, or his reason for existence, much less an outline of why or how the universe was made, though often it includes all these. Its essence is the consigning of ourselves to a Something or Someone (not less than personal, though not necessarily personal) beyond our range of comprehension.

This faith asks for an ultimate of commitment of self-giving, with a whole-hearted readiness to receive life at greater depth. It implies coming to believe that nothing is by chance, and in all, a man may be led in so far as he remains in the realm where leading is possible : "All things work together for good to them that love God".

The Surrender of the Will

Following on the primary need for faith follows immediately the need for a humble surrender of the will. This is the requirement to stand aside and let "It shoot . . ." to let grace function, to let genius speak, to quiet the self, so that the Overself, or Christ in the heart, may speak.

Mind and sense are perpetually active. True *choiceless awareness* which makes spiritual awareness possible, lies for modern man on the further side of selfish self possession, and needs fertilizing silence.

This being "reduced to nothing" of which spiritual writers speak, in the west often follows the pattern of Search, Crisis of Personality and Despair followed by complete silence of thought, hope, picture of anything desired, and then by illumination or conversion experience. This last may be tied to certain symbols such as Cross, Christ, Virgin Mother, or it may not.

Such crisis conversions at one time and another have been extremely common in society. The early Friends Movement was based upon them. So was Wesleyanism. Today the Pentecostals in America, and the conversions among the drug addict teenagers in New York told in *The Cross and the Switchblade* by the Rev. David Wilkerson (Pyramid Books, New York 1962), bear witness to the power and possibility of "crashing" through a layer of consciousness.

William Sargant in *Battle for the Mind*, relates how these mechanisms can actually be used today by psychologists in "brain-washing" a personality, so that "conversions" can be experienced

from one political viewpoint to another, under the same kind of mental duress as someone may suffer in a society in which conversions are taking place. In the one, however, the personality is prevented from making efforts to reach and enhance the truth as he sees it intuitionally, and has someone else's truth forced upon him, and in the other (religious conversion) the wiser at least hold that a person should be invited to receive what he believes is desirable and enlarging.

The interest of the matter lies in the fact that there are genuine and lasting changes of personality pattern caused by the "illumination" undergone in both processes, bringing satisfaction and certainty. This kind of "divine" certainty, due to conversion after crisis, is however no proof that the illumination came in from a realm different from, and of a "higher mode" than, the human. If it can be provoked by communist instigators in a prison camp, it has a mechanism which arises from men and can be imposed on men. Is it not possible that *every* spiritual manifestation has also a mechanism, but that nothing is "*just* mechanism . . . ."? To discover the mechanism is not to declare experience void. Religious tradition has always regarded crisis and suffering as possible vehicles for spiritual advancement if rightly accepted, and many especially the Christian, regard them as necessary.

Traditions of Spiritual Discipline

All traditions imply that the goal of spiritual insight is only reached, if at all, by the greatest possible effort of the whole personality: "Strait is the gate, and narrow is the way, which leadeth unto life, and few there be that find it".

The surrender of the will, and with it of ourselves, as we understand and know ourselves, is "The Way" in every religious tradition in its higher reaches. This is followed by a battle with "sin", that is, with the part of ourselves which is easily dragged away from seeking "the Kingdom" to contentment with lower satisfactions—animal satisfactions isolated from man's higher desires, self-seeking of all sorts, wishing to possess or to dominate the kingdoms of the mind and sense. Also, more rarely, the egocentricity of a determination to master the skills of the beyond instead of surrendering to their power (cf. *Monkey,* the 16th century Chinese novel by Wu Chêng-En translated by Arthur Waley). The temptation of the ego in every sphere is to attempt to kick down the doors at which men have to knock. This can be done by someone of sufficient determination, but may bring suffering to the edge of madness and

beyond. Hence, the reiteration of spiritual advice as to the exercise of humility.

This "Way of Humility", this surrendering up of the will to the best that we know in our hearts, is the first part of "The Way", and it is a part which continues up to the end. In it gradually all dogmatisms give place to an understanding that "The Way, The Truth and The Life" are a path and not a possession; to be lived, but remaining beyond encirclement with the mind, since their fulfilment is greater than reason can grasp.

The Way of Humility is the struggle to "stand aside and let genius speak . . .". Next comes definite training with all the concentration of being and powers that this implies. This is training in the surrender of the will, which is one of the aims of ritual, meditative practice, or contemplative method. Indeed any serious concentrated study can be a means of training the will.

Each method is not an end in itself but should draw the practitioner into letting go of himself, so that what is believed to be beyond him may function. If the person is "tone-deaf" to what lies beyond, and has not been in any way touched by it, either with a feeling of inadequacy, guilt, insufficiency, or by a flash of vision, then he cannot easily remain in the place of *undoing* where progress is possible. Thus, it is common to find morally excellent people treating traditional methods of ritual and times of silence as ends in themselves, without ever once knowing the touch from beyond. And they continue pathetically believing this is all there is to religious practice, while never having come near its live source. If a whole church suffers this defect, it gradually dies on its feet.

In order to penetrate the unconscious layers of the mind, meditational or contemplative exercises aim at quieting the film perpetually flowing through the mind, distracting us with what has happened and what will happen, and how we shall deal with it. This silencing is extremely hard work, perhaps the hardest work there is—just to do and be—nothing.

"I said to my soul, be still and wait without hope
For hope would be hope for the wrong thing; wait without love
For love would be love of the wrong thing; there is yet faith
But the faith and the love and the hope are all in the waiting.
Wait without thought, for you are not ready for thought :
So the darkness shall be the light, and the stillness the dancing".

T. S. Eliot (*East Coker*)

This silent waiting leads however to self-knowledge and to the uncovering of motives akin to the revealing that psychological

analysis can bring, and to the breaking through the layers of consciousness sometimes brought about by crises in the personality.

Unlike these crises, however, the practice of contemplative methods (regular silence day by day for not less than about an hour over several years) in which thought is reduced to a single point, shows the subject only that in himself with which he can cope at the moment. It is a quiet method and should not induce crises of the personality, but rather gradually induce regeneration, releasing more abundant life at many levels. The person feels himself gradually released "into life". He cries: "I invite life and embrace it, and life understands this and gives itself to me . . .".

However, for the passionate, or for those the slate of whose being is badly scratched, there are without doubt, dangers. "Safe lives belong to shop keepers, not to spiritual men" as Berdyaev understood.

It is possible to fall into the abyss beneath instead of reaching the abyss above. It is almost inevitable at some point to be in "hell". As Goethe wrote: "Who has not nightly wept upon his bed, he knows you not, ye heavenly powers". The "hell" can be the quite concrete one of the schizophrenic, or an uprising of the powers of the subconscious driving the personality into mad desires and actions, and even so detaching it from the everyday as to cause mental disability of the kind that leads us into a mental hospital. The final destination is to come to see that from one angle man is depraved, so impure in his motives that nothing he can do can rescue him.

In situations of the human spirit like this, faith saves. To call out "If there is Anyone there with power to save, save me . . ." finally does save. Theodore Häcker in his *Diary by Night,* written while he awaited the arrival of his Nazi persecutors, declared many times that he thought he would go mad. Finally, he wrote that he saw that this was indeed likely, but if with the remains of his sanity he could say "Into thy hands, into thy hands . . ." all would yet be well. From this point his fear passed and his sanity began to return. Some like Hölderlin passed over the borders of sanity and remained mad. I personally believe that there is truth in these lines from Browning's *Paracelsus.*

> "If I stoop
> Into a dark tremendous sea of cloud,
> It is but for a time: I press God's lamp
> Close to my breast; its splendour, soon or late,
> Will pierce the gloom: I shall emerge one day".

Another danger commoner, and less productive or dangerous, is that of mysticism leading into mental and spiritual torpor. This is the mysticism of the sentimentalist. Martin Buber recounts how in his youth he renounced mysticism because he could not harness it to the world of men and their needs. To him it became like drug taking—an escape. To renounce this joy beyond the joy of the senses is a great renunciation.

Only mysticism linked to a strong moral sense, and sufficient framework of reasonable belief that will not give reason the lie, can reach the goal. Indeed "Strait and narrow" is the way. . . .

Flash of Vision

The Bhagavad Gita, which is in some ways more helpful for the West today about this region of experience than the Bible, enumerates the various routes to "union with the divine", and it enumerates quite a number of routes, and not only one. They include "The Way of Meditation" (abstract, isolated from the world), "The Way of Action", and "The Way of Bhakti" (devotion to the personal God). Some include "the surrendering of the powers of being in the fire of union, lit by a flash of vision", and some are intellectual ways, some are ways of good works and some of spiritual austerities and devotions. The Gita makes clear that all ways lead to the same Goal: "In the way a man loves Me, in that way shall he find My love". This is a vision of the world as spiritual as well as material at every point.

Here we shall discuss the way of the "flash of vision" following crisis, since this was certainly the way upon which George Fox and the early founders of Quakerism were based. We find Fox ardently searching for Truth, by which he meant the inwardly known truth of the spirit. We are told that he sought among preachers and churches, fasted often and long, sat meditating all night in trees, and in his extravagance was regarded by his friends as being more or less demented. Finally, he reached his illumination when, in despair, he heard the voice within him which said: "There is one even Jesus Christ that can speak unto thy condition". From this experience he was able to know for sure who was his guide, and what he had to do.

His journal however recounts other occasions when he underwent spiritual darkness and longing, struggle and inward desire, followed by further enlightenments. This *holy undoing* which Fox suffered, is perhaps the pattern for all passionate and intuitive temperaments in their search for the divine, and the harnessing of

the deeper levels of consciousness relating to it. The Wesley movement was, like early Quakerism, based upon the conversion experience, in which the worldly soul of a sudden discovered first its depravity and degradation, its impurity and the impossibility of human cure, and then its saviour and the possibility of beginning to live "in the forgiveness of sins".

Zen Buddhism is based on a crisis principle with its meditation upon Koans (apparently meaningless sayings upon which the disciple must ponder until his mind lays down its task and being *undone* can open itself to a flood of enlightenment, in which the koan's meaning is the least of the understanding granted).

On a more obvious level, there was the case of the child learning to sight read on the piano, when his teacher made him return home crying for three months from every lesson. When the mother asked for more gentleness from the teacher, he replied that if she would be patient with his method, in a further short time, the child would suddenly achieve sight reading. This in fact happened. However to impose crisis on another might as easily lead to hate of the subject in hand.

For passionate temperaments more illumination appears to follow every further nothingness of *holy undoing*. I use the term *holy undoing* as the opposite to *disintegration of being*. In *disintegration of being* the mind and its properties and also the body lose control, but *holy undoing* brings about release of more powers which their possessors declare to be better worth the having than their previous ones, but which have grown out of these. *Holy undoing* and *disintegration of being* are opposite poles of the process of life, but as Blake said, Heaven's doors are at Hell's gates (and there are times when they appear to be the same—as when Fox was thought by his friends and family to be suffering a nervous breakdown). In one case, the breakdown is complete, inner and outer, in the other it is the necessary *undoing*, which makes renewal at a higher level of consciousness possible.

Today, anyone who sets out seriously on the road of spiritual search does not easily find directors, in fact is very unlikely indeed to find a director. If he loses his way, he may be doped into torpor by doctors, or told to "switch off" by his friends in the churches. Perhaps the Catholic and Orthodox churches with their old tradition of mystical search still contain wise men and women who can guide? Certainly, there are not a few who lose their way and go into *disintegration of being* in their search for the holy undoing which leads to more abundant life.

When anyone is confronted with the unanswerable and the terrible, he cannot continue his way without the deepest reflection of which he is capable. Faced with an amputation of being—the death of a life-long mate, hate of a friend, the removal of all natural security—a man is forced into his own interior world, or into a loss which stultifies his personality for ever. Faith is to believe it possible that this "death of the heart" may prove a growing point for new and more abundant life. This is not knowledge to be charted, mapped or fully thought. Thought can actually hinder. The hope is inevitably blind. It is here that the "Bear skins and oxhides" which cover our deeper existence, of which Eckhart spoke, are stripped off and in this nakedness of being, spirit becomes ready to encounter spirit. . . . "Blessed are they that mourn, for they shall be comforted. Blessed are those that hunger and thirst after righteousness, for they shall be filled. . . . Blessed are you when men revile you falsely for my sake. . . .". Jesus, in the Beatitudes, recognizes crises as valuable helps to the human spirit, if they are allowed to be directed by a deep desire and hope for more truth and life.

Also there is the dark night of *unknowing,* in which it is felt that ordinary knowledge has become insufficient for existence to be bearable. Why persevere, the disciple asks himself, year in year out, with, say, "The Cloud of Unknowing" type of meditation, or the barrenness of a Mantra, or the stupidities of a Zen Koan? Why waste so much time a day? Because by certain signs the practitioner knows something in fact *is* happening. His ordinary vision of the world is gradually becoming cleansed. He seems to see more deeply into all, he loves more, enjoys more of the everyday. He is quieter, passions begin to die away, and sink more quickly when roused. He has more control over himself and his actions; his real self, instead of false selves, acts and speaks more readily. He finds he can more easily consign those for whom he cares into the power to which he is surrendering himself. He is finding detachment, but not the kind upon which men wreck themselves, as it contains compassion. Compassion arises instead of pity, that is, pity now has an element of hope in it. Silence, even when in itself it appears quite barren, brings growth and maturity (always provided it has not slipped into the torpor of false mysticism, which has said goodbye to the moral and intellectual world at other levels).

The passionate temperament may have a number of flashes of vision in a lifetime, and these give all the personality can for the time contain of joy, understanding, abundant life, power to act, and enrichment of the faith that life is good.

The passionate and the dreamer as children sometimes experience moments of bliss which arise for no apparent reason, and fill the universe with extraordinary glory. Certain places may evoke them —the holy gloom of a darkened church, or a wide view seen from a forested hillside—or they may come attached to no outward manifestation. I know a child who had such an experience when returning home at the end of a long day's fox hunting, lost in the mist on the moor, and having dropped her reins on the pony's neck in case it might know the way better than she. The bliss was so violent that she found herself shouting because of it. It went as suddenly as it came. On another occasion in her teens, alone in a library, a similar experience occurred, and she found herself murmuring in "strange tongues" which expressed for her something inexpressible. Neither of these instances were connected in her mind with the concept of God, and yet from them flooded fresh knowledge of the holiness of existence.

Sex again is a source of mystic experience for many, and can be a gateway into receiving life at much greater depth. For the first time the one-ness of all nature is seen organically from the inside, flesh of our flesh, as well as spirit of our spirit. These experiences should link up and lead on to the possibility of a deeper emotional life altogether. Religion is about this deeper life.

Conversion experience (which is quite common) is both the end of a search and the beginning of one. Time and again it follows the quest of someone who has sought to commit his life to God, but could not find the way, until there is granted a glimpse of spiritual reality which is proof enough for the soul to fling itself into the commitment for which the mind and will were ready. This is to enter the life of the spirit consciously. Perhaps those cheated of the lesser experiences known to country children in quieter times find the silence of the heart less easily.

The flash of insight spoken of in old times as spiritual marriage—ecstatic and quite sensual—is still to be experienced today. Perhaps the moral code is as a firm rock upon which the passionate may rest their emotional life, "I do not love, but I must . . . " can be a place of purging for the passionate nature. When it has been well purged, spirit and body too, may come to know intimately its True Love, for whom all along it was searching, when it searched among lower things for fulfilment. These lower things, including most of all sexual love, and the ecstasy they brought momentarily, it now understands "on the way" and part of the fulfilment, which had to

be lived through and lovingly accepted even in suffering, with steadfastness, before they too could be left behind as ends in themselves. From the moment when spiritual ecstasy touches the body through the spirit, the spirit is loosed from searching for ecstasy in other human beings or in nature. The ecstasy in these things are really there and to be experienced, but they perpetually betray anyone seeking for them in and for themselves. Only the pure in heart may see God. Nature in all its ways is marvellous and holy, but this knowledge is secret and mysterious, not to be tasted except by a gift from on high. Fortunately, such purity, especially for passionate people, may be granted sometimes as a gift. For this reason the artist and the profligate are sometimes nearer the Kingdom (as Jesus taught) than the steady and the continuously good, who cannot so easily throw themselves into the abyss of love.

There is the vision too, which once seen, makes the seer believe there *is* actually no more to see, since *This* is the Light beyond all light, *This* is All, and All is *This,* Joy beyond all joy, all sorrow, all struggle, the end of truth, the hallowed place in which we are redeemed from both evil and good. As Mother Julian of Norwich wrote, the world is safe in God's hand as a little hazel nut, because "he loveth it and ever shall . . . and so all manner of thing shall be well". Knowledge comes that our world is enveloped in a realm of love, which penetrates it at every point, the strange part being that the gulf between matter and this realm, which the mystic feels so acutely, has somehow been bridged, so that men can nakedly experience spirit and still survive.

However, finally perhaps, it is not the vision itself that matters (I believe it can be seen by people taking drugs, or in a flash by the dying). What matters finally is what may follow. This is the possibility of finding the deeper layers of consciousness harnessed to purposes beyond our own. What the old mystic tradition called "conscious union with the divine" is perhaps to allow another dimension of existence to possess the personality : this is to believe that there is a spiritual world which interpenetrates with ours at every point, but to which we only have access by self-giving love, by actually laying down what we know as ourselves. For this the utmost labour and self-giving of mind and moral nature is required, as well as an emotional sacrifice of what we know as ourselves. Only in so far as any vision burns away the roots of selfishness, so that the everyday can begin to be seen as rooted in this wider sphere of existence, can it be called a true vision.

In fact the flash of spiritual vision can burn out in a moment a

struggle with certain types of selfish behaviour which the practicer over many years has been quite unable himself to eradicate.

Spiritual reality has to be desired with the whole heart, at the same time true mystic experience comes *unsought,* and it comes to accomplish a purification and enlightenment of a concrete kind. It comes as a gateway into deeper existence. Those who seek it in order to enrich themselves may suffer mental disorders of an acute kind (perhaps being passionately and madly inflamed by their glimpses) or perhaps be faced with a disintegration of being which they have no power to prevent. The violent, suffering violently for their violence of spirit, may be purged of it, but the way is dangerous for them. The casualties of the interior life are not far to seek—Rimbaud, Hölderlin, Nietzsche among them.

Youth and Drugs

The empty pews of the churches bear witness to a religion which is signally failing to mobilize the power of the community to experience the interior world and be harnessed by it to living.

Young people in drug taking, meet for the first time the reality and wonder of the internal world that the churches have largely failed to mediate to them. Finally, one is left wondering to what extent the present panic on this subject arises from those in society and the churches, who have no interior or psychic life of their own, and dread any live contact with it.

The mechanisms which produce this experience are coming to be understood, and it is seen that the contemplatives of old systematically worked upon their bodies by fasting, praying for long periods in uncomfortable positions, long repetitious singing, and by rousing emotional tension by seeking to feel their sinful natures. This caused changes in their body chemistry which gave rise to conditions favourable to spiritual insight. Because the mechanism is understood to some extent, the insight is thought of as "*just* the result of changes in body chemistry . . .".

For this reason mysticism has fallen into disrepute. However the true mystics were not seeking visions finally, but to become the tools of the spirit. Many were active people able to play a rich part in the everyday world. Some appear to have possessed extraordinary vital energy and creativeness of an intuitive kind. Others, while not remoulders of human institutions, were known for their power to heal, to help, and as sources of peace and renewal to others. They were not non-entities, they were "virtue banks", who appear to have enlarged the human possibilities of living.

Religion, trying rightly to rid itself of encrustations of outmoded thought begins to proclaim itself as man-centred instead of divine-centred. "God is a man, man is no more. Thine own humanity learn to adore . . ." leads on to "God is dead . . .". But since there really is another dimension larger and altogether beyond man, although it may (and does) include man, what goes out by the front door has a way of creeping in illicitly by the back.

The passionate really require what Wesley called "heart work", that is to taste directly of spiritual knowledge, of the inward "seeing". The steady temperament is greatly enriched by it, but at least does not go bad or mad if deprived. Thus, it is possible to build up churches almost exclusively of the steady, who are not passionate enough to risk all, in their search for the reality of the spiritual. The path of the steady to conscious union with the divine if it is mystical may be a diffused mysticism, more akin to that of Brother Lawrence, who was as conscious of the presence of God in his kitchen among his pots and pans, as he was on his knees before the blessed sacrament.

Repetitious ritualized services, as well as those of the free churches which remain on the intellectual and moral level without seeking an encounter with mystery, tend to condition people into *not* expecting to receive spiritually. The divine fertilizes, awakens, brings to new and abundant life. Rituals may indeed lead to such an awakening, but not if the key expectancy is lost. The life of the spirit threatens half living of whatever type. The spiritual man may be at peace, but his life may not appear peaceful.

The young are harder than the middle aged to deceive, not so easily conditioned into *not* expecting to receive. Hence promiscuous sex, the jive and shake type of dance, pop music of the hypnotic sort and the mad searches of the drug takers, all point to the failure to make contact with the interior world at higher levels. So they thus fall into the "death" of seeking it at the subconscious levels. The releasing of the subconscious ecstasies and agonies at least keeps the personality from torpor, but may very easily lead to its disintegration. Most easily this could happen to the drug takers, since drug taking has been connected with disassociation from society, and with the abandonment of the quest for truth, both moral and intellectual.

I have to admit to being a mystic myself since childhood, and having undergone all the experiences I describe. In the last instance I was persuaded, much against my desire, by a young pharmacologist working on drugs and the brain, to take a dose of psilocybin,

since he made me feel I had no right to judge young people unless I once myself experienced what they were doing.

I suffered very severe effects indeed; although the direct effects only lasted some six hours, it took about 10 days to recover from acute mental strain, and being unpleasantly psychic (such as "seeing" a car with a broken wind screen and remarking on it, the minute before it came over the horizon).

I knew from the first moment exactly what I desired of the experience and steadily resisted everything else. In the hallucinatory phase of bright colour patterns and strange marvellous scenery, I resisted closing my eyes, and thus remained mostly on the surface. The everyday then became lit with a marvellous and heavenly clarity, of the kind seen in some of Salvador Dali's paintings. Despite the agony and tension of the pressure on the mind, this was extraordinary and precious and akin to that lighting up of the everyday which I had experienced many times before without drug taking. It was however greater in degree. After about four hours in which I continually repeated, "Thine, thine . . ." there came to me the knowledge that saying "Thine, . ." was in fact a form of holding on to my own ego. It was "Mine, mine . . ." I was saying. There then came to me the invitation to "let go", stop saying "Thine . . ." and plunge into an abyss in which I should be lost if I were not saved. This was a veritable death to all I was, but love bade me go on. What I then saw I have already described a page or two back.

Now I would never under any circumstances take such a drug again. I am now without any further desire for such experiences, because I see that what above all should be desired is not experiences but union with That (He) that lies beyond and is the source of all. I need release from myself since this is the only way to possess myself; and the only way is by following the truth as I see it in action, and practising self-surrender in methods of silent search. If mystic experience comes again, it will be, as always in the past, unsought, and to accomplish a purification and enlightenment.

I have to make clear, though, that this last experience in which I saw the Light, has been a gateway (as sexual experience is a gateway that brings a child to birth) which has made me freer in an enlarged sphere of living. I cannot and do not regret my experience. I do understand that the mystics of old time worked on their bodies to produce conditions favourable to spiritual insight. So did I. I would not do so again. Once in my youth I fasted for three days and suffered a false mystic experience (I was in those

days a great kicker down of spiritual doors, as I never found anyone to guide me). This later proved false as it opened no door to a wider and more abundant life beyond.

We in the Society of Friends tend perhaps to cater for the steady temperament, for the strong moral type who are prophetic seekers of a new world where war will be no more, the hungry will be fed and the naked clothed. But we have to be careful that we do not accept so barren an emotional way of life that our young people find no better alternatives than drugs, in order to prove to themselves that they are not half dead. Drugs taken "so as not to be square" at a party, without due preparation of years, and of moral struggle for truth, could be more disintegrating and deadening than almost anything else. They could provide an escape from the real into a shadowy unreality undermining all.

Computer Programming for Literary Laymen Part II

Robin McKinnon Wood

In my previous article, I put forward the idea of using the computer as a tool for helping human beings over a very much larger sphere of activity than is done today. There is today, a very large use of these machines in the sphere of mathematical calculation, in commercial accounting, in the control of complex industrial processes, and these uses of the machine will continue to expand. But there are also many possible applications where the enormous computation and memory capacity of the machine could be allied to the essentially human activity of decision making and intuition, and the combination of these two quite different sets of attributes could not only relieve people of a lot of the drudgery necessary today, but also suggest expansions into quite new fields of creativity.

Perhaps the most important possession of human beings is their ability to use a language consisting of learnt words and building it up spontaneously in order to communicate with other human beings. In this paper, I am going to say how I think a computer can be used to extend this most vital of all functions—the construction of relevant word sentences.

A computer, basically, can only obey a fixed set of instructions,

making choices only as a result of instructions in its program as written by the programmer. To see how to make these machines usefully available to a wide class of people, it is necessary to go into some detail on the type of programming languages which have been developed, and the ways in which they can come closer to the nature of natural languages.

Before I do this, however, and as I ended my last article with an example, I will start this one with another. Again, this example requires the use of a "conversation" between a person and a machine, with the person making the decisions and the machine both performing the calculations and also making those decisions which are implied by decisions previously made by the person. I should here refer to a paper by C. P. Gane, I. Horabin and B. N. Lewis entitled "Algorithms and the *Prevention* of Instruction"[1] (my italics). The point made here is that there are many activities which people are forced to do, and in order to do them are forced to learn a great many things which are quite irrelevant for their particular purpose. A good example of this is the filling up of forms for government departments—particularly those with copious explanatory notes. By using a program to select only that information which is relevant to the person at any given time, a great deal of unnecessary work can be saved.

An Inland Revenue tax return is a good example of this. The instructions for filling in the form are considerably longer than the form itself, and you are instructed to read carefully the relevant notes for each question. You are also required to insert the results of calculations, such as the gross value of income from which income tax has already been deducted. The designer of the form, if he has been conscientious, will try to lay it out in such a way as to reduce the labour involved in filling it up, and he will try to cut out unnecessary waste by giving instructions of the form "If you answer NO to this question, you need not answer Questions 5 and 6". But if this type of instruction becomes any more complicated, then the person can again not follow it and the point is lost. There is no such limitation if this is done by a program in a machine, and very complex structures can be built up. In this way, the machine can decide which question-answer path is applicable to a given case, and give only the information which is required.

In addition, of course, the machine can compute totals, gross income, allowances etc. from the information you type in, and

[1] Monograph for private circulation: Cambridge Consultants (Training) Ltd.

fill these items in automatically. Finally, if you were lucky enough to have a teletypewriter line to a machine and were also allowed permanent storage facilities in the machine's store, you could type in the information day by day, as you get it, and the yearly scramble for long forgotten information would be done away with altogether. For private individuals, the cost of doing this today is still too high, but advances in technology have already made it economic for small businesses, and in time should bring the use of the machine to all of us.

We must now go into some detail about how computers are programmed, and I will try to show how the steadily increasing sophistication in the use of programming languages can make the seemingly complex task of machine programming into an activity that could be understood by an intelligent layman.

Conventionally, the electronics of a digital computer is so organized that it is made to "obey" a set of *"instructions"*, one after the other, and as I shall have to contrast what I want to do with a computer with this convention, I shall have to give a brief description of the conventional way of understanding it. These instructions are of the form : "Add a certain number to another number" or "If this number is zero, stop and do something else". These instructions are originally written by the programmer, using some form of programming language, and are then fed into the computer, usually by punched cards or tape, and stored away in the machine's memory store. When the program is *run*, the machine takes the first instruction, "obeys" it—in the sense that it performs whatever action the instruction represents—and then takes the second instruction, obeys it and so on in sequence. Special instructions, like the one given above, are used to change the sequence when desired.

In the most primitive form of machine code programming, the program is written as a set of discrete instructions, each of which must contain three separate parts. The first of these is the *function*, chosen from the set of functions defined by the engineering of the machine. The function part tells the machine what it is to do. The second part is the *operand*, that is, the item on which the function is to operate, and the third is the *location* of that instruction in the machine's store. As both instructions and operands are kept in the machine's store, it is convenient to number each storage location, and refer to an item, whether an instruction or an operand, by the number given to the storage location in which it is kept. This is known as the *address* of the item. Thus a typical instruction might be written as : 26/105—223

meaning that the instruction 26/105 is to be placed in storage location 223, and when obeyed, the machine is to perform the operation 26 to the operand it will find it storage location 105.

It is evident that a primitive use of *names* has been introduced. What's in a name? A great deal, for the use of names is the key to any attempt to provide a natural way of machine programming. When we use language we do continually use words to carry senses which could, if necessary, be expanded into explanatory sequences of words, and I want to get to the point of incorporating this basic human operation into the operation of a computer. Fortunately the history of computers has developed in this direction, as I shall describe, and this helps me, even though I want to begin from the other end with word invention or name construction as the primary act of computer programming instead of being one of its last refinements. In the example above we have only two types of name—the number 26 is the name of a function, and the numbers 105 and 223 are the names, or addresses, of storage locations in the machine. The type of name a particular number represents is indicated by its position in the code—that is, before or after the stroke. Apart from the inconvenience of using numbers for names, two major difficulties arise. First, the set of function names is limited by the electronics of the machine, and is neither extensible nor transferable to a machine of a different type. Second, the set of address names are absolute, representing fixed locations in the machine which the programmer must remember. A common error is to use the same location inadvertently for different purposes.

Assembly languages can considerably improve this situation, partly by providing mnemonic names for the functions of the machine but chiefly by providing an *indirect* naming facility for the storage locations. By "indirect" I mean that the machine attaches the name to a particular storage location (which the operator is not aware of) and thereafter uses it consistently. The programmer may thus invent names of his own choice, subject to restrictions imposed by the assembly language, and any occurrence of this name will be recoded by the assembler into the correct machine address. In addition, the assembler will find locations for the program by itself, allowing the programmer to *label* only those instructions he needs to refer to. Our instruction might then be written as :

ADD/STOCK — UPDATE

or just ADD/STOCK if a label was not wanted.

The assembler will convert ADD to 26, STOCK to 105, make a note that UPDATE is the name of storage location 223, and store the instruction 26/105 in storage location 223.

The use of names has now become considerably more sophisticated, and in fact, a new type of name has been introduced, the *label,* which is the name of an instruction or a block of instructions. But we are still limited to a small finite set of function names, and although techniques exist to define sub-programs and assign them a label type name, the ability to create new functions is hedged with restrictions. In particular, the ability to extend the language by naming sub-units of program, and then grouping these into higher level "concepts" under a new name, and so on, is severely limited.

High level programming languages attempt to solve some of these difficulties. There are a large number of such languages already, and their number is increasing rapidly. This is in many ways unfortunate, but is necessary at this stage. For even high level languages do not approach the generality and flexibility of natural languages. So it is necessary to have special purpose languages, such as ALGOL and FORTRAN for scientific work, COBOL for commercial work, and so on. There are even high level languages, for the sole purpose of writing other high level languages in.

A distinction must now be drawn between a *compiled* language and an *interpreted* language. In the former, a machine program, called a *compiler,* acts as a translator into machine code. When using this type of language system, it is necessary to write the complete program first, taking into account all possible contingencies. Once the program is compiled, it is too late to change it. For those applications where human intervention is not required during the operation of the program, this type of language is the most efficient, for the translation need be done once only. But it is not possible for the machine to interact with a person in situations which were not envisaged by the programmer in advance.

With a compiled language, the program as written undergoes a translation into machine code, in the same sense that a book might be translated into another language, and it is only the resulting machine code that is stored in the machine. A program in an interpreted language, on the other hand, does not undergo this initial translation into machine code, but is stored directly in the machine's store as the string of characters actually written by the programmer. It is thus always accessible, and can be changed at any time. The electronics of the machine requires instructions in

the form of machine code, and this conversion is done on the spot, as it were, by a special program called an *interpreter*.

Just as we can regard the behaviour of a compiler program as analogous to a person translating a book from, say, English to French, so we can regard the interpreter program as analogous to a human simultaneous interpreter translating a conversation between an Englishman and a Frenchman. If we now put the interpreter and the Frenchman into the same box, this box will appear to the Englishman as a box which speaks English, and he need not know that in fact he is speaking to a Frenchman. In the machine case, both interpreter program and machine code electronics are in the same box, and the result is a machine which appears to speak the high level programming language directly.

Now that we have described an *interpreted language*, we are within sight of our goal of a machine which uses names in language construction in the same way that we do. For an interpreted language allows us to combine the decision making abilities of a person with the computing power of the machine. Our interpreted language must, however, handle the symbols we normally use in written natural language and must effect the editing and transformation of texts easily and naturally. Large scale numerical and commercial calculations can best be left with the compiled languages. We wish to use the machine as a tool—used quickly, changed quickly, without weeks of previous thought. In particular we do not want to know how the machine really works; it must communicate with us in the same language that we communicate with it. And we wish to be able to create names without limit, group these as we wish and rename them, so that we can build up concepts and then use them as a basis for higher level concepts, without having to worry about the intricate logical problems which such an ability involves. For this purpose, we are primarily interested in human efficiency and not machine efficiency.

A number of high level languages, using the interpretative technique, have been developed for this type of application. As with compiled languages, the particular application intended forces a choice between one or more of these languages. Thus the JOSS system is excellent at arithmetic, the LISP system for the manipulation of lists and tree structures, special languages are also available for simulation studies, and for engineering design.

The language used to program the example in my previous article, TRAC, is particularly suitable for the processing of strings of characters—the basic symbols of written text, and I shall use it

as an example of a "conversational" mode language. TRAC is a pure interpreted language, based on the concept of a "character string"—a string of alphabetic or numerical characters typed in on a teletypewriter. All input to the machine is in this form, and all output by the machine is in this form. The language is logically very simple, and there are very few exceptions to the basic rules. Notwithstanding this, the language is very powerful, particularly for non-numerical work.

One feature of this language, which some professional programmers find disturbing, is that it is not organized as a sequence of commands. As I described at the beginning of this article, the languages of machine code, assembly language, and most (though not all) high level languages, are based on a series of commands (or instructions) to the machine to do particular operations on particular operands. That is, a program is a set of instructions to *perform* a given job. In TRAC, this mode of operation is no longer the natural one. A TRAC program *is* the given job, with bits of program stuck in wherever computation needs to be performed. This is possible because the TRAC language works entirely by *substitution* within the *character string* which forms the program. Any sub-set of the character string which is marked, by the special characters '#', '(', as a sub-set which requires evaluation, will be evaluated, and its value substituted for the original sub-set. By character string, I mean here any set of alphabetic, numeric, or punctuation characters which are available on the teletypewriter used, such as the string A X D . ! F 2 4 6. Any program—and any written text such as a book—is such a character string.

Thus, if we typed into the machine the (completely trivial) program :

THE CAT SAT ON THE MAT

The result would be the typing out by the machine of :

THE CAT SAT ON THE MAT

If however we typed in :

THE # (CALL, X) SAT ON THE # (CALL, Y).

and the character string whose name was X was, say, DOG, and that whose name was Y was CARPET, the machine would type out

THE DOG SAT ON THE CARPET.

The character strings '# (CALL, X)' and '# (Call, Y)' use the special characters '#', '(', and ')', and thus require evaluation. # 'CALL' is the name of the function 'CALL', and 'X', 'Y' are the names of the strings 'DOG' and 'CARPET'. The

function 'CALL' has a substitution value which is the character string corresponding to the given name, in this case, 'X' and 'Y'. The effect of obeying the program is to replace the function '# (CALL, X)' by its value, 'DOG', and similarly for '# (CALL, Y)'. This program is evidently still trivial. This looks rather banal. But watch out. With this change allowed we have already opened the door to our new use of the computer that we have talked about so much. '# (CALL, X)' is no longer a cipher, it is a Gladstone bag for just so much novelty as we are going to want. And this is the principle on which this language works.

The generality of the language arises from the fact that the name 'X' need not necessarily be a simple character string. It might itself by a program. The question-answer translation example given in my last article relied on this ability to name pieces of program as well as simple character strings. There are also a number of functions (about 35 in all) which allow the naming of character strings as well as of calling them, and allow various editing, logical, and arithmetic functions to be performed. When reading a TRAC program, it is useful to read the symbols '#(' as 'the result of'. Thus the program given above could be read as:

THE [the result of calling X] SAT ON THE [the result of calling Y].

The power given in this language by the ability to name pieces of program is increased by the ability to embed functions within other functions. A simple example of this is taken from the field of school arithmetic, and this also shows the contrast between a command language and a substitution language such as TRAC.

Suppose we wished to have a program to print the sum of a number given by the human operator and the product of two more numbers given by this operator. In algebraic terms, we want $a + (b \times c)$. In hypothetical command language, we might write this program as follows :

let a be the first number typed in,
let b be the second number typed in,
let c be the third number typed in,
let x be the product of b and c,
let x′ be the sum of x and a,
print x′.

In a substitution language such as TRAC, we might write :

Print the result of adding the first number to the result of multiplying the second number with the third number.

In TRAC itself, we would in fact write :

(PRINT STRING, # (ADD, # (READ STRING), # (MULTIPLY, # (READ STRING), # (READ STRING)))

where PRINT STRING is the print function, ADD the addition function, MULTIPLY the multiplication function, and READ STRING the input function which accepts whatever the operator types in. The substitution value of READ STRING is the character string typed in by the operator. The PRINT STRING function causes the machine to type out on the teletypewriter. It has no substitution value, and so simply disappears.

Once a program such as this has been written, it can itself be given a name, and then be used as a building block in some larger program. Thus it is no longer essential to write a program from the beginning, with all contingencies planned out in advance. We may write parts of them as the need arises, later combining them into larger and larger units. And where we are unable to decide the course of action to be taken by the machine in some given circumstance, we can cause the machine to ask the person for further instructions, and these can be decided at that time. By building up a program from smaller units, we can also use the basic language to define still higher level languages for any particular application. In particular, we are no longer restricted to a small, finite set of functions. New functions may be defined and then used freely, not only by themselves, but also as new building blocks for still higher level functions.

We have also lost the restrictions on the use of names for operands. In fact, the type distinction between names referring to operands, names referring to functions, and label names referring to instructions has now disappeared. Names refer to character strings, and this same character string can be used as operand, function, or instruction, as required by the syntactic form in which the name is called. When Shakespeare wrote "But me no Buts!", his meaning was clear, even though "but" is defined in our grammar books as a conjunction.

I can now give an explanation of the question-answer translating program given in my last article. The program # (CALL, TRAN) calls in the character string whose name is TRAN. (Note : on the 1202 Computer, the comma is represented by the symbol "&" and the # symbol by 'V'—hence the appearance of this symbol in the computer print out. 'CL' is an abbreviation for 'CALL'). This character string is in fact :

(CALL, # (READ STRING))

Because of the READ STRING function, the teletypewriter is connected and the operator typed in :

THERE IS A XX IN THE XX

We now have in the machine :

(CALL, THERE IS A XX IN THE XX)

that is, a call for the value of THERE IS A XX IN THE XX.

The character string associated with this name is :

(PRINT STRING, DO YOU MEAN

A CONCRETE OBJECT IN ENCLOSURE
B CONCRETE OBJECT IN LOCATION
C EVENT IN FUTURE TIME
D ERROR IN ARGUMENT)

(CALL, THE # (READ STRING))

As a result of the PRINT STRING function, the message is printed out by the machine, and we are left with :

(CALL, THE # (READ STRING))

(Note : Remember that the PRINT STRING function has no substitution value and so disappears !)

Again, the presence of the READ STRING function connects the teletypewriter, and the operator is required to type in his choice of A, B, C, or D. He chooses D. We now have :

(CALL, THED)

This is a good example of the advantage of working with simple character strings. What has happened here is that we have concatenated the string THE with whatever the operator typed in. By typing in A, B, C or D, we obtain a choice of the strings THEA, THEB, THEC, THED. In our dictionary, stored in the machine, these strings are used as names for the four different French constructions associated with the questions asked—CONCRETE OBJECT IN ENCLOSURE, and so on.

In this case, the operator chose D, and the character string associated with "THED" is produced, namely :

IL SE TROUVE UN/UNE # (CALL, (READ STRING))
DANS CE/CETTE # (CALL, # READ STRING))

The two occurrences of the function (CALL, (READ STRING)) reflect the two occurrences of XX in the original English form, and the READ STRING will allow the operator to type in the values of these two XX's. The first is FLAW, so that the first

(CALL, # (READ STRING)) goes to # (CALL, FLAW), and on looking this up we find ERREUR.

The second is PROOF, so we have # (CALL, PROOF). Now there is here an ambiguity which must be resolved before a French translation can be obtained. So the character string associated with the name PROOF is :

```
# (PRINT STRING, DO YOU MEAN
    A   DEMONSTRATION
    B   TYPOGRAPHIC PROOF)
# (CALL, PRO # (READ STRING))
```

As before, the PRINT STRING function causes the message to be typed out, and we are left with

```
# (CALL, PRO # (READ STRING))
```

The operator types in A, so we have

```
# (CALL, PROA)
```

the value of which is PREUVE.

We are now left with :

```
IL SE TROUVE UN/UNE ERREUR
DANS CE/CETTE PREUVE
```

and as we have now come to the end, the machine prints this out.

For the sake of completeness, I should explain that in the example given, in order to make it look prettier, the string :

```
THERE IS A FLAW IN THE PROOF
```

was typed in just before the # (CALL, TRAN).

The effect of this was to concatenate this string in front of the string produced by # (CALL, TRAN), and therefore to cause the print out of this string in front of the French translation. This is a further illustration of the ability to plan programs in front of, behind, or in the middle of other character strings.

A language system such as this can allow a much wider use of the computer, for far more every day activities than at present. Modern technology has put these machines into a price range which is now coming within the reach of private people. To use them efficiently, we must learn how to program them, for they will only do for us what we program them to do. This problem is also being solved by sophisticated programming language systems such as I have described.

Computerized Haiku

Cambridge Language Research Unit

Computerized Analogue of a Japanese Haiku—compared with a typewriter produced Concrete Poem.

I. The Programme[1]

```
                    V(ST,POEM,(
                    V(PS(
THE FRAME           (I V(RS) THE V(RS) IN THE V(RS))
OF THE HAIKU :          [PP]       [XX]          [YY]
                    (ALL V(RS) IN THE V(RS))
                          [ZZ]          [YY]
                    (BANG THE V(RS) HAS V(RS) )
                    ))))
    START
    END
```

II The Thesaurus

This thesaurus was programmed to be inserted into the machine, but on second thoughts was not so inserted, since the machine was to be used in the conversational mode. The thesaurus was therefore placed beside the console.

```
V(CL,POEM)
[PP]
V(ST,PP,(V(PS,  SENSE
                PAINT
                SAW
                HEARD
                TOUCHED)V(CL,PPV(RS))))
[XX]
V(ST,XX,(V(PS,  SKY
                CLOUD
                SUN
                SHADE
                WIND
                GALE)V(CL,XXV(RS))))
```

[1] To connect this with Robin McKinnon Wood's article, it should be noted that on the computer used, V stands for #, CL stands for CALL, RS stands for READ STRING, and ST stands for STACK, which is the basic naming operation.

[YY]
V(ST,YY,(V(PS,. POOL
SEA
PLAIN
STREAM
STREET
ROAD
SHELL
SHORE)V(CL,YYV(RS))))
[ZZ]
(ST,ZZ,(V(PS, SPACE
HEAVEN
SOUND
SEED
FORM
WORLD)V(CL,ZZV(RS))))
[WW]
V(ST(WW,(V(PS, SAID
BENT
SHRANK
TURNED
FOGGED
JAMMED
CRACKED
CLEFT
LAPSED
ZIPPED)V(CL,ZZV(RS))))

III The Operation (using the thesaurus)

Man: V(CL,POEM)
Machine: START
Man: SENSE
Machine: START
Man: SKY
Machine: START
Man: STREET
Machine: START
Man: HEAVEN
Machine: START
Man: ROAD
Machine: START
Man: POOL

Machine: START
Man: TOUCHED
Machine: START
MACHINE I SENSE THE SKY IN THE STREET
OUTPUT: ALL HEAVEN IN THE ROAD
BANG THE POOL HAS TOUCHED
END

IV Other Outputs (using the thesaurus)

(*a*) I PAINT THE CLOUD IN THE ROAD
ALL SPACE IN THE STREET
BANG THE SHADE HAS BENT
END

(*b*) I TOUCHED THE WIND IN THE STREET
ALL SPACE IN THE STREAM
BANG THE GALE HAS HEARD
END

V Output (not using the thesaurus but allowing the operator to type in what he liked, for no poet is going to use another poet's thesaurus)

(*a*) I SMELL THE STINKHORN IN THE CORNUCOPIA
ALL FLIES IN THE OINTMENT
BANG THE FRUIT HAS GONE
END

(*b*) (FOR EXTRANEOUS REASONS, AND
WHILE DIGESTING A HIGHLY
LIBELLOUS HAIKU ABOUT
A WELL-KNOWN CAMBRIDGE
PERSONALITY, THE MACHINE THEN
BLEW UP AND THE PROGRAM AUTOMATICALLY
MELTED.)

VI Mechanising the Program

(i) It is evident that, by programming the machine to print out all combinations of the words in the thesaurus allowed by the form of the frame, the machine could have been batch-programmed to print out astronomical numbers of haikus, which would have included the two given above.

No one, however, could face the prospect of having to read through such a lot of output, so the operation was stream-lined by being made to work in the conversational mode (i.e. with the operator choosing the thesaurus-words which were to be used).

(ii) Algorithms (mechanical tricks) can also be used to produce a fully computerized poem. For instance, in the output given immediately below, the machine has been told (*a*) only to choose words beginning with the letter "S" and, (*b*) when there is a choice among "S" words, to take the one whose second letter is nearest the end of the alphabet (and so recursively, if there is still a choice of words).

Output:

I SENSE THE SUN IN THE STREET
ALL SPACE IN THE STREET
BANG THE SUN HAS SLID

(iii) Indefinitely many such tricks, including a randomiser, could be used, as the reader is invited to prove for himself. (Moreover, with a bigger thesaurus, the machine could match the words for rhymes).

The fact that some of these algorithms or tricks produce quite good output highlights the known fact that traditional poetry also uses tricks of rhythm, rhyme and alliteration to allow words to combine more freely (*because* more mechanistically) than would be permitted by the stereotypy of prose.

VII The role of the poet in computer poetry

It will be evident from the above that the poet programming a computer must : (i) set up the frame, (ii) create the thesaurus, (iii) devise any mechanical tricks (e.g. rhyming) with which he may desire to operate upon the thesaurus. If he does not wish to use any such tricks, he can (as shown), leave the program in the conversational mode.

He can, of course, be vastly more sophisticated than we have in setting up and varying his frame (a sonnet, for instance, is a sophisticated frame).

But the ultimate creative act, for the computer poet, lies in writing the thesaurus.

Conclusion

An interesting parallel can be drawn by comparing and contrasting the procedure given above with these aphorisms in a genuine concrete poem written by a human being, Elizabeth Dupré :

measure
pressure
treasure
pleasure

treasure
pressure
measure
pleasure

pressure
pleasure
treasure
measure

measure
pleasure
treasure
pressure

pressure
measure
no pleasure
treasure

From the above it would provisionally appear that, whereas part of the motivation of the genuine concrete poet is to stream-line his own mind, so as to make his poem into something as like an algorithmically produced machine output as possible, the computer-poet, on the contrary, tends to use the machine to create a profusion of new, surprising and unforseen combinations of words which, without its help, he would not have thought of.

Behaviour under stress in Mountaineering

John Hunt

I don't think it necessary to look further afield than the home or the work situations to find examples of stress behaviour; under the pressures, social, physical or moral to which the lives of most people are exposed in the urban environments of any industrially developed modern state, samples of human reaction under stress abound to fascinate the social philosopher. I have long believed that one main need for adventurous and physically exacting outlets in leisure-time, whether we seek them consciously or not, is to provide an antidote to the strains imposed on us in this technological age. The phenomenon of the prevailing and growing popularity of sailing, canoeing, expeditioning and camping, climbing, caving—to say noth- of those who dare all on a motor bike—which amount to a positive explosion of our young people from the cities into the countryside and further afield, is something excitingly new in its sheer scale. I find this deliberate choice by so many more people, to exchange one kind of stress, induced and enforced by circumstances beyond our control, for another to which we voluntarily subject ourselves, as fascinating a matter for reflection as the study of human behaviour in either kind of situation.

Why choose exposure to physical exertion and risk, rather than the relaxation of physical and mental repose, if we need to vary the theme of our working and domestic lives? Why is it that we may often react so badly to the home tensions or the work frustration and rise above ourselves on a mountain, in a gale at sea, or in a crisis in a cavern? Why, for that matter, is the pattern of behaviour often reversed? Can the reaction of a person in a situation of danger or of discomfort be predicted from his reaction to another different situation? Can the one stress behaviour be transferred, or used to the benefit of the other? If so, is not this a strong argument for exposing ourselves to morally and physically testing experiences in leisure time, in order the better to cope with the mundane demands of the daily round? I wish I could feel confident in answering these questions, but I cannot claim to do so.

Given that people do make this choice to step out of the crowd and beyond the familiar environment, how do people react to the unfamiliar and the unexpected situations which arise in mountaineering, and why? How do mountaineers cope with the stresses and strains inherent in their craft? I think we must first identify three

different types of situation, each of which imposes stress in the course of a climbing expedition.

First, there is the strain of prolonged absence from the accustomed *ambiance* of civilization, of considerable physical discomfort, of separation from family and a sense of being far from help and so on. The fact that you are in this situation with other members of the group both helps and hinders adjustment on a mountain, in that people often become more considerate towards their fellows and a very close relationship grows up through interdependence. The small creature comforts of a shared bivouac tent with the cooking stove producing a pleasant heat as the meal is prepared : these can be a particular and intense source of delight. Moreover, self respect demands that the rigours of dressing and crawling out into the wind and cold in the morning are concealed from your companions; that you do your share of the various chores in and round the tent. On the other hand antipathies tend to grow up between some individuals. Personal habits and idiosyncrasies of a particular person, when you do not have the distractions and preoccupations of civilization around you to take your mind off them, can become well-night intolerable; they sometimes result in outbursts of impatience and exhibitions of dislike which would seem childish at any other time.

This kind of problem is an occupational hazard of any expedition. It can be obviated or reduced by careful selection of his companions by the leader; and by an awareness of the advent of such stresses and of the disruptive dangers of even one member of the party succumbing to them. In a large expedition, it is often possible, and sometimes necessary, for the leader to arrange the manning of the various jobs of the programme so as to keep apart certain individuals who cannot enjoy each other's company.

The second kind of stress is that imposed by a set-back to the hopes and plans of the group. This, too, is an occupational hazard; but it can be much harder to cope with. The more ambitious the nature of the expedition and the more time and money devoted to the fulfilment of its plans, the more its members—or at least some of them—are geared to success. Keyed up by months of preparation, the party is impatient and determined to reach its objective. Hold-ups in transport arrangements, the mislaying of equipment and, as the climbers get nearer their summit, the outset of bad weather; above all, differing degrees of determination between individuals as the difficulties, discomforts and dangers mount up; all these and other frustrations can impose well-night unbearable strains. I have

a shameful memory of many years ago in my first expedition in the Karakoram of belabouring a local coolie who dumped his load and refused to go any further up a glacier at a particularly crucial moment in our progress. Everything seemed to depend on our reaching a certain point where we had sited a high camp and this drastic action appeared to be justified at the time. On an expedition with Soviet mountaineers in the Pamirs, an unexpected change in the routing and transportation plans imposed by the Soviet authorities so infuriated some of my British comrades that I had the greatest difficulty in preserving the all-important good relations with our Russian climbing friends. On the South summit of Everest on 26th May, 1953, only 400ft. below the highest point, Evans and Bourdillon who were the best of friends in that very happy party exchanged strong words in an argument—hampered by their oxygen masks—as to whether to continue to the top despite the appalling conditions then prevailing, or to descend. Evans' view prevailed and they wisely came down. On an expedition to Nuptse, close to Everest, a few years ago, members are reported to have come to blows in arguments over tactics for getting to the top.

Often the atmosphere is transformed for better or worse by one man's demeanour and conduct, both in the set-backs I have just illustrated, and in one of prolonged strain referred to earlier.

In N.E. Greenland in 1960 I had trekked for four days across the mountains with a group, including a number of lads who had no previous expedition experience, in order to reach a valley where we had arranged with a Danish mining company to dump supplies with their light aircraft which would sustain us during the following ten days of exploration in a totally deserted and unknown area of the Arctic hinterland. We arrived with 24 hours of food in our rucksacks to find no signs of the promised dump; a further 12 hours search left us exhausted and so short of food that it was doubtful if we could return to our base on the coast. To make matters worse, two members of our group were missing in the course of the search for the dump. After a sleepless night, a very jaded party might have become demoralized but for the irrepressible cheerfulness of one lad, an eighteen year old Welshman who refused to be got down by circumstances; he inspired everyone—and not least myself—by his jokes and optimism. That day we found our companions and the plane arrived. The ensuing relief and rejoicing seemed to make the stress and anxiety a worth-while experience.

The third situation of stress in mountaineering is the sudden crisis which brings or threatens to bring an accident in its train. This is

not peculiar to an expedition; it is, of course, a climber's occupational hazard on any climb in Wales or elsewhere. Of the three main causes of strain in climbing, I would rate this as the least difficult to handle. Most climbers, I suppose, enjoy their sport precisely because of its inherent dangers and of the extent to which they can acquire the skill and experience to counter them. The possibility of an accident, and the many circumstances in which this can happen, is something a climber lives with. He has, or he should have, mentally prepared himself for the crisis; if it comes he may have rehearsed the emergency action in his mind from previous experiences of which he has read. In Greenland, I fell through a cornice which broke away beneath me as, with a climbing companion on my rope, I was traversing a narrow snow ridge leading to an unclimbed summit. The danger of this situation was very obvious, but difficult to avoid; when it happened I felt curiously detached as I careered down the steep ice slope, head downwards on my back; it was as if it had happened before. My companion, equally ready for the event, reacted instantly; he rolled down the opposite flank of the ridge in a matter of seconds, the rope joining us biting deeply into the sharp snow edge, he on one side of the mountain and I on the other.

On this and several other occasions when I have fallen without dire results, I felt and showed no immediate shock effects to my companions, when, half an hour later, I climbed up to rejoin them. But I have seen a climber weep when the danger was over, after a prolonged drama of life and death on a Swiss peak, in which he and I were close spectators on the rock face, but not personally involved in the crisis immediately above us.

Another situation of sudden crisis occurred on Everest when, on 22nd May, seventeen Sherpas were being led by Charles Wylie up the last 1,000 feet towards the South Col at 26,000 feet carrying the vital stores we needed in order to make our bid for the top. Everything depended on the arrival of those stores and every pound counted. Ready to lead the first assault I and my other companions watched in an agony of suspense from Advance Base Camp below the Lhotse Face as one Sherpa—a tiny dot against a huge dazzling background of ice above—stopped exhausted in the ice-steps. Our suspense was drawn out as we saw Wylie turn back from the head of the column, reach the tired man, take his load and add it to his own, then turn to struggle forward again. What we did not know then was that Charles' oxygen supply ran out at that crucial moment. With a double load—over 60 lbs.—and without the aid

of oxygen, he led his men onwards to the Col. This is the kind of an example of which I could quote many instances, of a man with great personal qualities, conditioned by a life of leadership and service as a Gurkha Officer, and like the rest of us mentally prepared for every conceivable eventuality in our plans to climb Everest. And of many examples, I know of no finer story of heroic personal example against all the odds than that of my friend Tony Streather, during three days of long drawn out horror and tragedy on Haramosh, which are recorded in *The Last Blue Mountain* and in Wilfrid Noyce's *They Survived*.

From this simple diagnosis and these few examples of stress in mountain climbing, I will attempt to draw certain conclusions; they apply to mountaineering but they are probably relevant to other situations also. *First,* human behaviour under stress can be largely pre-conditioned by a careful preparation for the enterprise. This is particularly the case of mental preparation, foreseeing the emergencies which may arise, and forearming yourself against their impact on you. Not only is this a safeguard against personal failure; it goes far to ensure the collective success of the enterprise. I have already said that, by mental pre-conditioning and the practical plans and preparations which ensued from this, we had almost climbed Everest in our minds before we started up the mountain.

Second, individual behaviour is greatly influenced by the presence of other members of the group. This is partly a matter of self respect, partly a sense of loyalty; partly the collective influence of interdependence. Indeed, there is strength in numbers, if by this we also mean that companions give us individual strength. The reverse can equally be true. A group is greatly influenced, for better or worse, by a single individual.

My final point stems from the rider which I have just made about group behaviour under stress. Leadership, both in the sense of the responsibility which one man accepts in a particular group undertaking, and in the sense of example which every member of the group can give, is of paramount importance. The sources of the qualities of leadership however, call for a separate analysis.

The Small World: Raw Stress, Part II

Tim Eiloart

The report which follows describes a crossing of the Atlantic by Balloon (The "Small World"). Part I of this article covered the first four days in the air, at the end of which the balloon was caught in a violent storm. We (the crew consisted of myself and my father Bushy, Colin Mudie and his wife Rosemary) were forced to land on the sea (our gondola was a small boat) and release the balloon. We sailed the rest of the way, and this half of the narrative describes the trip at sea and also my reflections on the whole voyage. The sections in italics were either written during the trip or very shortly after.

I do not feel that the extracts from my journal of the voyage throw useful light on the voyage itself, but they do show a little of my feelings during and after. It may well be argued that I was too young a person for such a trip. Whatever the cause, there was certainly something of a mis-match between me and the rest of the party and I hazard a guess that similar mis-matches have occurred and will occur in other such groups. It would in fact be quite difficult to *test* people for compatibility under such abnormal conditions; although perhaps the general criteria (of maturity and so forth) that appear to be adopted by North American Space Agency are pretty satisfactory.

I remain grateful for the experience, although ashamed of my failure to come to terms with it at the time. Close parallels for this kind of stress are fairly uncommon but perhaps loose parallels occur quite commonly. I was suffering from a feeling of isolation and of impending disaster. Families and other small groups sometimes do get obsessed by these feelings and even if the conditions are generally less drastic the outcome is often disastrous.

Many of the feelings I had at the time seem positively wrong headed now. For example I dwelt then on the difference between my hopefulness and other crew members' despair while the balloon was in the air. I doubt whether there was anything behind this. I tended to spend my time bubbling over with suggestions and ideas while the other crew members were almost certainly thinking just as hard and acting more efficiently but keeping themselves to themselves. After the balloon landed there was some explaining away of our failure to keep it aloft, which took the form of "We went

against the odds". However, this type of feeling is very understandable when one is disappointed, and my view at the time, that we had been beaten before we started, doesn't stand very close inspection. The fact that I really held this view might show how important it is not to let slip any comments that can be misinterpreted, but even about this I'm not entirely sure. After all sometimes one meets people who will misinterpret absolutely anything. Perhaps my general apprehensiveness made me into that sort of a person.

The extract that follows describes what we did after landing and also covers briefly my feeling about our air voyage. I wrote it at sea.

"Every one agreed to get under the cover. I asked whether the balloon had released itself or someone had released it by accident. Bushy said that he had done it intentionally. I was very upset by everything. I had just finished writing about the precautions for quick releasing and cutting lines which I had insisted on.

I had done this writing during my last watch, before Bushy took over for our last hour in the air.

It seemed to me that I had only to think of a disaster, work out what to do, and it occurred. Also I was upset not to have been told about the envelope release plan. Afterwards it appeared that Bushy had let 400 lb. lift out through the valve so he had not thought of NOT releasing. It upset me also that if I had found a safety harness I would have been attached to the load ring, or might have. Also I was just generally shaken up. We huddled under the cover to keep the rain out. Sea sick tablets came round. I had one and was retching in a few minutes. I felt it was a completely psychological thing. I didn't feel sick ever. I just felt upset. They gave me another Marzine. I brought it up again next minute. I felt as though it had been a real life nightmare from start to finish. With me being proved right and hated for it very frequently. Not a bit nice. I worked out that I'd got to work out the best course for turning the nightmare into bearable reality. Someone was going to give and I was going to have to take. I asked for a little thanks and forgiveness from the others. Thank goodness, they all said kind things and in a few minutes I felt a hell of a lot better. No one realised that I wanted thanks for being bloody-minded-to-effect. But they thanked me for or praised me for taking over O.K. in the storm and reaching the net and neck lines. This was enough for me at the time. In fact I had been told about the envelope release in the words "O.K. to prepare for quick release this time" which

were intended to mean "O.K. to prepare for and to release" but I misunderstood them. Of course other crew members would have checked my safety harness too if I been wearing one.

I slept in the soaking wet under the cover and shivered with cold. In the first light of the morning I stood up and did arms-stretch exercises to keep me warm.

Later Rosemary said :

R.: "It's not raining any more".

We emerged from our holes.

R.: "All the little rodents coming up from their holes".

C.: "Shut up will you?"

B.: "Colin Ratsey".

(This repartee was all in fun not temper.)

The mast and hose were overboard. I felt slightly unable to look down. But that morning Bushy and I stripped the dexion seat and drew in the mast. It was an effort to work because of the feeling of sickness.

Colin has taken over the captaincy. I could see that his experience and practice put him ahead of everyone else. This made him indisputably right about everything he said. I was damn glad to have Colin in command. But upset slightly by our plight. We put the sail on and tied it up and together R., B., and I put up the mast. The sail drew the boat along at a frightening slow speed. The wires under her moaned like rigging in force 6 *gales. This was disturbing. I slept for hours and hours of the next* 24, *always soundly. We tied in food, water and clothes. That night I set myself to wonder what I felt unhappy about. I realised that I had begun to think of the balloon as torture. So quick, so unsure, so difficult, so much money involved. The navigation had been bad and very difficult.*[1] *About half the sights upset the other half. I had begun to dread all new weathers. I was getting too little sleep, we all were, and I was being told off too often. I don't take kindly to the position of an inferior. Especially since I was quite often told to shut up for crew relations, i.e., "You could be right but so could we so let's not argue about it". The following contributed* : (1) *At Medano Bushy was looping* 500 *feet lengths of terylene over the arm for the W.L. bags. I was very dubious about whether these would uncoil smoothly. In fact they made the largest knot conceivable, C. and R.*

[1] **As far as I know the navigation was, in fact, impeccable. My impression was just coloured by pessimism.**

spent hours trying to clear up the tangle. (2) *The foodbags, mast and hose, were all allowed to snarl up. This I had not anticipated.* (3) *We attempted to prevent this by hanging them from different sides. Again a snarl up.* (4) *A new arrangement was tried when I asked for all in a line. Snarl ups occurred exactly as before.* (5) *The mast was finally tied in a line with the hose, but the ballast was not, and it dangled, again the W.L. bags got entangled.* (6) *There was no enthusiasm for the ballast bag which worked pretty well. Bushy and I made it without a net, it burst.* (7) *Torches were not readily available on storm night.* (8) *The W.L. bags were not tested on the Reventizon,*[2] *I asked Jenny about this. She said a fairly easy time had been had. I thanked God I wasn't there trying to stir things up.*

Every problem cost us time, sleep, energy, or gas, or a mixture.

Even at Medano no one seemed to realise that we might indeed take off at night. In phone calls from Santa Cruz I asked for watches to be kept, also wind speeds at intervals. These speeds were taken from outside the hotel, not the take-off spot. I made myself unclear but I was very upset at such nearly useless data[3] *The take-off night I desperately needed exact data for comparison. There was none. I had to trust to luck that the wind was going to behave exactly as it had the night before. It did in fact. During take-off no one except perhaps Long had the sense of urgency I felt. Probably those at the cylinders did their damnedest, but round the net there were more people interested in having each bag at exactly the right level than in getting the balloon up. I took things into my own hands to a certain extent and made people get on with it. When I admitted this to the Mudies they both seemed to think I had been impatient and even took the line of "But sometimes the sand bags weren't even".*

Later there were disappointments about the water ration. We had half a pint a day of fluid at first. Then it was increased to 5/8 pint. I felt far more sorry for myself than the others and was rather ill for a time. I was sure that we needed more water and Colin was all for conserving it. There was one particular occasion when we discussed the reserve we needed and I felt that he raised

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[2] The banana boat on which all the other members of the party travelled to Teneriffe from England. Jenny was my personal assistant-cum-secretary for two months or so before the voyage.

[3] The wind two miles from take off is, in fact, very useful data—right on the spot would have been better still.

the reserve to keep pace with my own discovery of an extra supply. At the time I called this "doing a Bligh"—and felt very sore about it. The very firmness and command that I approved right after landing now seemed most unwelcome. My swings of opinion maybe seem partly as the yapping of someone that "doesn't take kindly to the position of an inferior" and they may also be due to a naive search for black and white absolutes.

Colin was, in fact, suffering from a broken ankle, although we didn't realise it at the time. This probably lead him to be somewhat unenthusiastic about implementing ideas that needed energy. He tended to be against them although he gave full credit if they worked. The weather conditions were rather like a pleasant English heat-wave, which would have been marvellous, of course, if we hadn't been so short of water. Suggestions of the sort that Colin didn't approve (until they'd been shown to work) included a sun cover, which we made by stringing a tarpaulin over the top of the open boat, an improvement to the suncover the nature of which I forget, and the rigging up of a funnel to catch rain water. He also thought it rather a waste of time to take photographs since we hadn't succeeded in crossing in the air. As a result of this sort of thing, I was writing after a couple of weeks at sea that Colin was a "bad captain for my morale". It's hard to believe now that anyone could have done any better, since my morale was lowered by anything that happened.

On the house-keeping level my inclination was to abandon the niceties of life. This is partly because I'm not very worried about them anyway and partly because I was so worried about our plight that it seemed unrealistic to get all hot and bothered about what seemed trivial. Not surprisingly this distressed, or even disgusted, the other crew members and I was given several dressings down on the subject. They were quite sanguine about our chances and their concern, which seemed so strange to me then, is quite understandable now. Thus shortly after the voyage I wrote : *"At every turn on the boat—a lecture—my morale was low, my untidiness was unbearable, I was responsible for our lack of water (on my advice we took lots of food and little water) I was wicked to attempt to do jobs without calling the watch, while I was at the helm—like having a pee over the stern when the self steering gear was working, or retying a block—I was lectured for shitting without checking that toilet paper was at hand though there was masses of thin notepaper within easy reach, not catching on quickly that now we had time to spare our cutlery and cups could be washed after use, for not getting all*

my sleeping clothes on at dusk. The list is endless. I reckoned that we were all awake together about four hours a day; if I didn't get four lectures I was doing well.

Of course, the situation was probably not really as bad as that and from the list of points I then listed my sympathies now lie with the other members of the crew.

The correct priorities for the boat's safety were another major bone of contention. Thus while my tendency to do two jobs at once seemed unsafe to the others, I was forever thinking of ways to ensure against disaster. I would have arranged a coarse net down the centreline of the boat so that had we capsized we would not have all fallen in a huddle in the lower side. I would have practised man overboard drill, and sail furling in a squall. I would have "built up our strength" so that we captured every drop of rain when it fell. This could only have been done at considerable cost of energy and sweat. So that we would have to have drunk more water, and if it hadn't rained we might have been a lot worse off. On reflection I feel that although I may have had a few correct suggestions to make in the air, most of my suggestions on the sea were generally much weaker, if not positively stupid.

One of the least pleasant episodes that occurred was the passing of a ship. I wanted to sail on a converging course, and fly a distress signal in the rigging. I may have been right to suggest these though I can't be sure whether we would have got much closer to them or whether any merchant ship would steam past a small boat under sail without checking that they were all right. The strength of my feelings shortly after the passage can be judged from the following passage.

We had just seen our first close-up freighter and I expect no one was in any mood for happiness, a boat loaded with drink and food had sailed by a mile away. The whole thing was lousily handled, two flares were let off, I asked if we should send the Mail a coded message, I was told yes, get it coded. No one had anything to do, Rosemary manned the movies and Colin lit a flare twice, Bushey had to helm; if we had turned towards that boat when we saw her at 4 *o'clock she would have been half the distance away when she came by at* 4.30. *I asked, but was told no, it makes no difference. Bushy was helming, but everyone treated the idea as ridiculous. It occured to me that she might sail by and see us at any time for an hour, our flares would last two minutes, so she had a* 30 *to* 1 *chance of not seeing our distress signal, assuming she had just glanced once at us. Of course she would probably have watched us fairly closely if she*

had spotted us, so perhaps the chance was only 3 to 1 against her realising we wanted help. We only wanted water, food, and a position report, so that people might be looking out for us when we reached Barbados. In a calm we could have gone through on ocean drift, unless someone towed us in. I asked to be allowed to fly the distress signal, a shirt in the rigging, then there was no chance of that freighter not realising our need for help. People agreed, but said the sail was bigger. What asses! The sail was just another small boat on its way across, I told them kindly, but they never really caught on, and only Bushy helped me rig up that shirt. I was livid. "Do your best and leave the rest to fate". We had settled for third best, and it served us bloody well right. I had told Bushy during the ship-passing-time that he was a bit off course, and then again he stopped concentrating, and within a couple of minutes was sailing 90 degrees away and in the direction away from the freighter. Colin told Bushy; and I admitted that I no longer dared to mention it after his rockets for perfectionism. I then pulled in two feet on the starboard sheet, and told Bush that this was to put them as they had been, obviously it had slipped out. "Very good one that". "What do you mean?" "Rather clever to say you're getting them normal when I'm a bit off course". "Christ, Bushy, they bloody well were wrong, that cleat had too few turns and it must have slipped. Life with you is like having a lame bear around, bloody awful. I've never known anything like it, can't you just lay off for one minute?" I grabbed the Permutit and sat down amidships looking away from him. My voice had started to become tearful. I'm afraid Bushy sensed that this tantrum wasn't all quite real, I'd done it by design a bit, and by inclination a hell of a lot. "I hope you think that will get you somewhere" he said. "Oh well things probably won't get any worse". They didn't.

In retrospect, this type of thing should be treated as a clinical record rather than a seriously considered commentary on what actually occurred. When I wrote it I was in bed, recovering, and at that time the sort of thing I wrote was perhaps a replacement for the psycho-analyst's couch. I hope that the medical interest of my frame of mind will compensate for the distorted view that I took of everything.

During the trip we became devoted to certain types of food. In particular a Spanish cereal called Gofio, lemon juice, and powdered milk. We all felt convinced that we would eat these daily after landing. In fact I never touched any of them again for years, and I believe the other members of the crew reacted similarly.

One of the things that was most lacking was stimulating conversation. I think that Colin and Rosemary found this undesirable and there wasn't very much hope of it anyway with me in such a depressed frame of mind. In fact, I did miss it and afterwards Bushy said he had also. Circumstances such as ours might seem ideal for deep thinking and discussion but I'm inclined to think they weren't. One can easily be attracted towards isolated, physically undemanding and stringent conditions as a means of unbottling creativity but these circumstances don't, for me at least, have that effect at all.

The boat was W section catamaran with two basic hulls, 2ft. 6in. wide and 14ft. long separated by a hump 3ft. wide and six inches high. The front half of the boat was taken up with an elaborate structure of little seats and bicycle pedals. We therefore had to live in the rear half. This was like being confined to an eight foot square room with bench seats (the side decks) along two sidewalls. We could use the front half for washing and other ablutions but this was the only purpose it served.

Each of us slept about twelve or fourteen hours a day keeping helm for six hours. This left four hours or so for eating, and other jobs. Any particular job seemed to take ages and proved far more exhausting than one would normally expect. Our sleepiness and slowness were caused by dehydration.

The Mudies slept one side of the boat and the Eiloarts the other. Each pair had a four foot wide berth, with a wall on the outside and a ramp down which one rolled towards the centre. This was quite comfortable for one but very uncomfortable for two.

Helming needed close concentration if one was to stay on course. Either we could look at the sail or we could sail a compass course. We mostly stayed inside looking at the compass. A day might pass during which one never bothered to look over the side at all. The boat was very stable, in fact we wore life lines most of the time. We couldn't stand up under the sun cover and spent our time crouched like people in a low cave, or lying down. I didn't feel physically claustrophobic at the time. Indeed, if anything, I think I felt happy to be relieved of choice about where to be.

During the trip I felt very apprehensive but I had little or no suspicion of the mental crisis that in fact lay ahead of me.

Immediately after the voyage I continued to lose weight—I had already lost three stone and looked terribly thin—and I had to be put on a special diet. I was in no condition to join the crew who enjoyed a few weeks of fame in New York and London as I remained

in Barbados where we had landed. At that time I was a little depressed, but mostly felt the need of normal surroundings. A gramophone and some records seemed like manna. I arranged to spend a few weeks holiday with my mother in Teneriffe where we had taken off from after leaving Barbados. The day before I flew to Teneriffe I was triggered into a mood of euphoria which lasted for about six weeks. I had no insight at all into this, although it was quite clear to her what was up. (She is a doctor). The fact that we were on holiday in a Spanish-speaking place may have accentuated the relief of tension which fed these eupeptic feelings. Fortunately there was a very small audience since few people could understand the extraordinary theories that I then propounded, also my volatility and springiness never exceeded the bounds of eccentricity and I was able, in fact, to seem interesting even if a little sent (as far as I can judge from the reaction of the few friends I made in Teneriffe and on the voyage home). On returning to England I did suffer a period of two or three weeks' deep depression and distress.

For example I set off with a few shillings to try and fetch the half scale model of our balloon gondola from the Isle of Wight to London. I was able to cash in on my reputation to the extent that I managed this very easily. This was not actually fair proof of my latest theory at the time that one could accomplish anything by feeling sufficiently convinced about it. I also formed the opinion that one could see into someone's subconscious by listening to his most trivial remarks. This may or may not be possible sometimes but it certainly didn't help to say so. Moreover I was shown at least one case in which I had quite clearly projected my own feelings into the other person's supposed subconscious.

Eventually I stayed for a few days with Dr. Henry Harris in Haslemere—a retired psychiatrist with a considerable background in journalism. I don't know whether he had come across similar cases to mine before but he helped me to adjust very rapidly.

While I was in Teneriffe I wrote a long commentary on the trip which ended as follows :

"The Small World was a frail world. For several days after landing my physical condition actually deteriorated. Finally Peter[4] *had the guts to tell me that he thought I was a complete mental wreck. There was nothing wrong with me physically at all; now that it was all over I should try and make my peace, as it were, with*

[4] Peter Elstob.

the nightmare. "It looks as though the other members will get out of the expedition the things they want from life, it is now up to you to try and do the same". I couldn't describe to him, though I knew very well what it was. I wanted to solve, for myself at least, all the problems which worry an adolescent with a philosophic bent.

How could so many religions start with apparently sincere men believing them, with such divergent ends in view? They seemed like a bunch of blind greyhounds each one equally convinced that the other traps had been empty at the start. How could some people stand so much pain when a stubbed toe seemed to hurt much more than enough? Why did people damage themselves so much and hate one another? There was a list of questions as long as my arm.

I wanted to fit wherever I went, to see how people could enjoy such synthetic society lives, or even tolerate them. I wanted the courage to attempt all things for the good of man, and I wanted peace of mind.

I have aimed at the truth and I am no less sincere when I say that the frail World has given me, for longer than I dared to hope, all that I could have asked".

Letters

"I can't see anything in that concrete poem. I only react to poems which are necessary acts of the human organism; just the next thing somebody had to do and/or perish in the act: urgent things, like messages in bottles. They may have a complex structure or scarcely any—but I have to hear and answer a necessary signal, or there is no poem to me".

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Surmounting one kind of stress: Charity, Faith and Works

"It has happened that my lot has fallen among children. All my life I have felt drawn to them, interested in them, concerned for them and perhaps rather specially sensitive to their needs. Now, after more than thirty years work among children, I am closely involved with those who are least well equipped to grapple with the problems with which life presents them—those who are spastic, those who cannot communicate, or who cannot see or hear or comprehend.

Those of us who work for children with handicaps come quite soon, I think, to build a philosophy which involves both faith and work. Briefly it can be expressed in three infinitives—to love, to understand, to help. One seeks, too, to recognize the purpose there may be behind the disability; one seeks also to find, through research, ways there may be for preventing such disabilities and the inevitable distress they cause to child and parents.

This loving, this Charity, means accepting with warmth all these children of God, who are acutely disabled, sometimes simple-minded, often frustrated by speechlessness or immobility and sometimes outwardly unattractive. It means, too, acceptance and understanding of all their anxious, troubled, demanding and often critical parents.

Frequently I have felt impotent and inadequate to help, but again and again I have felt drawn towards these children, keenly aware of their eagerness to achieve, to express themselves and to overcome their obstacles. And there is given to all of us, who seek

it, a power much greater than ourselves to help such children. We are only the channels of His Grace and as we try to treat, to educate and advise He will use us for His purposes and for the care of the children.

I have found that such work implies very delicate relationships with colleagues. In professional work, as in many fields of work, well-educated trained and civilised members of staff can be possessive, dominating, eager for status, sensitive to imagined slights and critical and suspicious of each other. They can be over-passionate, too greatly involved; their opinions can be prejudiced and they find it hard indeed to be detached. But if this work is to go on faithfully and well these human relationships must be put right; they must be purified. The individual, his status, prestige, power are unimportant. It is essential that each member recognizes the worth of the other, his contribution to the whole, the part he has to play which compliments the other, in order that this healing work for these children can prosper. Distress fatigue, discouragement can be acknowledged and shared. Similarly delight at achievement and progress. Cheerfulness breaks through constantly in all hospitals, centres and schools where disabled children come for treatment and training. Busyness, lively activity, and merriment are characteristic.

Sometimes one feels grossly inadequate to share the burdens of these families and give advice and practical help. Sometimes one sees a child overcome by frustration and depression. But these feelings do not last if one remembers that God has a part in all this, is involved and concerned with the weakest of his creatures. This trusting in God to direct one's path, to give awareness, and perception and guidance, I have found to be absolutely essential. God is using this situation for good. This triumph over adversity these small successes achieved by children disabled in mind or body or both are immeasurably important. A little girl of ten when asked to define 'brave' told me it meant 'doing something you don't like which is frightening'. Such was her philosophy.

I constantly feel humbled, filled with respect for the parents of these children and deeply grateful that I am able to play some part in this therapeutic work. Here faith and works must go hand in hand".

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"Margaret Masterman's attempt to interpret the Doctrine of the Trinity in terms of Symbolic Logic appears to be either a brilliant discovery or nonsense. But whichever it is, she undoubtedly deserves our gratitude for having tried to think seriously about it, whereas most people, including unfortunately many clergymen and theologians, obviously consider it unthinkable and so wrap it up in mystical incomprehensibility.

Traditionally this doctrine is the simplest irreducible statement of the nature of organism, both in macrocosm and microcosm, as three-functional unity. Most of the expressions of the notion of triunity in the ancient world were mythological, as indeed is the Athanasian Creed, also, but there have been three major attempts to express it philosophically, in the Vedanta, Plato's Republic and Hegel's Logic. Within the last century Vladimir Solovyov and Rudolf Steiner have also explicated the notion of triunity and developed it in its applications to the world and human life.

On the face of it Margaret Masterman's interpretation lacks many of the most important characteristics of these earlier expressions, and in particular the rich complexity of the relations between the three hypostases. It is not obvious why we should prefer to interpret her diagram as meaning that the Father begat the Son rather than, for instance, that the Holy Spirit begat the Father; nor that 'begat' and 'proceeds from' express essentially different relationships. Nor is it clear how the three hypostases are internally related as they are in an organism, rather than merely externally as they are in a static system. In other words, it is not clear how, with no other relation than that of greater-than-or-equal-to, she can accomplish the perichoresis of the Trinity.

George Boole in his Laws of Thought explicitly disclaims any Trinitarian revelation, saying of trichotomy that it is impossible for us adequately to conceive the real nature of it with our existing faculties. Apparently Margaret Masterman achieves this by expressing Trinity in terms of Duality. She evidently has some esoteric method which enables her to do this, but if, as the title of the series implies, this is meant to be Science, she should explain to us the presuppositions of this method and not leave it in the realm of occultism. It would be particularly interesting if the paragraph headed 'The necessity of working within a binary system' could be fully expanded. This is obviously the key to all that follows. But after saying that 'we must first establish postulates which will take us right out of the particular world of ordinary numbers',

Margaret Masterman announces 'We will therefore use two signs 0 and 1 . . .'. Such a decision can hardly be accepted as necessity".

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Margaret Masterman writes :

"*Errata.* In section III, p. 240 in "the necessity of working within a binary system", "binary" should have been replaced by "non-numerical". (This error was mine). p. 243. The penultimate paragraph should read : "Thus (see Diagram A) of the two elements (e.g.) 110 and 100, $110 \cup 100 = 110$, and $110 \cap 100 = 100$, because $110 \geqq 100$. But of the two elements (e.g.) 100 and 011, which do not include one another, $110 \cup 011 = 111$, and $110 \cap 011 = 010$ (this error was the compositor's).

Apologia. The idea of making a Trinitarian interpretation of an 8 element Boolean lattice has produced strong reactions, both of an approving and a disapproving kind. Those who disapprove are mainly of two kinds : those who accuse me of prostituting computer-science in order to bolster up Trinitarian religious obscurantism; and those who accuse me of taking all consolation and warmth out of mystical experience—in fact, of radically misunderstanding the nature of contemplation. With regard to the first accusation, I am not trying to bolster up anything; I am only trying to see *what it would be like* to make a theistic informational model (of which the lattice was probably an over-simplified version); not to support such a model if the inferences from it turn out to be false, as may well occur.

With regard to the second accusation, this has a verbal variant which consists in saying, "I thought you were so spiritual, until I met you". This attack leaves me in the predicament of refusing to admit an evident fact, namely, that they are perfectly right, I am in no way spiritual, through exasperation at their truncated, quietist, self-cossetting conception of spirituality."

"The article in *T. to T.* III is a real example of Theoria to Theory, and a new kind of 'revelation' presented itself to me somewhere between Grantham and Newark as I was coming back from Lincoln in the train today and reading *T. to T.*

In the parish Church of Hunsdon, Hertfordshire, where I was rector for six years, there is a beautiful little brass. The Father seated, with a Crucifix between his knees and the Dove on his shoulder. This is clearly a Trinitarian icon, whereas a rather similar brass in Hildersham Church, because it omits the dove and therefore any reference to the Paraclete, is an atonement icon. But I prefer the Hunsdon brass because the atonement is implicit in creation and the Creation is itself an icon of the Trinity. I find I cannot be in my garden for ten minutes without nature presenting itself in this way over and over again, not in any 'blue-doming' (cf. Temple) sense but in a sort of complete getting through sense which is I suppose a kind of contemplation.

It may be right (p. 246) that Christians now do not believe in the Trinity, certainly with Teilhard's qualification. But this is because they do not pray from the Trinity to the Trinity. That is to say they are unaware that this is what they are in fact doing when they pray".

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Comments

Christian Mysticism

"Having read the dialogues in *Theoria to Theory* II and III, I want to make some observations on the views of mysticism which the speakers put forward, and on what I believe to be Christian mysticism.

There is in man a natural thirst and longing for the 'divine'; a natural 'mysticism' is common to all men, but the Christian revelation has brought something new into the world. God, who is not only transcendent, but also intervenes in the affairs of this world, as the ancient Hebrews discovered to their immense and marvelling joy, has 'in Christ' revealed himself to us as far as that is possible—that is, in the way in which we can glimpse something of the true mystery of the divine life.

The fundamental phrase of St. Paul's mystical teaching is 'in Christ Jesus'. This relationship with Jesus Christ is of necessity mystical, mysterious, far more deeply mysterious than any pure 'God-mysticism'. (I have developed all this at some length in my *Pauline and Johannine Mysticism,* Darton, Longman and Todd, 1964.)

Why pick specially on Jesus?', asks Ian. I think the answer is that it is Jesus himself who does the picking. Ian is interesting because he has quite clearly known some true mystical experience, which is proved by his assertion : 'It is not a quest or an urge. It is an occurrence; something which, when it comes, is suddenly complete reality'. It is in connection with this that I would like to remind readers of the experience of the brilliant young Jewish philosopher, Simone Weil, by way of illustration. She was once reciting Herbert's poem 'Love' to herself, having learned it by heart. She loved it and often said it to herself, concentrating all her attention upon it, and clinging to the tenderness it enshrined, but simply thinking of it as a beautiful poem not as a prayer. This time 'Christ himself came down and took possession of me' (*Waiting on God,* 1st edition, p. 21). She goes on to say : 'In my arguments about the insolubility of the problem of God I had never foreseen the possibility of that, of a real contact, person to person, between a human being and God. I had vaguely heard tell of things of this kind, but I had never believed in them. . . . Moreover, in this sudden possession of me by Christ neither my senses nor my imagination had any part. I only felt in the midst of my suffering the presence of a love like that which one can read in the smile on a beloved face. I had never read any mystical works because I had never felt any call to read them . . . God in his mercy had prevented me from reading the mystics so that it should be clear to me that I had not invented this absolutely unexpected contact. Yet I still half-refused, not my love, but my intelligence. For it seemed to me certain, and I still think so today, that one can never wrestle enough with God if one does so out of pure regard for truth. Christ likes us to prefer truth to him because, before being Christ, he is truth. If one turns aside from Him to go towards the truth, one will not go far before falling into his arms'. After this she felt that Plato was a mystic, the Iliad bathed in mystic light, Dionysius and Osiris in a certain sense Christ himself, 'and my love was thereby redoubled'. She tells us that she never wondered whether Jesus was or was not the incarnation of God, but 'In fact, I was incapable of thinking of him without thinking of him as God'. She began to pray, and then learned the 'Our Father' in Greek, reciting it each day with *absolute* attention, and finding it marvellously effective. Sometimes during the recitation as at other times she says 'Christ is present with me in person, but his presence is infinitely more real, more moving, more clear than on that first occasion when he took possession of me'.

Ian goes on to say: 'This mystical sort of experience, or whatever you may call it, has no Him-ness nor He-ness about it whatever. It is not of a person' (p. 136).

May I say that this is very often the case with mystical experience at first, though as we have just seen, it is sometimes the other way round. The ways of God with man differ beyond all description: 'The Spirit bloweth where it listeth', and, as Edith Stein pointed out in her book on St. John of the Cross—*Kreuzeswissenschaft*—we cannot limit or adequately mark out the ways of the mystical life because it *is* life, perpetual movement, not a *static* condition, not something brought on by artificial means, but the free movement of the *Living* God in his dealings with souls he has created to know and love him. This is fundamental in all Christian spiritual teaching; perhaps that is where it differs from other types of mysticism. Similarly, there is a striking record of this progressive mystical experience in St. Symeon, the New Theologian, probably the greatest of all the Byzantine mystics (949–1022), whose mystical experience was theologically interpreted by Gregory Palamas in the fourteenth century. Symeon had visions of light while still a youth living in the social world of Constantinople. He later stressed the fact however that in spite of his many mystical illuminations he did not yet know God or know definitely who it was that appeared to him, so he was profoundly dissatisfied. For, as Basil Krivocheine pointed out:

> 'It is not the vision of light in itself that constitutes for him the central moment and summit of mystical life, but the *personal* contact with Christ who reveals himself through the Light, and the mutual knowledge and communion with Christ. And it is only from the moment that Christ begins to speak with us in our hearts through his Holy Spirit that we acquire a personal knowledge of him. A mere vision of light does not give this'. ('The Brother-loving Poor Man' in *The Christian East*, Winter 1953-4, p. 216.)

In his 'Thanksgivings' Symeon himself cries:

> 'I still did not know thee, Master, that it was indeed Thou, my not-proud God and Lord. I was not yet vouchsafed to hear Thy Voice that I might know Thee. Thou hadst not yet told me mystically "It is I" ' (Euch. 2. 114f.)".

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Revelation or Mental Disturbance?

"In the dialogue between Edmund and Anthony (*Theoria to Theory,* No. 3, p. 224), speaking of his personal encounter with Christ, Anthony says: 'You may, of course, interpret this as mental deficiency or a sort of mental trouble'. This is a profoundly disturbing thought which has tormented me at intervals over many years. Like the correspondent quoted by F. C. Happold (*Theoria to Theory,* No. 3, p. 276), I, too, have seen the Mystic Rose and have described the vision in a poem; and I have twice been back to that high place where the Rose is to be found. From there, I have gone on, slowly, to the point where I am now sometimes aware of a Person. I feel those 'mild stirrings', those 'inward drawings' described by Brother Lawrence in *The Practice of the Presence of God* and, of course, being of the Western world, I *do* think then of Christ, not of Buddha or any other divine figure.

Certainly, these experiences carry an overwhelming sense of authenticity. No-one who has strayed into that inner world where mystic experiences occur can ever be convinced that he dreamed the whole thing; or that he emerged from such an experience without a startling increase in understanding. But the experience is one thing; the interpretation of it is another. And the trouble is that certifiable lunatics do have exactly the same experiences, sometimes; and do sometimes put on them exactly the same interpretations as—for instance—I do. This I found out when I read *Out of Working Hours* by Dr. Yellowlees (J. & A. Churchill, 1943); and I was reminded of it again by *The Divided Self* (R. D. Laing, Pelican, 1965). Wherein, then, lies the difference?

I wish to suggest that the first, perhaps the most crucial difference, lies in control. The first manifestation from the inner world may well throw a man off balance—it is likely to be felt as a massive shock—and a 'nervous breakdown' may ensue. The experience has come 'by accident', as Gurdjieff says (*In Search of the Miraculous* by P. D. Ouspensky, p. 274). The question is: 'Can the man profit by it?' If he cannot, there is a risk that he may be permanently lost in his own interior—'mad', as we say. But, if he already has a developed character, a reasonable stability, he could learn from those who have already explored this inner country. He could put himself under instruction and could learn, by inner discipline and effort, how to sustain the experiences that come when one touches, momentarily, a higher state of consciousness. He might even learn how to reach such a state voluntarily, under his own control. Such a man—an 'educated man' in Gurdjieff's words—is not mentally ill

and is unlikely to become so. He is on the way to completing his possible development; to maturity; to Shakespeare's 'ripeness'.

The second difference lies in the interpretation that may be put on the experiences. The 'natural' man will interpret them according to the content of his mind and heart when they occur. This was clearly shown by Aldous Huxley in *The Doors of Perception*. Under the influence of mescalin, the melancholy man, unloving towards humanity, experienced terrifying visions whereas the more benevolent people saw beautiful colours, perceived real meaning, knew ecstasy. Of course. Because the drug turned on the power of consciousness which exists in each one of us and the power made manifest what was there, in the man, to be lit up. It is for this reason that the man under instruction is taught to 'purify' his heart and mind. He strives constantly to free himself from unkind, malicious, critical thoughts; to free his heart from resentment, fear and self-pity. So that, when an 'experience' comes, what he sees reflected is pure, really 'innocent'—harmless—gentle, beautiful, and beyond question 'true'.

The mentally disturbed, therefore, may share the experiences of the mystic—sometimes; and he may, sometimes, put the same interpretation on them. But he lacks the knowledge which would enable him to orientate himself to the strange world he has discovered by accident. And he is unpredictable in his reaction to the experiences because his inner house has not been cleansed and set in order.

Here is the poem I wrote (1962–4) about the Mystic Rose seen in 1939. *Aftermath* was written first. *Bitter the Pain,* which precedes *Aftermath,* was written later; this poem describes the steps leading up to the vision.

Bitter the Pain

Bitter the pain
On the inward vein
To the heart bearing
Blood
Of passion resiling

Crucial the strife
In the hidden life
Of the mind straining
Blind
In currents conflicting

Gentle the mirth
At the unseen birth
When the soul smiling
Wakes
To love reconciling

Aftermath

Still after tears
Silent in silver folds
Glows
At the heart of life
A white rose.

Deep beyond grief
Quiet at sorrow's ending
Grows
In the green of love
A rose revealed".

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Review

World Religions—a Dialogue. Ninian Smart.

S.C.M. Press 1960. *Pelican Books* 1966.

This six character dialogue might have been better written by six people, or by an author with a Ruth Draperish capacity for creating six characters who could convince us that they were involved with their own theology; what we actually have here from Ninian Smart might have been written by Gallio dividing himself into six parts. The speakers are a christian, a jew, a muslim, a hindu, a buddhist from Ceylon and a Japanese buddhist, referred to in the text as C, J, M, H, CB and JB. We cannot demand characterization from this kind of dialogue but we ought to be made to think that the speakers have a lively and engaged response to what they say they believe in; otherwise we do not get a dialogue about religions as they are really lived but a shuffling of counters, 'religious ideas'. It might be argued that such a reduction to counters is necessary for scientific comparison, but these particular counters do not con-

tain the essence of what they are supposed to stand for; a biologist studying human babies would get only limited information by examining bath water out of which the baby had been emptied.

We miss here the minimal action and stage direction of Plato's dialogues; we are not even given the time and place of the action. To the time we have a clue: the book was first published in 1960 (its reprint as a Pelican in 1966 excuses this review); we know therefore that the dialogue is pre-Vatican II, pre-Honest to God, which explains some of the quaintness of C's conversation. As to place the only hint is in C's opening words: 'While we are isolated here, with time on our hands, we have an excellent opportunity to discuss religion'. This setting (but not the opening gambit) suggests early Michael Innes—are we in a remote snow-bound mansion, perhaps, or in a lighthouse?—but it is never explained or again referred to. It is a pity to use the dialogue form and not exploit it to the full. The atmosphere of the conversations sometimes makes us suspect that the milieu is in fact C's study, to which he has invited the others to come for a serious discussion.

Whether or not he is the host C is undoubtedly the protagonist, more anti-hero than hero. He is self-appointed but uncontested chairman, he speaks more than anyone else, he introduces, leads and sums up nearly every discussion and is given more than nine-tenths of the conclusion of the whole dialogue. This is fair enough in a book published in English by the S.C.M.: christianity will be for most of its readers the religion they accept or reject, so that the usual entry into the dialogue will be through the mind of C.

It is frivolously tempting to try to place C by some detective scrutiny of his style. He is surely meant to be a clergyman ('nevertheless the two sides of Christ's sacrifice hang together in a wonderful way, do they not? They reaffirm the harmony between true religion and higher morality in a wonderful way'). Sometimes he seems pre-conciliar bondieuserie R.C.—JB (speaking of the Buddha-to-be) 'Out of the treasure house of his merit, acquired in his arduous career towards final Enlightenment, he bestows upon others a sufficiency of merit for their assurance of ultimate salvation'. C: 'This is somewhat like our doctrine of grace'. He sometimes asserts the inerrancy of Scripture: 'the historicity of (Christ's) stupendous claims and deeds is beyond question'. He is not adept at crypto-syllogisms: 'You feel there is something wrong in the singleness of Christ. But if God has become man, and if there be one God, then . . .'. Flippancy is admittedly cheap, but a certain debunking is necessary. If conversation counters are used

by characters whom we cannot take seriously their value is extra suspect.

More seriously we can say of C that he seems unaware of the tradition and language of Eastern Orthodox theology, which robs him of several chances to understand his collocutors, and of the polarity in christian thought between *via negativa* and the affirmative way, which sometimes makes him agree with H and the buddhists when he ought not to. The phrase which Charles Williams could never identify might usefully have been set up on C's desk: 'This also is Thou; neither is this Thou'. Apophatic theology has had good P.R.O.s and articulate exemplars but the primary way of most christians has been cataphatic—not always saying no to human relationships and joys to put them out of the way so as to come direct to God, but sometimes saying yes and hoping to find God through them. 'Craving', which keeps buddhists back, on the wheel of reincarnation, can push christians on, if they say 'This also is Thou' but remember that 'neither is this Thou'. C seems to assume that the Christian religion is one-track apophatic.

The conversation goes on, often repeating itself, without any discernible development; it begins with what one would expect to find at the end: the six should surely have begun at the middle and worked outwards? Dogma-counters are flung on the table at random, but no-one seems to realize that a dogma (the word means 'opinion') depends on something else; dogmas come through analysis and interpretation of experience and the discovery within it of pointers outward towards its boundary: the pointers can be continued imaginatively beyond the boundary. It would surely have been better if the speakers had discussed their pointers before comparing their dogmas?

The 'theists', C J and M, justify their apparently arbitrary dogmas by pleading 'revelation'. C especially, though he pays lip-service to a more believable conception, seems really to regard revelation as a bullying announcement rather than an unveiling, which is what the word means. The other party, H and the Bs, have no need to justify themselves, because the theists never notice that they too are dogmatising.

The principal argument about dogma starts from something about which they all agree: the existence of mystical experience. The theists explain it as an experience of the holy and other God, as a numinous experience; the others object. For them mystical experience must be accepted as itself: it is not profitable to ask

'experience of what?' To try to answer this question is to dogmatise. Yet they themselves dogmatise : 'there's a strong strand in our theology which claims that the higher aspect of God is without attributes of the kind you ascribe to God'. 'In higher truth Brahman is without attributes save those of Being, Consciousness and Bliss'.

It is strange that the theists, when they talk of the encounter with the numinous, never speak of it as meeting, loving and knowing oneself to be loved, and yet this is a well attested form of mystical experience, and it is a pointer towards a dogmatised God who is analogically related to human beings who meet, love and are loved. It is only hinted at in one of the most interesting discussions, about the experience of identity with God.

'It is indeed typical of the mystical experience', says C, 'that there should be difficulty in distinguishing between subject and object', but when H and the Bs speak of becoming identified with God he explains that as a theist he 'cannot concur with it'; he tries to show what kind of union is acceptable to Christians by the imagery of the spiritual marriage, but he misuses this in a way that deprives him of a chance of real dialogue with the others. The marriage-language is literally imagery; it takes something known and almost describable and affirms it as an image or picture of something beyond description, saying 'It is like this only indescribably more so'. C never gets to the heart of the image; 'in marriage' he says, quoting from the Upashinads, 'is adumbrated a "two who become one" : a distinction of subject and object which is yet a unity'. Here surely is a pious confusion : two people never become one, although, as Iago noted, they can appear to; they can, however, in the closest kind of human meeting, find that their awareness of the distinction between subject and subject momentarily disappears; this experience is the real marriage-image. The experience of otherness as oneness is at the centre of Christian mysticism : God is other but the otherness can be overwhelmed. Had he taken this standpoint C could have bridged the divide between the hindu desire to be merged with God and M's and J's puritanical insistance on separateness; he and H could fruitfully have compared this basic christian mystical experience with the state in which a hindu can say 'I am Brahman'. As it is the christian position never emerges; it is significant that the only christian mystics mentioned are Ruysbroeck and Meister Eckhart.

Differing dogmas about God or the Absolute give rise to differing ultimate hopes. By and large hindus and buddhists, who believe

that God at the higher level has no humanly recognizable attributes, want to be lost in his impersonality, while christians, believing that God can be 'gotten and holden', hope to be found by him. This difference is never clarified in the dialogue, and therefore there is no interillumination. Again the dogma-counters are brought out, but we can never see why any of the speakers believe in the dogmas which seem like dreary fairy-stories.

C is inevitably under fire for defending the exclusiveness of the Incarnation and can only dig in his heels and say 'revelation'. His opponents surprisingly fail to tie him up more tightly in his difficulties by pointing out that the Incarnation is involved with the doctrine of the Trinity: if Jesus Christ is part of the nature of God in a sense that no-one else is, the Incarnation is inescapably unique and scandalous. Surely Logos theology should have been C's release from uncharitable scandalizing? For christians the second person of the Trinity is the Logos: God as he speaks, expresses himself. (C and H might have looked at the rather tenuous parallels between Logos and Atman.) St. John deliberately included in the Logos every enlightenment, although for him Christ is explicit and particular Logos. It would have been better if C had talked about 'particularity' rather than 'exclusiveness'.

The last discussion, on 'evil and good', is most unsatisfactory: none of the speakers seems to see any vital connection between what people believe and the way they behave. The christian for instance, believing in the possibility of meeting, hopes to become involved in what he meets and be influenced and changed by it—this is exactly what is meant by the working of grace, which in western christendom is called sanctification. C never refers to it: if he had done so the others might have understood him better had he spoken in terms of Eastern Orthodox 'deification', which means the same thing. Christian deification, being changed by exposure to God, is not the same as hindu deification, which H defines as 'becoming Brahman', but it has affinities which would have made it possible for the differences to be discussed.

BRIAN DUPRÉ

SENTENCES

Dante: *Il Paradiso.* Canto xxxiii, 115–145*

That light supreme, within its fathomless
Clear substance, showed to me three spheres, which bare
Three hues distinct, and occupied one space;

The first mirrored the next, as though it were
Rainbow from rainbow, and the third seemed flame
Breathed equally from each of the first pair.

How weak are words, and how unfit to frame
My concept—which lags after what was shown
So far, 'twould flatter it to call it lame!

Eternal light, that in Thyself alone
Dwelling, alone dost know Thyself, and smile
On Thy self-love, so knowing and so known!

The sphering thus begot, perceptible
In Thee like mirrored light, now to my view—
When I had looked on it a little while—

Seemed in itself, and in its own self-hue,
Limned with our image; for which cause mine eyes
Were altogether drawn and held thereto.

As the geometer his mind applies
To square the circle, nor for all his wit
Finds the right formula, howe'er he tries,

So strove I with that wonder—how to fit
The image to the sphere; so sought to see
How it maintained the point of rest in it.

Thither my own wings could not carry me,
But that a flash my understanding clove,
Whence its desire came to it suddenly.

High phantasy lost power and here broke off;
Yet, as a wheel moves smoothly, free from jars,
My will and my desire were turned by love,

The love that moves the sun and the other stars.

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* From Barbara Reynolds's completion of the translation by Dorothy Sayers of *The Divine Comedy*; with acknowledgments to Penguin Classics.

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