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EDITORIAL

I apologise both for the lateness and shortness of this issue, but articles that I hoped might be available have proved not to be so and nothing else suitable was on hand or arrived.

Please note that our website and e-mail addresses have changed. They are due to change again soon, but will not change thereafter. Our telephone and fax number has also changed but will not change again.

POLANYI NOTICEBOARD

1. *Appraisal/Polanyi Conference, Nottingham, March 30th-31st 2001*

Please see enclosed flyer or details on p. 70

2. *Polanyiana*

Since the last issue of *Appraisal* I have received Vol. 9, No's 1-2, in Hungarian with articles on 'Michael Polanyi and the cognitive approach of today', 'Some semiotic aspects of tacit knowledge', 'Will everything finally get in the right place', 'Inquiring science', 'Transmitting personal knowledge', 'Silence is golden', 'The planning and autonomy of science', and 'Cogito ergo credo'.

The MPLA will hold a one-day conference in Budapest on Sat. June 1st, 2001, on Michael Polanyi, especially on his work in chemistry and philosophy of science. Further details can be obtained from the MPLPA, Stoczek u. 2, 1111 Budapest; polanyi@phil.philos.bme.hu.

3. *Tradition and Discovery*

The two latest issues are:

Vol. XXVI No. 3:

This contains seven linked articles (by S.R. Jha, Walter Gulick, Phil Mullins, Dale Cannon, John Puddefoot, Ester Meek, and Andy Sanders) under the heading 'Polanyians on Realism: an Introduction', ed. by Andy Sanders.

Vol. XXVII No. 1

This contains:

'Reflections on Shils, Sacred Texts and Civil Ties, and Universities', Louis Swartz

'Further Reflections on Shils and Polanyi', Steven Grosby

'Three Explorers: Polanyi, Jung and Rhine', James Hall

'Cartesian Habits and the "Radical Line" of Inquiry', David Kettle

'Vintage Majorie Grene: a review essay on *A Philosophical Testament*', Phil Mullins

Wolfe Mays

1 Introduction

It is now fifty years since A.M. Turing's article 'Computing Machines and Intelligence' appeared in *Mind* (October 1950). Turing largely concerned himself there with the question 'Can a machine think?'. Turing's arguments centre round the possibility of constructing a game-playing machine which by means of its answers to specific questions would be able to deceive us into believing that it was a human being. Over the years his paper has been influential in stimulating interest in the mechanisation of thought among cognitive scientists and others. It might be said to be the basic text from which their speculations on this question start.

Although Polanyi knew of Turing's article he did not give a detailed analysis of it. But he does refer to it in a footnote to *Personal Knowledge*. He there says, 'I dissent therefore from the speculations of A.M. Turing (*Mind*, NS., 59 (1950) p. 443) who equates the problem "Can machines think?" with the experimental question whether a computing machine could be constructed to deceive us as to its own nature as successfully as a human being could deceive us in the same respect' (p. 263, n.1).

Polanyi's arguments against identifying minds with machines can, nevertheless, be seen as a critique of Turing's position. These arguments are to be found in *Personal Knowledge*, Chapter 8 under the headings of 'Inference', 'Automation in general' and 'Neurology and psychology'. There is also an earlier paper on this topic. However, in the Manchester 'Mind and the Computing Machine' seminar of 1949, Polanyi expressed his disagreement with Turing more specifically, and emphasised the personal factor in both conceptual and practical knowledge. I have myself given an analysis and critique of Turing's article, in which I

take up a position somewhat similar to Polanyi's own. (Mays 1952)

2 Polanyi's critique of the mind-machine analogy

Polanyi's critique is largely based on (1) the belief that our mental experiences are by their nature unspecifiable, i.e., we cannot in principle give an exhaustive description of them, and (2) on an appeal to Gödel's theorem which he claims demonstrates that there are some things human beings can do which machines cannot. The notion of the unspecifiability of mental operations is initially discussed in his account of a logical inference machine, where, he says, an attempt is made to eliminate the personal factor of the logician. But he argues, that there is an irreducible residue of mental operations, on which the operations of the formalised system which the machine exemplifies depend.

For Polanyi then a formal system of symbols and operations can only function as a deductive system, by reason of such unformalised operations. They are: (a) symbols and their meaning must be recognised: (b) axioms must be understood to assert something: (c) in making deductions from these axioms according to specific rules, we have to acknowledge that whatever satisfies the axioms will also satisfy the derived theorems. These unformalised operations—recognising, understanding, acknowledging—are termed by Polanyi *semantic functions*. (pp. 257-258) An intuitive mathematics is therefore needed to define a formal one. In the case of logical inference, such unformalised operations would seem to resemble what W.E. Johnson (the Cambridge logician (1922)) has called the epistemic conditions of inference as opposed to the more formal (or constitutive) ones. It also resembles the noesis and noema of Husserl, i.e. the intentional act and the object to

which the act is directed. Polanyi, however, does not refer to their work and may not have been aware of it. I recognise that Gilbert Ryle (1949) would have wished to translate Polanyi's *semantic functions* into behavioural terms of 'knowing how'. But Polanyi would deny that this can be done without omitting some of their basic properties, of which we may only have a tacit awareness.

The essential difference between the functioning of a machine, and that of a human person, is made clear by the *Oxford English Dictionary* definition of a machine, which defines it as 'an apparatus for applying mechanical power, having several parts, each with a specific function'. But we can also have a simple machine such as a lever, which merely transmits force or directs its application. Machines are usually constructed to fulfil a specific purpose. Thus we have our sewing machines, printing machines, computing machines, etc. Such attributes as thinking, feeling and desiring which we normally attribute to a person do not enter into the description of a machine.

Cognitive scientists who claim that machines can be made to act in an intelligent way, blur this distinction and with it the difference between first and third person accounts of human behaviour. Further, by attempting to explain our cognitive activities in terms of neurological models, which are machines of a sort, they accept a form of mind-body identity or scientific materialism. Conscious states are then identified with brain states, and these with machine ones.

Turing's identification of mental states with those of a machine, results from his attempt to mechanise the intuitive notion of computability. He compared a man to a computing machine only capable of generating a finite number of combinations. In this way he produced an idealised computing machine, depicting it as a system in which the operations of

addition and erasure can be performed. What Turing then demonstrated was that any such finite formal process could be reduced to a physical or mechanical one (Turing, 1937). But the reverse does not follow. Although we can proceed from a class of mental processes to their physical representation, we cannot demonstrate from the notion of a physical machine that it can by its own means produce formal procedures or other intellectual results. (Finneman, p. 236)

Polanyi touches on this question, albeit from a somewhat different angle, when he claims (p. 259) that it is logically absurd to say of a logical inference machine (which would include Turing's machine), that it does inferences of its own, without our personal participation. This conclusion he thinks also applies to the logical analysis of any kind of automatic machinery used for intelligent purposes.

As against Polanyi some cognitive scientists have argued after Turing, that the difference between a mind and a machine is largely a matter of definition. We know that new circumstances may make us change our view about things. As modern technology advances it is said it will become possible to construct machines which will not only simulate our behaviour but also be conscious. As one writer puts it, 'there is no inherent logical contradiction involved in calling a machine conscious'. (Thompson, p. 37) However, there are very few things which are not logically possible, except those which are self-contradictory. If we proceed down this path, we are in the realm of virtual reality only limited by the flexibility of our imagination.

We cannot, of course, completely rule out the possibility that we may yet be able to construct a device out of physico-chemical elements which has an inner life of its own, one capable of self-reflection. This would be an example in which technological advance conjoined with biological evolution has produced a new sort of

being. There seems nothing self-contradictory in asserting this. It is a synthetic rather than an analytic statement to be tested empirically. Genetic engineering has made some steps in this direction, except that it deals with biological rather than mechanical elements. Polanyi would have been on safer ground if he had said that up to now no such device has yet been constructed, and that owing to technical and practical constraints it may never be.

One of Polanyi's key arguments is that the very notion of a machine involves its use by a person for a certain purpose. But we must not overlook that animals and also human beings can be used in this way. Aristotle, for example, regarded slaves as human tools. Most of us would agree today that slaves have rights and some might even claim that animals have too. But we would certainly stop short at attributing them to machines, at least as we presently know them. Cognitive scientists who claim that machines can have first person experiences, would also need to assign such rights to machines. The scope of employment law would then have to be extended to cover the misuse of machines by their owners, which would increase the work-load of industrial tribunals. It might lead to further interesting legal and ethical problems. If, for example, such an artifact was destroyed by a human being would he be guilty of murder or the wanton destruction of someone else's property?

In his discussion of logical inference machines, Polanyi, has emphasised the need for an intuitive (or heuristic) mathematics to give significance to our deductive procedures. He also argued that we cannot specify the mind in terms of such a machine, as its operations would have to be defined in terms of unspecifiable personal coefficients. Polanyi now tries to show that something similar occurs in the case of the control exercised over a machine by the user's mind. As he puts it, 'like all interpretations of a system of strict rules—necessarily unspecifiable, the

machine can be said to function intelligently only by aid of unspecifiable personal coefficients supplied by the user's mind'. (p. 262)

This question was discussed by Polanyi and Turing in the Manchester seminar of 1949. To Polanyi's point that a machine is specifiable whereas a mind is not, Turing replied that the mind is unspecifiable, because it has not yet been specified. It is a fact, he said, that it would be impossible to find the programme inserted in quite a simple machine, and we are in the same position with regard to the brain, so that the conclusion that the mind is unspecified does not follow. But Turing can only come to this conclusion by identifying the mind with the brain. Polanyi is not saying that the elements of the brain are unspecifiable but only those of the mind.

When Turing asserts the impossibility of finding a programme inserted in a simple machine, he can only mean that some particular individual is unable to discover it. It does not rule out the fact that others may be more successful. I may be able to operate a computer, without knowing how its software actually works. When the programme crashes, as it often does, (and even the Stock Exchange computer nods). I can appeal to my IT people to help me out. The machine situation, however, is not comparable with that of the brain, for which if a programme does exist, it would not, unlike that of a machine, have been designed by a human being. There would therefore be no one to call upon for help here, unless it be the Supreme Being.

There is, of course, another difficulty, Turing's machine model assumes that physical phenomena such as brain states have to follow the laws of logic, that they cannot be true and false at the same time. But there is no *a priori* reason for assuming that physical phenomena must exemplify rational principles, such as that of non-contradiction. Quantum phenomena, for example, seem to escape this principle. If this is the case, Boolean algebra (a calculus of 1

and 0), which is built into any logical machine, might not be the best model for simulating brain states. A good number of neurological models which are based on it, would become redundant. Polanyi does not raise this point at all, but this is what unspecifiability, at least on the level of brain activity might come to. If a brain state can be true and false at the same time then it is unspecifiable. On the other hand, Polanyi is concerned with our mental states, where two-valued logic is largely applicable. Unspecifiability here then rather refers to the impossibility of giving a complete enumeration of the properties of such states.

3 Gödel's Theorem

The other argument used by Polanyi to show that minds differ from machines makes use of Gödel's theorem. (Gödel 1931). 'This theorem has shown', he tells us, 'that within any deductive system which includes arithmetic it is possible to construct formulae—i.e., sentences—which are demonstrably undecidable within that system. . . . This process reveals both that any formal system (of sufficient richness) is necessary incomplete and that our personal judgment can reliably add new axioms to it.' It illustrates,' he goes on, 'the inexhaustibility of mathematical heuristics and also the personal and inexhaustible character of the acts which continue to draw upon these possibilities'. (p. 259)

Polanyi hence believes 'The proliferation of axioms discovered by Gödel offers manifest proof that a person operating a logical inference machine can achieve informally a range of knowledge which no operations of such a machine can demonstrate It proves that the powers of the mind exceed those of a logical inference machine.' (p. 261) John Lucas follows Polanyi when he states that Gödel's theorem seems to prove that mechanism is false, '... Given any machine which is consistent and capable of doing simple arithmetic, there is a formula which it is incapable of producing as

being true—i.e., the formula is unprovable in the system—but which we can see to be true.' Man', he continues, 'can thus transcend a machine, since he can write down a true theorem expressible in the system, even though it is unprovable in it'. (Lucas, 1961 p. 127) Similar arguments are to be found in the work of Roger Penrose, who also uses Gödel's theory to demonstrate the impossibility of constructing such devices to simulate the human mind.

What is interesting is that both Turing and his critics use abstract formalisms derived from Gödel's work, to support their respective positions. Turing, for example, postulates a universal machine capable of modelling any other machine. His critics, on the other hand, appeal to Gödel's theorem to show that human beings can provide a proof which cannot be given in the formal system itself.

Turing also used the concept of an idealised machine to show that there can be no general process for determining whether a given general formula of the logical calculus of predicates is provable, i.e. there is no machine which supplied with any one of these formulae will eventually say it is provable. (Turing 1937) The interesting thing is that Turing in demonstrating this, models his account of a machine on the way an actual person performs a computation. In doing this he only identifies one aspect of our intellectual activities and leaves out others, for example, the capacity to prove the consistency of such systems at a higher level. This capacity of human thought is as we have seen emphasised by his critics.

I.J. Good has drawn our attention to this feature of Gödel's theorem, namely, that one can always introduce a stronger system in which a proof of a Gödel sentence can be given. He has gone on to argue that since this process can be continued indefinitely a hierarchy of machines could be arranged to do this. Good has used this as a counter-argument against the claim that Gödel's theorem shows that men can do certain things which

machines cannot. He thinks this claim to be refuted by the observation that Gödel's construction could itself be carried out by another (deterministic) machine, which will give rise to a new Gödel construction and a new formal system and so on (Good, p. 144).

In place of a hierarchy of machines Good now postulates a computer capable of generating such Gödel sentences, where we proceed to higher and higher levels. He also imagines a human operator playing a game of one-upmanship with it. In order to outplay the computer the human operator would need to carry out an infinity of acts which at each stage of the game, would be at a higher level than those of the Gödel sentences generated by the computer. But this is clearly beyond his powers owing to his limited life-span. A physical digital computer would, however, be subject to similar limitations. To play this game adequately we would have to postulate an abstract machine capable of generating such a hierarchy of sentences, and also a transcendental subject, in fact an intellectual artifact, constantly concerned to establish the non-contradiction of lower-level systems in terms of constructions at higher levels.

All that the protagonists in the game could conceivably do is to perpetually checkmate each other. They could not remain one-up for very long. On the other hand, a Platonic being might see at one glance *sub specie aeternitatis* the infinite hierarchy of Gödelian sentences, and thus establish a mastery over the machine. Hence, the question whether minds can transcend machines, is not entirely divorced from what sort of minds and machines we posit. What we then deal with here is largely a conceptual exercise, and not one which can be resolved by empirical methods. In any case it is doubtful whether it is possible to extract information about the way concrete minds and machines function from such formal arguments. The interesting question to ask, as Newman pointed out in the Manchester seminar, is rather whether

the machine could have produced the Gödel paper itself, which would have required a certain originality on its part.

4 Automation in general

Polanyi recognises that we have yet to face the wider problem raised by devices for making gunsight predictions, automatic pilots and other self-regulating artifacts, that is by machines that range far beyond logical inference. He does not develop this in detail but goes on to say that 'A.M. Turing has shown that it is possible to design a machine which will both construct and assert as new axioms an indefinite number of Gödelian sentences' (p. 261). We have just seen how Good has made use of this observation in his attempt to show that a machine can outperform a human person.

Polanyi then states that any heuristic process of a rational character, could likewise be carried out automatically. Thus 'A routine game of chess can be played by automatically, and indeed all arts could be performed automatically by a machine to the extent to which the rules of art can be specified. . . no unspecifiable skill or connoisseurship can be fed into a machine' (p. 261). But we can be a little more optimistic about such games than Polanyi was. We now know that a suitably programmed machine can compete with and even beat a competent chess-player. This is not due to machines becoming wiser, but to improved programming and faster machines, which are both the product of intelligent human beings. Also unlike human chess players such machines have no emotions to divert their performance.

It is clear that only those skills which are specifiable can be mechanised. But can one say in advance whether a particular skill is specifiable or not? Some skills, previously thought of as unspecifiable, carried out by skilled practitioners, such as tool-making or cheese-testing, have now been automated. A machine for carrying out some surgical tasks has recently

been invented. Other skills which at present seem unspecifiable may become so in the future. Polanyi, however, rightfully stresses that we have not removed the human factor altogether from these automated skills, as they depend for their functioning on programs designed by us.

Polanyi would also argue that it is impossible to give deterministic explanations of problem solving. It is intelligence alone through its spontaneity which can find means adequate to the proposed end in view. This kind of explanation is perhaps applicable to the more intellectual types of problem-solving activities, occurring, for example, in science or in moral decision making. It does not rule out the possibility of explaining more mundane problem-solving in terms of, say, Skinnerian learning theory. Although even here, as far as human beings are concerned, some degree of insight may enter in.

Polanyi brings out the difference between a logical inference machine and a self-regulating one as follows, 'We shall not be able to circumscribe the scope of automatic operations in general by such formal criteria as apply to logical inference machines. Yet the necessary relatedness of machines to persons does essentially restrict the independence of a machine. For a machine is a machine only for someone who relies on it (actually or hypothetically) for some purpose'. This, he goes on is the difference between machine and mind. 'A man's mind can carry out feats of intelligence *by aid of* a machine and also *without* such aid while a machine can function only as an extension of a person's body under the control of his mind'. (pp. 261-262)

Machines then for Polanyi are used to fulfil a specific purpose. And this is the case even with so-called intelligent robots, which can clean rooms and even wait on us at the table. They have not got, as it were, minds of their own. They depend for their operation on information fed to them by a programmed computer

designed by humans. We have not yet arrived at the stage depicted by science fiction writers, where the roles would be reversed and human beings are used by the robot to further its own interests.

5 Mind-machine operations

Polanyi sees the operations of a machine as dependent on a three-term relationship, between the mind, the machine, and the intelligent purposes we use a machine for. The machine can therefore for him only be said to function intelligently by the aid of unspecifiable personal co-efficients supplied by our minds (p. 262). He then goes on to discuss the use of neurological models of human behaviour. Neurology, we are told, is based on the assumption that the nervous system—functioning according to definite physico-chemical laws—determines the workings of the human mind. Similar considerations apply to psychology which attempts to reduce our activities to relationships between quantifiable variables, which could be represented by an artifact.

In the neurological (or psychological) model he also finds a three-term relationship, but in this case, between the mind, model and the intelligent purposes attributed to the model. However, the mind here is that of the neurologist who constructs the neurological model of the subject, and who attributes these purposes to it. The inferred personal functions of the subject's mind are not represented at all in the model. No account is taken of the subject's conscious experiences, which include the capacity for solving problems in an original way. On the other hand, Polanyi points out, the neurologist in constructing the model exercises this capacity to a considerable degree, but in the act of doing so he denies it to his subject (pp. 262-263). Something similar might be said about the contemporary cognitive scientist.

Polanyi thinks this approach is justified as long as the neurologist is concerned only with automatic responses, for example, reflex actions.

By contrast, he says, to acknowledge someone as a person is to establish a reciprocal relation to him—to share his experiences. As he puts it, ‘neither a machine nor a neurological model, nor an equivalent robot can be said to think, feel, imagine, desire, mean, or judge something. They may conceivably simulate these propensities to such an extent as to deceive us altogether’. He continues, ‘no amount of subsequent experience can justify us in accepting as identical two things known from the start to be identical in their nature’ (p. 263). It is at this point that Polanyi in a footnote registers his dissent from Turing, as far as the production of a successful game playing machine is concerned capable of deceiving us into believing it is human.

An example of a psychological model which Polanyi finds unacceptable is Freud’s conception of the mind with its id, ego, super-ego and its various complexes. Polanyi refers to it as a ‘largely conjectural and rather vague doctrine’. (p. 139) Unlike the neurologist, Freud would claim that he is dealing with first-person experiences, which he explains on deterministic lines. But in doing this, Polanyi says, Freud tries to explain away the responsible person, which can act as a curb on both the ego and the id, by substituting in its place the super-ego. As the super-ego (or conscience) arises from interiorised social pressures, Polanyi contends that ‘A super-ego cannot be free, and to demand liberty for it would be farcical’ (p. 309, n.1).

Polanyi’s account of human nature involves a doctrine of liberty (or free will) which cannot be fitted into the Freudian deterministic system, and which by its very nature is unamenable to any causal description. It has to be taken as a postulate on which we base our legal, political and moral norms as well as the concept of truth (a value on which science itself depends), and the decisions which flow from them. A Freudian might in his turn accuse Polanyi of putting forward a ‘largely conjectural and rather vague doctrine’. Further, there

are some materialist philosophers for whom norms and values are merely illusions on our part, which do not affect our bodily functioning, and which they liken to the waste gases emanating from the internal combustion engine.

To this Polanyi would reply that we could not live a free and self-fulfilling social life unless we based our actions on such values, on which even science depends. This illustrates the divide still existing between science and the humanities; the two cultures which C. P. Snow tried unsuccessfully to bridge. There are difficulties in trying to explain human behaviour and society in deterministic terms, despite Freud and Marx having a good shot at it. It is questionable whether Turing has done any better as far as mind is concerned.

Polanyi does not spell out his own conception of mind. He simply states that it exhibits itself in both its subsidiary manifestations and its focally (conscious) known ones. As he puts it, ‘Mind is not the aggregate of its focally known manifestations, but is that on which we focus our attention while being subsidiarily aware of its manifestations’. (p. 263) What Polanyi seems to mean here, is that mind is more than the sum of its conscious experiences; that it involves a conscious focal centre, and a periphery of which we only have a dim awareness.

Polanyi used this as an argument against accepting Ryle’s attempt to translate mental activities in terms of ‘knowing how’, which he claimed was only concerned with focal awareness (p. 372) Polanyi has a point here as against Ryle, who does not seem to take adequate account of unconscious motivation. But Polanyi does assume here that the human mind taken in his extended sense has something like a conscious focal centre or location. Although he may be using this notion in a metaphorical sense, one recalls here Hume’s argument that whenever he looks into himself he is unable to find such a centre. The mind or self, if it exists as such, cannot be said to have a specific location, which

presumably is what Kant meant when he said our mental experiences were only in time and not in space.

Polanyi contends that we can share the experiences of other persons, (or emphasise with them) and thereby know that they have minds like our own, something we cannot do with a machine. This sharing can, for him, occur on two levels: (1) on an intellectual one, for example, in scientific collaboration in which there is a sharing of what he terms ‘intellectual passions’, the desire for truth being one of them (cf. Chap 6); (2) through conviviality or fellow feeling as exhibited in our day-to-day relations with others (cf. Chap. 7). But we cannot always differentiate intellectual passions from persuasive ones. Science is not entirely a rational affair. The fact that Polanyi uses the phrase ‘intellectual passions’ to describe such phenomena as scientific creativity would seem to bear this out.

6 Mind and society

Polanyi is aware that our knowledge cannot be entirely divorced from its social context. In discussing the indeterminacy of knowledge he tells us that this requires that ‘we accredit a person entitled to shape his knowing according to his own judgment, unspecifiably. This notion—applied to man—implies in its turn a sociology in which the growth of thought is recognised as an independent force. And such a sociology is a declaration of loyalty to a society in which truth is respected and human thought is cultivated for its own sake’ (p. 264).

These are admirable social sentiments. But there is a certain asymmetry here. Polanyi overlooks the extent to which his notion of the person as an independent thinker shaping his own knowledge, is itself a Western cultural ideal and not necessarily a fact about human nature. (followers of Confucius or Buddha might see things differently). To describe the growth of thought as an ‘independent force’ seems to fail to take account of the fact that such growth depends to a large extent on

the interplay between the individual and the cultural milieu in which he finds himself, or to use a Heideggerian phrase 'into which he is thrown.'

Polanyi does, however, later qualify his position by stating that thought may be recognised as an independent force, but only as embodied either in a specific orthodoxy which constrains it, or in a free society where a wide range of rival thoughts may be accepted (p. 376). Independence of thought, may be valued in a democratic society (unlike a totalitarian one) and is something Polanyi valued himself. Polanyi does seem to regard it as an innate capacity like reason, on which society has only a constraining or liberating influence. One is reminded here of Rousseau's remark 'man is born free and everywhere he is in chains'. But if we can only talk of thought as an independent force relative to some specific society, how independent is it?

7 Brain-mind dependency

Although Polanyi does discuss neurological models, he does not discuss in any detail the brain-mind dependency theory which these models assume, and which forms a basis for some of Turing's arguments. This theory asserts that there is a strict causal relationship between our conscious states and our brain states. This approach can also take on a more linguistic form, in which mental states and brain states are said to be really two ways of speaking about the same thing. It is true that in simple stimulus-sensation situations in which the Weber-Fechner laws apply, one can show that such a direct relationship exists. One may also be able to show that certain types of measurable brain activities occur when one is thinking or dreaming, etc., but these correlations, so far, tend to be fairly crude.

To take an example, we have already touched on, when making a logical inference, we can usually describe the conscious states involved in reasoning from the premises to the

conclusion more precisely than we can the corresponding brain states. It would also be difficult to identify a particular ethical decision, such as deciding to be honest in the face of temptation, with some specific brain process. The attempt to imitate the behaviour of human beings by neurological models is not one whit more scientific than taking into account conscious experience when we wish, for example, to explain the rationale of an argument or give reasons for our making a moral decision.

The brain-mind dependency hypothesis fails to distinguish two very different things: (1) our immediate perceptual experience; (2) the physical and physiological data, derivative from the scientist's observations, and involving their interpretation in terms of complex scientific theories. Although a correlation can be set up between (1) and (2), they are of a different logical order. Some cognitive scientists assume that a physiological fact is just as simple and straightforward as our immediate perception of a colour such as 'red'. For example, when such a statement as 'damage to the occipital lobe of the brain involves disturbance of visual perception,' is put forward as evidence for the brain-dependency theory, the ambiguity of the phrase 'visual perception' is usually overlooked, as it can either refer to its physiology or to the subject's conscious experiences. In the former, we deal with a statement about a causal process, in the latter, with the correlation of two different sorts of things, a third person physiological fact and a first person experience.

Further, brain processes only have a significance when there is an intelligence (i.e. a human mind) to interpret them. When the brain physiologist reports on the electrical activities of our brain as given through his instrument readings, he is as Polanyi has pointed out, reporting on his own conscious experiences. Knowledge about brain processes is a third person type of knowledge involving complicated experimental

and observational procedures, in the statement of which mathematics and logic are involved. An interesting feature of the brain - mind dependency hypothesis is that it would make physics as well as mathematics and logic, taken as human enterprises, depend on brain physiology. But since the laws of brain physiology ultimately depend for their significance as well as coherence on mathematical and logical laws, we find ourselves involved in a circular argument. Whether this is a virtuous or vicious circle, will depend on your point of view.

Another approach to this question has been through models based on neural networks, which can improve on their performance. We are told that 'the human brain is at least a neural network which seems a reasonable basis for contending that a neural network can be intelligent'. And that from 'lesion and drug studies we know that some mental states are direct products of the physical and chemical condition of the brain' (Brady, p. 14). But we must not overlook that the notion of a neural network is an analogical one. It came about as a result of the application of two-valued logic (or Boolean algebra) to electrical switching circuits, which were then taken as a model for the firing of neurons, and to this a self-correcting mechanism seems to have been added. Whether it is reasonable then to contend that neural networks are intelligent is open to discussion. I have already indicated that it may turn out that such models may be limited in their application.

However, the fact that such systems can be made to perform some activities normally associated with intelligent human behaviour does not mean that they are 'intelligent' *per se*. What seems to have happened is that one aspect of our intelligent behaviour has been isolated and translated in terms of such a model, namely the ability to use two-valued logic, whilst other aspects have been neglected or played down. The cognitive scientist is thus enabled to talk of neural

networks as intelligent. The fallacy involved here is that of trying to explain the whole by the part.

It has been suggested that much productive work in this field could be done on a lower evolutionary level, that one might, for example, first try to model the brain of an ant rather than that of a human. Stephen Hawkins (the cosmologist) no doubt had this in mind when he said recently that the human race needs to increase its complexity if biological systems are to keep ahead of electronic ones. 'At the moment computers have the advantage of speed, but they show no sign of intelligence. This is not surprising since our present computers are less complex than the brain of an earthworm, a species not known for its intellectual powers' (Margolis, p. 10). Although it might be possible to work up the evolutionary ladder starting with the ant or the earthworm

to produce a human brain in a shorter time-span than the millions of years taken by evolution, it may still be a long haul. Will the Research Councils and Foundations who subsidise such research, be prepared to wait for these hopes to materialise?

8 Conclusion

In the main body of this paper I have made the point which Kant made in his critique of the ontological argument for the existence of God, namely, that from the fact one can conceive something as existing it does not necessarily follow that it does (or can) actually exist. I have also indicated that one must exercise caution in using arguments which proceed from conceptual impossibility to the non-existence of empirical things. I recognise that the latter type of argument might have a greater plausibility than the former.

Philosophers may get themselves

into difficulties if they try to instruct natural scientists as to what sort of facts they may discover in nature and what sort they cannot. One recalls the errors of Bergson who challenged the results of relativity physics on philosophical grounds. Even the laws of physics as established in a particular period are not sacrosanct. However, when scientists go beyond their specific field of enquiry and philosophise about human beings, society and the world at large, philosophers can perform a useful function by acting, as John Locke put it, as under-labourers sweeping away some of the garbage which stands in the way of knowledge.

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Appendix: Mind and the Computing Machine

I now come to the seminar on 'Mind and the Computing Machine', which I attended. It was held on Thursday 27 October 1949 in the Manchester University Philosophy Department. This brought together a number of people interested in this question. Among them were , Polanyi, Turing,

Newman a mathematician, J. Z Young the biologist, Bartletta statistician, Jefferson a neurosurgeon and Dorothy Emmet the philosopher. Notes taken at the seminar by a colleague give some idea what the seminar was about. These notes are somewhat incomplete. But I will summarise the relevant parts insofar as they germane to the

question, 'Can machines think?' These were:

- (1) Brain-mind analogy
- (2) Physiological aspects
- (3) Are there any limitations to the kind of operations which a machine can do?

Newman started off by saying to Polanyi: 'The Gödel extra-system

instances are produced according to a definite rules and so can be produced by a machine. The mind-machine problem cannot be solved logically, it must rest on a belief that a machine cannot do anything absolutely new. The interesting thing to ask is whether a machine could produce the original Gödel paper which seems to require an original set of syntheses.

Polanyi by way of a reply emphasised the *Semantic Function* as outside the formalised system.

To this Turing remarked that one may play about with a machine and get the desired result, but not know the reasons for it: an element of this kind enters into engineering and when we operate a machine.

The question which then surfaced was; Was it possible to give purpose to a machine? Turing claimed that this sort of thing can be done by trial and error methods, and that purpose is the use of previous combinations plus trial and error.

(Turing was obviously thinking here of feedback mechanisms, sometimes called goal-seeking devices, which by trial and error gradually approach the target or goal. However, If such a device can be said to have a purpose it is only because it has been programmed into it by a human being. W.M.)

The discussion switched to cybernetic's use of models as an explanatory tool. Young pointed out that the physiologist starts with a system not made by himself, but in the case of the mechanical brain we start with something made by us. Is this approach identical? If not can the right approach be suggested? The physiologist, he pointed out, can stimulate parts and see what happens.

Newman outlined a possible approach. It might be asked how the calculating machine was designed, approaching the thing from the outside, as it were. Could methods used in answering this question be applied to the other?

Jefferson thought that many of these models are not worth making, because you already know what is going to result from them. Young agrees logically but argues that intuitively you learn a good deal.

Neurological models it is said lack a certain correspondence with reality. Newman pointed out that in making models we assume that some quantifiable solution is possible and the rest is left out.

Question of choice was raised. It was said that choice implied two or more potentially incompatibles, so that in choosing, inhibitory power must be exerted. In the animal path is established and the preferred action results.

Turing argued that random operations can be made regular, after a certain prevailing tendency has shown itself.

To this the point was made that in choice incompatibles can be accepted and the normal rejected.

Turing replied that a machine may be bad with incompatibles, but when it gets contradiction as a result, there is then a mechanism to go back to look at things which led to the contradiction. A member of the seminar then asked for details of this going back process.

Newman suggested that this kind of thing was more on the line of conduct and was not covering the logical aspects only.

Turing then remarked that he would get back to the point. He was thinking of a kind of machine which takes problems as objective and the rules by which it deals with the problems are different from the objective. Cf. Polanyi's distinction between mechanically following rules about which you know nothing and following rules which you know.

Polanyi tries to compare the rules of the logical system with the rules which determine our own behaviour, and notes that these are quite different things. Vital thing is that machine is not conscious.

Turing: a machine may act according to two different sets of rules e.g. I can do an addition sum on the blackboard in two different ways:

(a) by a conscious working towards a solution.

(b) by a routine, habitual method. then the operation involves in the first place, the particular method by which I perform the addition—this is conscious, and in the second place the neural mechanism is in operation all the while. These are two different things and should be kept separate.

Polanyi interprets this as suggesting that the semantic function can ultimately be specified, whereas in point of fact a machine is fully specifiable, while mind is not.

Turing replies that mind is only said to be unspecifiable, because it has not yet been specified, but it is a fact that it would be impossible to find the program inserted into quite a simple machine, and we are in the same position with regard to the brain. The conclusion that the mind is unspecified does not follow.

(Turing is obviously here identifying the mind with the brain. Polanyi is not saying that the elements of the brain are unspecifiable but only the mind. W.M.)

Polanyi went on to say that that this should mean that you cannot decide logical problems by empirical methods. The terms by which we specify the logical operations of the mind are such that they cannot be said to have specified the mind. Specification implies the presence of unspecified and *pro tanto* unspecified elements.

Turing: This means that my mind as I know it cannot be compared to a machine.

Polanyi says that acceptance of a person implies the acceptance of unspecified functions.

The point was then raised regarding the unspecifiability of programs inserted into the machine, and it was asked whether it could be clarified.

IS THERE NO GOD?

The implausibility of atheism

Philip Vander Elst

According to atheists, there is no supernatural Power or Being separate from the universe and responsible for its creation. There is therefore no Creator to whom human beings are accountable. Furthermore, they argue, life has no ultimate meaning or purpose, since not only do all individual lives end in death, but the universe itself is doomed to run down until all life is extinct. To quote the eloquent words of Bertrand Russell, Britain's most famous twentieth century philosopher:

That Man is the product of causes which had no pre-vision of the end they were achieving; that his origin, his growth, his hopes and fears, his love and his beliefs, are but the outcome of accidental collocations of atoms; that no fire, no heroism, no intensity of thought and feeling, can preserve an individual life beyond the grave; that all the labours of the ages, all the devotion, all the inspiration, all the noonday brightness of human genius, are destined to extinction in the vast death of the solar system, and that the whole temple of Man's achievement must inevitably be buried beneath the debris of a universe in ruins—all these things, if not quite beyond dispute, are yet so nearly certain that no philosophy which rejects them can hope to stand. Only within the scaffolding of these truths, only on the firm foundation of unyielding despair, can the soul's habitation henceforth be safely built. (*Mysticism and Logic*).

And what constitutes this 'firm foundation of unyielding despair'? Essentially this: that since life has no inherent meaning, our attitude to existence and the way we live is a purely subjective matter of personal belief and personal choice. We are on our own in an accidental and mechanistic universe which was never designed to produce life. It is therefore entirely up to us what we make of it all and what goals we pursue.

Although atheism seems a rather bleak philosophy whose roots go back at least as far as Ancient Greece, it

has many attractions for modern Western intellectuals, most of whom—judging by recent surveys and personal experience—disbelieve in God without any apparent signs of personal trauma or disorientation. Even within the general population of Britain, the proportion disbelieving in God has risen from 2% to 27% since the 1950's, and one third of those who do profess to believe in God, do not believe in 'a personal God'. This suggests that the popular notion that belief in God springs from a desire for personal security and is therefore a form of wishful thinking from which atheists have emancipated themselves, is far from being true.

In what, then, lies the appeal of atheism? Why, in particular, does it attract so many writers, artists, and 'creative' intellectuals?

The first and most important reason is that for many individuals the Judaeo-Christian concept of God is in itself unwelcome and objectionable. Their pride and sense of personal autonomy is wounded by the idea that they are in any sense dependent upon or indebted to some Divine Creator. They do not wish to acknowledge the possibility that they owe some allegiance to a Superior Being who made them, since to do so threatens their sense of worth, their independence, and their desire for unrestricted freedom in the use they make of life. For such people, therefore, religious faith and commitment is to be avoided because it appears to involve an unacceptable degree of personal humiliation and an unwelcome interference with the pursuit of pleasure and happiness. If, in addition, they are writers and artists, their desire for creative freedom increases their resistance to the idea that there may be some Eternal Power outside themselves to whom they are accountable for the use of their gifts and talents.

Another reason so many intellectuals are atheists is because

atheism seems more compatible with the scientific spirit of open-minded and open-ended discovery, whereas belief in God seems to require 'blind faith'. For intelligent people who value their intellectual integrity and enjoy using their minds, that is an important consideration. Moreover, the idea that life is full of mysteries to be explored and vanquished by the human intellect, is more exciting and appealing than the intellectual dead-end religious faith apparently represents. Consequently, by keeping God out of the picture, atheism seems to offer a bigger universe and a greater challenge to bold and adventurous spirits. Is it therefore any wonder that atheism is so widespread amongst our intellectual elites?

Perhaps not, but whatever may be its attractions, the question still remains: is atheism true? Is there really no God?

You may think, given all the problems in the world, that there are more pressing matters to consider than the possible existence of God, but is this not the most important of all questions? If astronomers and doctors think it worthwhile to search for life in other galaxies or study the human body, is it not even more interesting to find out whether there is a Creative Intelligence behind all the phenomena investigated by these and other scientists? Can anyone who cares about truth ignore this subject and pass by on the other side? Even if tempted to do so, is it sensible given the possible implications and consequences if God does exist? If it is possible that we owe our lives to a Creator who is the source of our very being and the fountain of all beauty, goodness, love and truth, should we turn our backs on Him? Would that not be like a plant refusing to grow towards the sunlight? That, surely, is the moral and intellectual challenge inviting us to examine the question of God's existence. Should it be ducked?

While atheist philosophers vary in

their approach and their arguments, the standard case against the existence of God commonly embodies three propositions.

The first and most emotionally compelling is that the existence of evil and suffering cannot be reconciled with the assertion that the world has a good and omnipotent Creator. If there really were a God, Creation would not be marred by pain, disease, hatred, or death, therefore He obviously doesn't exist. Secondly, modern science—in particular, the theory of evolution—explains the origin and development of the universe, and all its life-forms and structures, without any reference to God, so why do we need Him? He is plainly redundant. Finally, since enlightened self-interest and the good of society provide a perfectly adequate moral framework for human life, there is no need to invoke the existence of God in order to account for our moral faculties or provide a foundation for ethics.

As a former atheist, I used to accept these reasons for doubting God's existence, but I now believe that further reflection reveals them to be shallow and unconvincing.

There is, to begin with, a glaring contradiction in the argument that the presence of evil and suffering in our world indicates that there is no God. In the first place, our very awareness of evil and suffering underlines the fact that we seem to possess some internal standard of right and wrong, good and evil, by which we are able to judge existence and the universe, and find them wanting. But this raises an obvious question. Is this internal moral standard subjective or objective, true or false? If it is subjective—that is, merely an expression of our emotions and tastes—the case for atheism collapses, since we cannot condemn the universe, and by extension, God, just because reality doesn't suit our private fancies. That would be like complaining about the law of gravity because it doesn't allow us to jump off cliffs without getting hurt or killed. But if, on the contrary, our

moral perceptions are true and objective, they clearly reveal the existence of something good in Creation, namely, an eternal Moral Law, written on our hearts, but reflecting some greater Reality outside ourselves and beyond Nature. Paradoxically, therefore, our consciousness of evil confirms rather than refutes the existence of God, just as a crooked line implies the existence of the straight line from which it deviates.

To quote one of C.S. Lewis's summaries of this argument:

Unless we allow ultimate reality to be moral, we cannot morally condemn it . . . The defiance of the good atheist hurled at an apparently ruthless and idiotic cosmos is really an unconscious homage to something in or behind that cosmos which he recognises as infinitely valuable and authoritative: for if mercy and justice were really only private whims of his own with no objective and impersonal roots . . . he could not go on being indignant. The fact that he arraigns heaven itself for disregarding them means that at some level of his mind he knows they are enthroned in a higher heaven still'. (*De Futilitate*, a wartime address to the students of Magdalen College, Oxford, reprinted in *Christian Reflections*).

The realisation that atheism is a superficial response to the problem of evil was one of the reasons for C.S. Lewis's eventual conversion to Christianity as a young Oxford don in 1929. It also influenced the conversion of St. Augustine centuries earlier. But there is another equally compelling reason for rejecting the notion that the existence of evil and suffering discredits belief in God. It ignores the problem of free will.

As C.S. Lewis himself argued, in his books, *Mere Christianity* and *The Problem of Pain*, free will is undoubtedly a gift from God since without it we would be robots incapable of real love and therefore unable to experience the joy of being voluntarily united in love with both our Creator and one another. Free will is also God's gift to us because it is essential to human creativity and achievement. Without it, we couldn't

search for truth, probe the universe, or compose a symphony. But there is a catch, since it is in the very nature of free will that we can choose to reject God and embrace evil. If we do so, however, we not only cut ourselves off from the true source of our being and imperil our eternal happiness; we inevitably inflict suffering on others. Hence the impossibility of shielding the innocent from the malice of the guilty in a world of free agents. The very fact that God has made us in His image limits, by an act of voluntary abdication, His ability to prevent the progress of evil in this life.

Is this, then, all there is to say about the problem of evil? By no means. It is precisely the contention of the Bible and Christian theology that God has not abandoned the human race to its fate. He not only offers forgiveness and eternal life to those who turn to Him and reconnect with their Creator; He also promises eventually to judge the wicked and redeem Creation. But this is a great and controversial subject well beyond the scope of this essay. What is simply being stressed here is the inadequacy and implausibility of atheism as a contribution to this discussion.

The superficiality of atheism in relation to the problem of evil is mirrored in its equally shallow explanation of the religious impulse in human beings. To dismiss belief in God as a form of wishful thinking rooted in a desire for significance and security, as atheists typically do, begs more questions than it answers. In particular, it fails to give proper consideration to what, on atheist premises, is a remarkable puzzle. If the material universe is all that exists and there is no God, why are we, its accidental products, so unreconciled to our place in it and our fate? Fish don't complain of the sea for being wet, so why do we seek some non-material Reality outside the world we can see and hear and touch? If it is absurd to imagine falling in love in a sexless world, is it not possible that our desire for God is actually a pointer to His existence rather than an illusion? Furthermore, what are we to

make of the fact that religious belief has been common to millions of human beings down the centuries, of all types, races and social conditions? Why, if there is no God, have kings and philosophers, artists and scientists, poets and peasants, thought otherwise? Have most of the human race, from Hebrew prophets to modern physicists, simply been mistaken in their religious convictions? And what, finally, are we to make of the experience of God claimed by mystics or encountered by ordinary people in their prayer lives? Even allowing for the fact that majorities can be mistaken, should this weight of testimony across the ages be lightly set aside? Should it not give pause for thought to even the most hard-boiled atheist?

Atheism's failure to do justice to the religious impulse is but part of its more general inability to account for or make sense of human consciousness in general. To be specific, it cannot offer a convincing explanation of our experience of free will, our ability to reason and obtain knowledge, or our awareness of moral values.

Take the issue of free will first. Although scientific determinists, like the late B.F. Skinner, deny its reality, the evidence that we do in fact possess it is overwhelming. Our freedom to choose is not only confirmed by our own internal experience of weighing alternatives and deciding between options, whether this involves selecting food from a restaurant menu or changing jobs; it is also presupposed by the very nature of all argument and debate, since there is no point in engaging in philosophical discussions if we are not free to examine, accept or reject a particular chain of reasoning. Indeed, it is precisely here that determinism undermines its own intellectual credentials most thoroughly, for if it applies to human thought as well as action, it means that the reasonings of determinists are, like everyone else's, inevitable. But if their belief that we have no free will is inevitable, how do we know that it

is true? It has, on their own assumptions, no more validity than the conclusions of their philosophical opponents. Why, in any case, should the burden of proof rest upon the upholders of free will rather than upon their determinist critics? Does not our experience of being able to change our minds or resist temptation confirm our common sense conviction that we are not robots?

But if our belief that we have free will is well founded, how can that be reconciled with the physical determinism implicit in atheism? How can we be free to think and choose, decide and act, if we are nothing more than complicated biochemical machines put together by chance within an accidental universe? On atheistic premises, all our thoughts and choices—including our belief in the rules of logic and our ability to use them—are simply the end result of a long chain of non-rational causes. How then can we trust any of our reasonings, including the arguments supporting atheism? Surely our minds and our capacity to be free agents are at least partially dependent upon or fed by some creative self-existent Reason and Intelligence outside the physical order of our brains and the material universe? How else can we escape the self-contradictory logic of atheistic materialism? To quote C.S. Lewis's most succinct statement of this problem (discussed at full length in his book, *Miracles*, Collins Fount Paperbacks):

If minds are wholly dependent on brains, and brains on bio-chemistry, and bio-chemistry (in the long run) on the meaningless flux of atoms, I cannot understand how the thought of those minds should have any more significance than the sound of the wind in the trees. ('Is Theology Poetry?', Oxford Socratic Club, 1944).

It may be objected, at this point, that minds must be wholly dependent on brains, since death or injury can terminate or damage human consciousness, either by ending life or impairing our mental faculties. But this is not a convincing

defence of the truth of atheism. Not only does it fail to provide an adequate answer to the problem raised above by critics like C.S. Lewis, but it also overlooks the fact that physical death and decay can never be cited as proof of the non-existence of the human soul and its link with God. It is obvious that if human beings are a composite of body and soul, death or disease will dissolve or distort this union of matter and spirit, but this does not imply that materialism is true. Otherwise one would be justified in denying the existence of newsreaders and the human voice because our ability to receive televised news bulletins will inevitably be disrupted if some hooligan destroys our television set.

What about the argument that the human mind is only a wonderfully complicated machine, because sophisticated modern computers perform apparently 'mental' functions like processing information, analysing data, and mathematical calculations? Does this not provide compelling evidence of the truth of atheism?

Not by a long chalk. In the first place, this argument still fails to explain how, on atheistic premises, we can be sure that we know anything through the use of reason. Secondly, it is invalid because it is based on a subtle confusion and misuse of language. As Dr Raymond Tallis, Professor of Geriatric Medicine at the University of Manchester, has pointed out, in his book, *Psycho-Electronics* (Ferrington, 1994, ISBN-1-898490-01-5), a rigorous and detailed analysis of this subject, it is simply inaccurate to say that computers 'analyse', 'calculate', 'process information' or generally perform mental operations analogous to the workings of the human mind. It is the human beings who use the computers who are the ones really analysing, calculating, and processing information. To believe the opposite is like saying that scissors 'cut' paper or electric kettles 'boil' water. The plain truth, of course, is that without the initiative and intervention of willing, acting, and interpreting human agents,

computers, scissors, kettles, and all other artefacts, are just inert and purposeless pieces of machinery. Only our loose conversational shorthand makes us temporarily forget this.

Another reason for rejecting the belief that computers are in principle similar to the human mind, is that this notion fails to take into account the true nature and complexity of human consciousness and mental activity. When, for instance, we do mathematical calculations, analyse data, or solve problems, we not only perform these functions but are conscious of doing so. We have a self-awareness which not only enables us to know what we are doing, but that it is we who are doing it. This self-awareness, moreover, is crucial to our whole sense of identity. It is what makes us persons, since without it, we would not be the subjects of our own experience, with wills of our own and therefore the capacity for forming intentions and taking purposeful action. Do computers have this autonomy and self-awareness? Does their operating software somehow 'know' that they are analysing astronomical data or chemical formulae? Is there any sense at all in which computers can be described as 'conscious'? Obviously not. Even the most impressive computer is merely a programmed and artificial extension of human intelligence with no inner life of its own, since its operations have no inherent meaning or purpose except to the human minds interpreting its data and determining their use.

Does this demonstrate that there is an unbridgeable gulf between mind and machine? Yes, unless someone manages to construct a computer which has motives, is self-critical, can fall in love, change its mind, compose music, write a novel, develop a new idea or product, and worship God. But even if that should prove possible, the discovery that minds are machines would still offer no evidence in support of atheism, since computers are not random creations but the product of conscious design. Without their human creators, they would not

exist.

If atheism cannot account for the nature and operations of the human mind, is it any more successful in explaining the existence of conscience? I hardly think so. All its varied attempts to do so misrepresent and explain away our moral experience because they ignore the peculiar nature of moral obligation and moral values.

For example, are our moral perceptions instincts aiding our survival, and therefore a form of learned behaviour preserved and extended throughout the human race by a social process analogous to natural selection?

Surely not. First of all, because our 'instincts' are frequently in conflict, and therefore cannot be equated with the moral faculty which enables us to choose between them, and follow one rather than the other. Our decision to rescue a drowning friend in a stormy sea at the risk of our own life, for instance, obviously entails the deliberate suppression of our instinct of self-preservation in favour of our 'instinct' to help others. But why do we make this choice? Because of our moral perception that the life of another human being is as precious as our own, and we have a duty to save it if we can. There is another reason for dismissing the idea that our moral faculty has evolved because it helps us in the struggle for existence. It is contradicted by both history and our own experience. A ruthless disregard for the rights and interests of others can often win greater rewards in the 'jungle' of human society, than the disinterested pursuit of kindness, truth and justice. Why else are there so many dictators and criminals?

What about the other commonly held view, that it is the long-term interests of society which determine and explain our moral values, rather than our own immediate interests?

The problem with that, is that it fails to explain why we should care about society as a whole if we can have a better or happier life by ignoring, as many do, its wider interests. In the end, unless we are

nihilists who deny the existence of all values, we are forced to admit that our moral convictions about the preciousness of life, truth, justice, mercy, and so on, are self-evident axioms. We either 'see' that it is wrong to tell lies, break promises, and hurt others, or we are, as it were, morally 'colour blind'. But if this is the case, and therefore there is a Moral Law which is objectively 'true' and to which our consciences bear witness, how can this be reconciled with atheism? How can we attach any importance or authority to our moral perceptions if they are only, as we are, the accidental product of a random and purposeless universe? The fact that we recognise an objective standard of Right and Wrong which exists whether we live or die, obey or disobey it, can surely only mean one thing: it is the manifestation within our being of an Eternal Self-existent Goodness outside ourselves and the natural order but in communication with us. In short, it is the moral argument for the existence of God.

The failure of atheism to make sense of human consciousness is symptomatic of its overall inability to provide a credible explanation of the origin and development of life.

The first important question it fails to answer is why does anything at all exist? Is the universe self-explanatory? The fact that scientists can study life and the universe without having to even ask, let alone answer, this question, does not make it any less interesting or relevant. To anyone searching for truth, it is a meaningful inquiry to ask whether Nature has an Author or is self-sufficient, for one very compelling reason. Something cannot come from nothing—a common sense observation rooted in both logic and experience. To underline the obvious, it is not only self-evident that the absence of something cannot at the same time account for its presence, but this is a truth confirmed by everything we observe and know. Babies do not materialise from nowhere and works of art do not

create themselves. But if it is the case that nothing cannot produce something, what are the wider implications? Simply this. For anything to exist, it must either be self-existent from all eternity, or else the creation or effect of something else that is. Does our knowledge of the universe, then, suggest that it is self-existent? Surely not, since all organic life has a beginning and an end (animals and humans are born, live, and die), and inorganic structures and processes are subject to constant alteration and change. Even if the universe had no beginning but instead is the product of the continuous creation or 'appearance' of matter, it still lacks that attribute of self-sufficiency which is the essence of self-existence, since the question that still arises is 'what accounts for the creation or appearance of matter?' Where, so to speak, does the 'stuff' of the universe continually come from? Why does change occur at all? Who or what brings it about? If, on the other hand, the majority of scientists are correct in their belief that the universe came into being through some 'Big Bang' explosion, its lack of self-sufficiency and its inability to account for itself is even more apparent. The answer to the riddle of existence, therefore, stares us in the face if we are open-minded enough to see it. There is a self-existent Creator. God is real.

Unfortunately, despite the clarity and coherence of the cosmological argument for God's existence, its truthfulness is not recognised by most modern philosophers and scientists. One reason for this arises from the belief that since the Heisenberg Uncertainty Principle in modern physics suggests that sub-atomic events have no apparent cause, the universe does not need one either. The problem with this argument, however, is that no physical investigation can prove the absence of causation, since the concept of causality is a metaphysical one, whose truthfulness can only be challenged philosophically, not scientifically. If, therefore, we are correct in thinking

that something cannot come from nothing, the most that any scientific experiment can establish is that in some particular instance it was not possible to identify the causal agent involved in a certain process or chain of events. To believe more than that, would be equivalent to saying that Bach's cantatas came into existence of their own accord because no-one saw Bach, or anyone else, composing them. There is another equally powerful objection to all scientific attempts to question the reality of the causal principle: it is intellectually counterproductive because it undermines the very basis of science itself. Unless they already believed in the causal principle, scientists could not draw general conclusions from particular experiments and observations, and consequently could not formulate or discover any scientific laws.

Although the principle of causality underlies the whole scientific enterprise and obviously 'works', since all human activity and achievement is based upon it and confirms it, atheist philosophers still find it possible to deny the objectivity of causality on philosophical grounds. Following in the 18th century footsteps of Hume and Kant, they either attribute our belief in causality to habit—we only believe the sun rises in the east because we see this every morning—or else they deny the implication that just because we see causality at work within Nature, therefore we are justified in believing that it operates between the universe as a whole and something outside it. On the contrary, they argue, we can never rule out the possibility that the sun will rise in the west tomorrow or that water will flow uphill in defiance of the 'law' of gravity. Nor can we be sure that even if causation is objectively present within Nature, the universe as a whole has a cause. We must simply accept that it is 'there' and that it requires no explanation.

However dominant this atheistic scepticism may be in the philosophical departments of modern Western universities, its intellectual

foundations are extraordinarily weak. To start with, the argument that we only believe that 'A' causes 'B' because we always see 'B' following 'A', assumes the very causal principle whose objectivity it is denying! It does this because it establishes a causal connection between our observations and our belief in causality. But how can the causal principle be used to explain away causality? It involves an absurd contradiction. Secondly, it is not true that our belief in causality is only supported by habitual observation of external events. It is also rooted in our own internal mental experience. We are, for instance, immediately and intimately aware of the fact that our acts of will determine and control our subsequent behaviour. We know that our decision to go to Paris for a holiday results in our booking a flight to the French capital and our presence on the appropriate aircraft. We similarly perceive that there is a causal connection between our invention of a fictional character and our presentation of him to the outside world in our first novel. It is therefore extraordinarily perverse to claim that we cannot prove the reality of causality. Its objective presence in our experience is manifestly self-evident. Furthermore, the significant fact that we have direct and intimate knowledge of the causal principle in our own creative experience, offers the strongest possible support for the cosmological case for the existence of God. If writers like Tolkien can create imaginary worlds which would not otherwise exist, why is it unreasonable to argue that the real world has a Creator? Why should we think it plausible that the creative and causal principles operate within Nature and throughout human experience, but not between Nature and God? The onus of proof in justifying his position surely rests on the sceptical atheist rather than the philosophical theist.

If our grounds for believing in God's existence and dismissing atheism are sound, what are we to make of the classic Darwinian

argument that the theory of evolution explains the emergence and development of life from simple beginnings to ever more complicated forms and structures, without any need to invoke God?

The first point to make is that Darwinism not only fails to explain the existence of the universe in the first place; it also cannot account for the existence of any scientific laws. Why is the universe a cosmos and not a chaos? Is it not extremely improbable that a few simple laws of physics would underlie all phenomena in a random and accidental universe? What are we to make of the strange but interesting fact that the structure and order of the universe can be understood and described so perfectly in terms of mathematics? Does all this not suggest the existence of some Supreme Mind or Intelligence behind the 'architecture' of Nature?

When we turn our attention to living things, the evidence of purposeful intelligence, and the questions it prompts, only multiplies. Why, for example, is the human body equipped with an immune system to combat disease? Why do birds have an instinct to build nests for the accommodation of their young, or to escape the coming of winter through migration? Why are bees able to make honey and what explains the fantastic organisational activity of ants? Does not this evidence of purposive design suggest the existence of a Designer, as William Paley, using the analogy of a watch, famously argued in the 18th century? Has not this evidence, moreover, been vastly reinforced by the progress of science since his time? Whether we think of the 'chemical factory' of the human liver, or the 'blueprint' of the human genetic code, everything seems to point to the fact that some great and subtle Mind has been at work creating and designing the conditions, structures, and processes of life. Is it really credible, instead, to attribute all this fantastic complexity to chance?

Darwinian scientists like Dr Richard Dawkins, answer triumphantly in the affirmative. As he attempts to argue in

his best-selling book, *The Blind Watchmaker*, the theory of evolution—properly understood—offers a perfectly satisfactory explanation of how complex life forms and biological structures have developed by chance from simple beginnings. All that is required is the action of natural selection working on admittedly random mutations. Mutations that increase the survivability of organisms and creatures, simply accumulate and spread throughout the relevant populations, thus allowing ever more complex and well adapted forms of life to emerge without any conscious design or Designer. Darwinism's key insight, in other words, is that while natural selection is not a conscious process, it is not a random one either. It is truly a 'Blind Watchmaker', and therefore able to account for the apparent order and purpose we seem to see around us.

Despite the skill and confidence with which Dawkins and other Darwinists state their case, it does not stand up to closer examination for a number of reasons.

The first problem is that many Darwinian scientists already disbelieve in God before even beginning their scientific investigations. As a result, they have a strong predisposition towards accepting the theory of evolution, since it is hard to imagine how else life could have developed in the absence of a Creator and Designer. Richard Dawkins, for instance, describes the idea of God as 'a very naive, childish concept', and has explicitly expressed his relief that Darwinism enables him to be 'an intellectually fulfilled atheist'. Earlier Darwinists made similar comments. In 1943, for example, Professor D.M.S. Watson wrote: 'Evolution itself is accepted by zoologists not because it has been observed to occur or . . . can be proved by logically coherent evidence to be true, but because the only alternative, special creation, is clearly incredible'. (Quoted in *Science and the BBC*, *Nineteenth Century*, April 1943) But if

Darwinism is being embraced because of an unexamined philosophical (or emotional) prejudice against God and the idea of creation, why should it be accorded any respect as a scientific theory? Is it not self-evident that this atheistic bias will ensure that even the strongest evidence against evolution will be ignored or explained away by Darwinian scientists?

A bias towards atheism, probably unconscious in most cases, undoubtedly helps to explain why most scientific textbooks and most school and university science courses rarely mention the scientific arguments and evidence against evolution, yet it has been challenged by many scientists, and if anything, the volume of criticism has been increasing in recent years. Why, for instance, is the fossil record so unfavourable to the theory of evolution, if Darwinism is true? To quote Stephen J. Gould, Professor of palaeontology, biology and geology at Harvard, and himself an evolutionist: 'The extreme rarity of transitional forms in the fossil record persists as the trade secret of palaeontology. The evolutionary trees that adorn our textbooks have data only at the tips and nodes of their branches; the rest is inference, however reasonable, not the evidence of fossils'. (*Natural History*, Vol. 86, 1977). In a similar vein, Steve Jones, Professor of Genetics at the University of London, and, like Stephen Gould, an evolutionist and also an atheist, confesses:

The evidence for human evolution is, in fact, still extraordinarily weak . . . There are no more fossils than would cover a decent-sized table and we know almost nothing about what propelled a hairy and rather stupid ape into a bald and mildly intellectual human being'. (*Daily Telegraph*, 13th September 1995).

And on an earlier occasion, he admitted: 'It is hard to know which we understand less, human evolution or animal evolution—we scarcely understand either of them . . .' (BBC Radio 4 discussion of his 1992 Reith Lectures).

But if the evidence for evolution is

as weak as these scientists say it is, why do they nevertheless insist that it has occurred? Surely, as in Richard Dawkins's case, because of their non-theistic philosophical presuppositions. Why else do they fail to consider the obvious question? If Darwinism and creationism are alternative explanations of the origin and development of life, which model best fits the available facts? Which school of thought makes most sense of the data uncovered by science? An intelligent Creator or chance? A Designer or a series of accidents? By failing to conduct an open-minded examination of the evidence with these alternative hypotheses in mind, Darwinian scientists are inevitably committed to a one-sided evolutionist interpretation of every new piece of data. Hence, for example, their assertion that similarities of body structure or biochemistry between different animal species, or between animals and humans, proves common descent from a single ancestor. Could this not instead be evidence of a common Creator?

To the great scientists of the past, the evidence of a designing Intelligence behind all phenomena was plentiful. 'Was the eye contrived without skill in optics, and the ear without knowledge of sounds?' wrote Sir Isaac Newton (*Opticks*). If not, how did these complex organs evolve given the need for all their components to co-exist and co-operate at one and the same time in order to result in sight and hearing? Darwin couldn't answer this question, but Richard Dawkins thinks he can, arguing that since a mutation producing 10% vision is better than no vision at all, it can still confer an advantage which enhances survivability. A partial eye, in short, is better than none at all. The problem with his argument, however, is that it assumes that 10% of an eye equals 10% vision, which is precisely what is disputed by many biologists. But even if we ignore such difficulties in particular cases, giving people like Dawkins the benefit of the doubt, the idea that natural selection operating

on random mutations accounts for the gradual development of the wonderfully complex creatures and structures we find in Nature, is preposterous. Why, in an accidental universe, should favourable mutations accumulate in a particular species, and accumulate in such a way and in such an order, as to produce ever more complicated and successful life forms and structures? Why, if mutations are random, shouldn't one favourable mutation within a particular animal or species be cancelled out by another unfavourable one? Even if favourable mutations did accumulate within one species, why shouldn't these be eventually counterbalanced and nullified by favourable mutations within some species of predator? Alternatively, why shouldn't some favourable mutation prove to be of only temporary benefit, being eventually counterbalanced by some harmful change in climate and physical environment? Since nearly all mutations are harmful, why should it be likely that enough favourable mutations would accumulate in such a way as to produce a progressive upward trend in organic evolution? The chances of this happening by accident rather than by the conscious design of some intelligent Creator is surely remote. After all, if the most sophisticated modern computers have only come into existence as a result of the deliberate and prolonged application of human intelligence over half a century, is it likely that the infinitely more wonderful and complicated structure of the human brains which created them, emerged by a fluke?

The inherent implausibility of Darwinism is only reinforced when one turns from the development of species to the world of micro-biology and the origins and building blocks of life. As that eminent non-Christian scientist, Professor Sir Fred Hoyle, FRS, has written:

Imagine a blindfolded person trying to solve the Rubik Cube. The chances against achieving perfect colour matching is about

50,000,000,000,000,000,000 to 1. These odds are roughly the same as those against just one of our body's 200,000 proteins having evolved randomly, by chance' (*The Intelligent Universe*).

In another of his books, *Evolution From Space* (1981), co-authored with Professor C. Wickramasinghe, Fred Hoyle adds:

From the beginning of this book we have emphasised the enormous information content of even the simplest living systems. The information cannot in our view be generated by what are often called 'natural processes'... As well as a suitable physical and chemical environment, a large initial store of information was also needed. We have argued that the requisite information came from an 'intelligence'... The scientific facts throw Darwin out... but leave William Paley still in the tournament'.

The Nobel Prize-winning scientist, Francis Crick, one of the joint discoverers of DNA, has also expressed similar sentiments: 'An honest man, armed with all the knowledge available to us now, could only state that in some sense, the origin of life appears at the moment to be almost a miracle, so many are the conditions which had to have been satisfied to get it going'. (*Life Itself*, Simon and Schuster, New York, 1981).

The likelihood, then, that life began by accident and developed into its present forms by a random and purposeless process, is almost infinitely improbable, but that is not the only difficulty faced by Darwinists like Richard Dawkins. The real challenge they face is to show how and why it is more probable that life in all its forms evolved by chance, than the alternative explanation, that it is the product of conscious design by a Divine Creator. Once the issue is seen in this light, the absurdity and implausibility of denying God's existence is fully revealed. To quote one great British scientist from the past, Lord Kelvin, who made important discoveries in the field of thermodynamics and died in 1907: 'Overwhelmingly strong proofs of

intelligent . . . design lie around us . . . The atheistic idea is so nonsensical that I cannot put it into words'. His verdict is eloquently echoed by at least two modern scientists working in the fields of biochemistry and microbiology.

To quote Michael J. Behe, Professor of Biochemistry at Lehigh University, Pennsylvania, and the author of *Darwin's Black Box: the biochemical challenge to evolution* (Simon &

Schuster, 1996): ' . . . the main argument of the discredited Paley has actually never been refuted. Neither Darwin nor Dawkins, neither science nor philosophy, has explained how an irreducibly complex system such as a watch might be produced without a designer'. Micro-biologist, Michael Denton, agrees with him. As he concludes in his own book, *Evolution: A Theory In Crisis* (Adler & Adler, 1986): 'Ultimately the Darwinian

theory is no more nor less than the great cosmogenic myth of the twentieth century'.

God, then, is not dead, despite the best efforts of 18th, 19th and 20th century intellectuals to kill Him off. How will you respond to Him?

Philip Vander Elst

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The next Appraisal/Polanyi Conference

will held on

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at

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Location:

Hugh Stewart Hall is set in the grounds of University Park, 2 miles west of the centre of Nottingham between the A52 and the A6005. Nottingham is served by frequent trains from London (St Pancras), and connections via Birmingham, Sheffield, Manchester, Derby and Peterborough, and by a bus service from East Midlands Airport.

BOOK REVIEWS

Aurel Kolnai: *Political Memoirs*

ed. Francesca Murphy, Lanham (Md) and 12 Hid' s Copse Rd, Oxford OX2 9JJ; Lexington Books; 1999; xliii + 250 pp.; ISBN 0 7391 0065 3; £30.

We featured the Hungarian-born Aurel Kolnai (1900-19) in Vol. 2, No. 1, and reviewed Dr Francis Dunlop's edition of his *The Utopian Mind and Other Essays* in Vol. 1 No. 2. And now Dr Murphy has provided us with Kolnai's autobiography, which closes in 1953, while he was still resident in Canada and before he make his final migration, to London.

Dr Murphy's Introduction summarises Kolnai's life up to 1955 but does not inform the reader as to what she, as editor, had to do to prepare the text for publication. Likewise there are no details of date and intended destination for the notes on the inadequacies of Aquinas' account of predestination, 'The "Official" Status of Thomism and the problems of Christian Philosophy', and 'Integralism, Opportunism and Modernism'. But the notes on persons appearing in the Memoirs, begun by Kolnai, have been extended, with due attributions, by the editor and others. Unfortunately, there are errors of spelling, and of wrong words which the spell-checker has inevitably ignored (though here I am a greenhouse-dwelling thrower of stones), plus other mistakes, especially the use of ' as a opening quotation mark. And, before we come to matters of substance, it appears to have been Kolnai's practice, in the early chapters, to substitute the English for the Hungarian versions of Christian names, even when the persons concerned are not known by them, e.g. 'Alexander' and not 'Sandor' Petöfi.

These are *Political Memoirs* because they focus upon the principal theme of Kolnai's life and thinking, the great political disruptions of the 20th century. Except for some youthful canvassing in 1918, Kolnai was not a political activist, still less a

politician, but a shrewd and profound observer of and commentator on political events. The great value of these Memoirs is the quality that Kolnai prized above all others (and discerned in Eric Voegelin):

of interpreting tangible single facts in a wide philosophical perspective—in a way far remote from both the air of mere statistical description and a cheap revelling in abstractions (p. 163).

Thus side by side we have the record of Kolnai's contemporaneous responses to persons, ideas and political events; of the development of his philosophical outlook; and of his later reinterpretation of those events and correction of his earlier judgments. Consequently, the reader will, on the one hand learn much about the prominent personages (such as Count Mihály Károlyi, Oszcar Jászi, Karl Mannheim and Karl Polanyi), events and the character of life in Hungary (which Kolnai left in 1919) and Austria (where he lived from 1919 to 1938), as well as of Kolnai's own activities and experiences, and on the other, will be gently guided into the rich and penetrating philosophical perspective, and later also a theological perspective, through which Kolnai surveyed them, and so it also provides, for those new to Kolnai, a valuable introduction to his thought. The Memoirs are pervaded by a gentle and modest humour, reminiscent at times of another Hungarian exile, George Mikes.

Born into a professional Jewish family in Budapest, Kolnai declared himself an atheist at 12, but found his defining moment in the crisis of 1914, or, rather, a year earlier. As elsewhere this is viewed from a philosophical perspective:

Self-limiting freedom is the innermost secret of life. It is only in virtue of our binding ourselves and renouncing parts of our freedom of choice that we are able to 'will' at all and to carry our designs, sometimes, into effect. A uniform sovereignty of choice would rob of us of continuity, destroy our consistency and

reduce our minuscule kingdom, or so-called 'personality', to nought. (p. 9).

(Sartre summed up and refuted in a nutshell!)

The adolescent Kolnai, from visits to Germany, had discerned in its character and policy a desire for hegemony and that of a nation guilty of 'moral anarchism, smitten with self-worship and the cult of power as an absolute' against which France and Britain seemed to be entrusted with the leadership of 'mankind ordered in freedom and manifoldness' (pp. 14-5).

As the War continued, Kolnai's originally conservative attitude towards it, became overlain by Leftism (but never Marxism), as he too accepted the causes of democracy and national self-determination instead of civilisation and equilibrium. Thus he joined the Galilei Circle, but declared himself a 'bourgeois' radical and not a Marxist socialist. Thus when the Károlyi government, which had declared independence from Austria in October 1918, yielded in March 1919 to the Socialists, and that meant to the Communists led by Béla Kun, Kolnai fell

from a spurious heaven whose taste had turned sour, not back to the humid terrestrial valley of tears but down in the chasms of a most real hell on earth . . . how paltry had all my former prejudices and aversions, dreams and yearnings become all on a sudden! How little would I have minded being put back overnight, into the world of electoral injustice, of Count Tisza and of 'clerical darkness' and 'feudal' squirearchy! The rent which was cleft in my soul in that hour of wrath; the gleam of that terrible spring when first I really learned to fear the death of all I was clinging to, made me into a 'new man in place of the old'; my leftist obsession was indeed to linger on, reviving again and again. Its spell was irretrievably broken' (p. 58).

Besides the evils of Bolshevik means, Kolnai came to realise the inherent evil of the Communist ideal of everyone producing according to his capacities and consuming according to his needs, which

debased man into a mere particle of the community, deprived of autonomy, self-sovereignty, and 'frontiers' (pp. 62-3).

For a while he took up 'liberal socialism':

a roughly egalitarian society of smallholders and other 'petty bourgeois', with co-operative ownership of capital and with democratic citizenship as a full reality for everyone.

But later on he realised that this too was utopian, and then moved on to a milder form of it, Chesterton's and Belloc's Distributivism, but in turn realised that was again utopian. Finally, appreciating that a vigorous civilisation and state cannot be constituted by small units of ownership and that large business enterprises cannot be run as workers' co-operatives, he still held that a wholesome society requires the predominance of peasants and owners of small properties. (Small businesses are favoured by some because of their potential to become big ones: Kolnai would prize them because of their very smallness.)

The experience of the Hungarian Bolshevik régime also taught him the failings of ordinary Liberalism, and in particular of Károlyi, Jászi and the other leaders of the Independence movement, and of the business mentality in front of the Communist menace. On the one hand, liberty was threatened by more than the usual Liberal enemies of the traditional ruling classes, and, on the other, that there are forces beyond trade and commerce. But even then he still believed in some magical solution to 'the social problem' and could not yet see that Communism was continuous with the French Revolution.

With his parents he escaped to Czechoslovakia, but six months after returning to Hungary, he decided to emigrate to Vienna because of the 'White Terror' (which did prefigure later and genuinely Fascist and Nazi movements) that followed the overthrow of Béla Kun and the more constitutional but 'rightist' régime that developed from it. Although blackened by anti-Semitism in its first

years, and with sporadic outbreaks thereafter, Kolnai credits it with making genuine political and educational progress, and considers the democratic opposition that grew within it to have been more realistic and responsible than the parties of October 1918.

Vienna, both retaining the atmosphere of an imperial capital and yet, without its Empire, having something 'village-like, provincial and peripheral and accidental' about it, charmed Kolnai so much that in 1929 he became an Austrian citizen. (The pages on Vienna and other places suggest that he could have earned some needed money as a travel writer.) Supported by his parents (he secured his first regular employment only at the age of 45, the watershed between late adolescence and the onset of dotage, as he put it), he wrote political articles for various journals; dabbled in psycho-analysis, publishing a paper, 'Psycho-analysis and Society' (also published in England) which, however, Freud himself rightly characterised as a psycho-analytic clothing for Kolnai's political ideas; and failed to publish two books (on liberal socialism and on personalist ethics). Realising that he had overestimated his powers and knowledge, he enrolled to study philosophy at the University of Vienna.

He found modern philosophy to be more of 'a disease and wilful suicide of the mind' than an advance beyond Scholasticism, and preferred Meinong's object-theory and phenomenology, which, through Brentano, looked back to the tradition of the Scholastics and Aristotle, though none of these philosophies was represented in the philosophy department at Vienna. Both naturalism and idealism aimed at reduction, construction and formal perfection rather than the apprehension of reality. Idealism, revelling in the fantasy that the human mind creates objects, he found to be worse, because of its sin of Pride in divinising man, than naturalism which grovels in our impotence to know

objects at all and reduces man to mere animality.

Prior to that, he had become an avid reader of G.K. Chesterton whom he found to be saying everything that he would have written had he had the vigour and power, though as he read more he became more discerningly and critically appreciative of him. Chesterton, with other influences—growing uneasiness with his own 'progressive' beliefs, the contrast between human pretensions and human fate in this world—brought about from 1922 to 1926 his conversion to Roman Catholicism, which, rather than being a safe haven, seemed more like a port from which to embark on the fearful journey of life. He was baptised on the same day that he graduated.

Chesterton also initiated Kolnai into a Conservative view of reform as presupposing permanent standards for the evaluation of change, affirmation and love of what is as well as desire for what ought to be, a sustained discontent that is patient which is also a contentment at a deeper level, an intention towards a more perfect order which requires a prior acceptance of Order. Kolnai articulated this conception of reform in two articles and his doctoral thesis *Ethical Value and Reality* (Freiburg, 1927). Our task is to patch up the edifice of Creation in selected places and not barbarously to let it crumble or tear it down to create something new.

Primarily interested in ethics and in the ethical and cultural implications of philosophy, on the one side, and in the 'ideological' aspects of politics on the other, Kolnai next devoted himself to preserving Christian civilisation and constitutional democracy as its support, and that mostly by way of writing political articles, which also brought in welcome money, alongside some more philosophical ones. Despite his own contemplative turn of mind, he felt himself incapable of the long period of sustained work needed for the articulation of his philosophical position, which was unlikely to produce any material benefits. He also felt a tension

between the phenomenological attitude, tending to static or essentialist views of things, and political action, and he attributed the tragic passage of German philosophy from phenomenology to existentialist crisis-mongering, partly to pressure of political activism. Totalitarianism was already a menace and 'Crisis' and 'Kairos' were on everyone's lips.

Kolnai gives a careful and discriminating account of the character and rise of Fascism and Nazism and of the several elements in and behind them, putting a particular stress on the pre-1914 German Youth Movement in the case of the latter, and distinguishing not only between them but also between them and 'reactionary' movements too often labelled 'fascist' because of superficial similarities and occasional alliances, some of which he failed to see at the time. He also sympathetically reveals the temptations of Fascism and Nazism for those opposed to Bolshevism, which also at the time he did not fully appreciate, just as he shows from the inside, in his own leftward movement, of the period, the temptations of Socialism and then Communism (to which he was never himself tempted) for those opposing Fascist and Nazi revolutions. Thus in 1929 he joined the League of Religious Socialists and even the definitely Marxist Social Democratic Party; succumbed in 1934-5 to the idea of the People's (Popular) Front and a Franco-Czech-Soviet alliance to overcome Germany; and had his great anti-Nazi work, *The War Against the West* published by Victor Gollancz (in 1938), and was unable to mount a Conservative and thus more effective criticism of Fascism and Fascist sympathisers. The bourgeois-business attitude, with its spiritual blindness and moral cowardice and upholding security yet inventing illusions of it in its willingness to do business with powers that threaten it or seem to offer protection against worse dangers, again astounded him—he could understand how, in the face of Communism, people could turn to

Dollfuss and even Mussolini, but never to Hitler and his fellow gangsters—and he came to realise that its ascendancy is self-destructive.

A vigorous monarchy, aristocracy and State officialdom should be maintained above the bourgeoisie and check its expansion towards suicide (p. 147)

(But few institutions have been more suicidal than the British Civil Service, above all the Foreign Office, for the last 70 years.)

With the Nazi success in 1933 and fearing that Austria would not last long, Kolnai prepared himself for eventual exile in the West and began his study of the Nazi mentality. As Michael Polanyi soon afterwards, and Kolnai himself later on, realised in relation to opposition to Communism, the positive case for democracy had not been effectively stated and was susceptible to some Nazi criticisms. 'The sovereignty of the average man' is liable to resent the necessity of intellectual elites and to fall under a dictatorship of demagogues. Yet while Kolnai had no 'faith' in the Common Man, neither did he view his intelligence and moral stature with the contempt shown by his flatterers.

In 1937 he left Vienna for a visit to London about his book, and then stayed in France and Switzerland, returning to Paris as Austria fell to the Nazis and thus becoming a refugee. At the outbreak of war, he was interned for a while, married and then interned again when the Germans attacked. Released, from a camp near Angoulême at the armistice, he got to Toulouse, where he was rejoined by his wife and they were married in church. They managed to escape over the Pyrenees into Spain, then Portugal and finally the USA.

In America Kolnai found himself to be a misfit, more inclined towards a real civilisation that he could admire than to build a new one. America, he concluded, by its founding commitment to 'newness' and progress, is yet also curiously static in being dogmatically tied to that cult and more rooted in the eighteenth century. Defined by its regime, even

more so than modern France and Soviet Russia, and culturally dominated by the idea of the 'Common Man', and expecting that other nations only wait to be liberated into the American way, America is a 'totality with tyranny' and all the more genuinely and successfully utopian and totalitarian because of that. Yet he never shared the European Leftist resentment of America and the self-deceiving pursuit of 'middle way' between it and the Soviet Union, which was possible only because of American commitment to the defence of Western Europe. Rather, he wished well to America, for it had stood up against tyranny proper, 'the most sinister of public evils', and had been genuinely benevolent to other nations.

His experience of America seems to have made him more aware of the both the weaknesses and the benefits of democracy. On the one side, there is the danger of a slide into mass democracy and a more proletarian homogeneity, while on the other it has withstood tyranny and reminded people of constitutionalism. Even constitutionalism itself, interpreted with the Liberal 'cant of a Government necessarily the "enemy of the people"' which reduces government to a minimum, is liable, because of its egalitarian dogmatism and mechanistic presuppositions, to slide into Jacobin statism and contempt of individual freedom.

In other words, he was reconverted to conservative constitutionalism and liberty as distinct from Liberal or Progressive democracy.

There is an essential difference between proceeding from an 'initial absolute' concept of man's freedom thus arriving at the idea of an arrangement of mutual limitations or common obligations, and proceeding from the conception of an intrinsic moral order binding on the members of a society, even though one may regard (as I do) an ensured accord of reasonable freedoms as the most important corollary of that conception. On the Conservative view, then, liberty is not a fountainhead of the 'good life' of men but one dimension of its

unfolding. It is not the generative principle but the congenial fruit of Civilisation; not the logical *prius* or the historical matrix but the product, though also a requirement, of political order. Unlike the anarchistic first principle of the formal 'self-sovereignty' of the individual, it is not 'transferable' to the phantom of a 'People's Will' supposed to embody 'every one alike' and cannot by a 'dialectical' switch be turned into its opposite—collectivistic uniformity and totalitarian tyranny (p. 208).

Among other projects he began a book, *Liberty and the Heart of Europe*, a philosophy of Restoration with a particular reference to the Danubian region, for which he read a variety of Conservative authors, older and recent. But he abandoned it in 1944 when it was clear that Central Europe was to be handed over to Soviet Russia.

Of that period, he writes that his 'reconversion' to Conservatism

meant something like coming home to the mood of my early Catholic years (1926-28), and beyond that, in a sense to my boyhood attitude during the first years of the Great War, before I had turned, from being a simple pro-Ally, in 1916-17, into an adept of the creed and sect of Progress. I felt, in these years 1941-43, as if age-long shackles had fallen from me; as if I was again breathing freely and able to think with my own head and follow the call of my own heart, released from the etiquette of superstitious taboos. Above all, I would not, this time, attune myself to the 'twisting of the theme.' True, this time, it would take not only a more immature but a cruder mind to allow oneself to be inveigled by liberal illusionism and swept off one's feet by the utopian rollerdom of progressive democracy. For in the second World War, from 1943 onward, the 'Make the World Safe for Democracy' swindle obliged by the immediate spectacle of its own immanent unmasking. It was visible to the blindest eye that the War, undertaken to save the equilibrium in Europe and to secure the survival of civilization, was more and more being carried on simply to make the world safe for Communism. (p. 211)

In 1945 Kolnai moved to Quebec, to become a lecturer in philosophy at

Laval University and a regular breadwinner for the first time. That move provokes reflections on the character and status of French Canada and of the dominance of a narrow Thomism at Laval. In 1951 he and his wife became foreigners under British status.

The Memoirs close with a visit to Spain in the summer of 1952 to give lectures following up his *Some Errors of Anti-Communism*. In a way that was a home-coming, not just to Europe, nor to a part of Europe the most antithetic to America, but to something like the Europe lost in 1914.

They returned via Paris and London, where a meeting with an old friend of his youth prompted the idea of writing his Memoirs.

R.T. Allen

Harold Turner

The Roots of Science

The DeepSight Trust, Auckland, 1998; ISBN 0-9582012-2-6; pp. 204.

This book falls into two parts: the former and longer traces the logical and historical links between world-views and natural science, or the lack thereof, and especially between Christianity and modern science (in opposition to the conventional assumption of a conflict between the two); and the second and shorter part draws upon the author's own specialist studies of new tribal religious movement to chart the ways in which they move into the sphere of Jewish and Christian duality and not 'axial', Greek and modern dualism.

The former part draws upon other studies, and presents their converging arguments and conclusions in a more popular but still scholarly form, with historical examples and awareness of divergences and differences within the main trends, in order to dispel common but false notions of hostility between Christianity and natural science, and too show that instead the former was the logical and historical presupposition of the latter.

Three groups of religions are distinguished:

1. the *primal* with a closed, 'encapsulated' cosmology;
2. the *axial* with dualist cosmologies of natural (and disparaged) and spiritual realms;
3. the *Semitic* (Judaism, Christianity and Islam) with their duality views of Creator and appreciated Creation.

The terminology of 'axial' religions has been taken from Karl Jaspers, but, in company with Eric Voegelin, who is not mentioned, Turner rejects of Jasper's conflation, in chronology and logic, of Judaism with the 'axial' group.

Unlike Voegelin, Turner gives less credit to the 'leap to Being' and break up of the 'encapsulated' cosmologies brought about by the 'axial' age.

In summarising the principal features of encapsulated cosmologies, Turner points to their spiritual achievements as well as to their defects. Because they populated the cosmos with manifold gods and spirits there was no possibility of a natural science which presupposes rationality, consistency and coherence.

The axial religions, arose in the sixth century BC. (Turner irritatingly uses the 'politically correct' terms 'CE' and 'BCE', which, for the fortunately unenlightened, mean 'Common Era' and 'Before Common Era', where 'Common' is a manifest pseudo-substitution for 'Christian' and has no meaning except as standing in for it. This is surprising from one who rightly gives short shrift to notions such as 'world religions' and 'Maori science'.) They include Zoroastrianism, the Upanishads, Jainism, Buddhism, Confucianism, Taoism and Pythagoras, all spiritualised and moralised religion, and showed monotheistic or unitive tendencies, and developed within existing great civilisations, which did not develop science, though they often showed technical ingenuity, a very different matter, or, in the cases of China and Greece, did not continue with its development. The answer that Turner gives is that these new cos-

mologies tended towards impersonal conceptions of the ultimate reality and disparaged this world, or, in the cases of China and Zoroastrianism either the present or classes of things within it. The Hebrews desacralised the world and made it a creation of a consistent, rational and living Being. There was a *duality* of God and his creation which is 'very good' and not a dualism. Moreover, the sovereign Creator chooses one form of rational order than another for his creation, and so a natural science is both possible and necessary because the particular order and rationality of the world, being contingent and not necessary, cannot be read off from the nature of God but must be discovered by empirical investigation. However, the Hebrews lacked the material and technological resources for developing a science. The closed and cyclical time of the encapsulated cosmologies is replaced by an historical and linear view in which religious festivals are reinterpreted as celebrations of actual and decisive events in the real past. The same features are traced within Christianity and the Fathers of the Church, especially in the recently rediscovered John Philoponus (c. 490-c. 566) in which they are made explicit and linked to their theology, along with the emergence of anti-Aristotelian scientific ideas, such as the relative autonomy and uniformity of nature, impetus and the conservation of momentum, that were to prove decisive centuries later.

Similar developments are traced in Islam which shared the same basic cosmology, but where they also encountered opposition in the form of the absolute and non-rational sovereignty of Allah who could not allow a relative autonomy to nature.

The revival of scientific thought in the Middle Ages is traced, though Turner does not mention one factor that delayed the development of science: the reverence for books and their contents, partly because of their

very scarcity, which inhibited first-hand observation and experimentation.

The later chapters, drawing up the author's own work, argue that Christianity has appealed, and is appealing, more to those holding to tribal religions and encapsulated cosmologies than to those in axial religions and dualist cosmologies, because it answers felt internal dissatisfactions and also positively values this world; that, contrary to theses of 'secularisation' there has been in the 20th century a great growth in all religions; and that modern science is now under threat from revived but bogus paganisms, re-sacralising the world, and rejecting both science and Christianity as 'dualist', from cultural relativism and from pragmatism, both without and within.

One way to save science has been within what Turner calls 'reversed dualisms' and what students of Voegelin would recognise as modern Gnosticism which 'immanentise the eschaton', that is, cosmologies which accept de-sacralisation but reject any reality other than the system of things in time or space (and which reintroduce dualism temporally by looking forward to an End within the world in the predestined achievement of some utopia or other). But such conceptions, he considers, are inherently unstable and are being dissolved by the relativism and nihilism of 'post-modernity'.

Turner concludes by arguing that science and Christianity face the same threats and can benefit each other by cross-fertilisation, citing Clerk Maxwell, Barth and Torrance on relational thinking and the role of singularity in both.

R.T. Allen

Tacit Knowing, Truthful Knowing

Mars Hill Audio Books,
Charlottesville, VA, USA; 2 tapes, 2½ hrs; \$ 15.

This is more like a party than most books are: a celebration and brilliant summary of Michael Polanyi's life and teaching. The editor, Ken Myers, not only introduces Polanyi in a few eloquent paragraphs but he has assembled a cloud of witnesses who knew Michael and have studied him closely. We hear the voices and characteristic comments of Marjorie Grene, Richard Gelwick, Thomas Torrance and Martin Moleski (co-author of the forthcoming life of Polanyi), Gerald Holton and Dudley Herschbach (joint Nobel Laureate with John Polanyi) are here also and give pithy comments on Michael and the true nature of scientific discovery.

The first half-tape (side 1) takes us at a comfortable canter through Michael's early life, up to his encounter with Bukarin and his Manchester researches, and ends with him writing *Personal Knowledge*. I was slightly surprised to find so little reference to the final, metaphysical chapters of *PK*. On the other hand, there is a very welcome twenty minutes' study of the meaning of tacit knowledge in the form of a moving portrait of two crafts people, the violin-makers, Peter and Wendy Moes. Both the omission and the addition make the tape easier, a splendid introductory text or teaching aid. Personally, I would welcome a deeper discussion of the implications of Polanyi's ideas for education and religion as well as an analysis at some depth of his thoughts on technology. Another audio-book, perhaps. But these *are* subjects that still need clarification by the Polanyian Probe.

The final section (side 4) contains a fine Torrance contribution and concludes with some stirring words from Michael's 1972 Berkeley Lecture. It's all incredibly good value for £15, enough to cover package and posting. Cheaper, at least, than most celebrations.

Robin A. Hodgkin