

**D. GARETH JONES****Behind the Eye: Logic and Coherence in the Writings of Donald MacKay**


---

*In his book 'Behind the Eye' Donald MacKay sets forth an approach to brain science based on a number of hypothetical schemes emanating from information theory. This leads him to distinguish between the I-story and the brain-story, and as a basic hypothesis to view the brain in mechanistic terms. He develops the concept of logical indeterminacy, according to which, even if the brain is physically determinate, it is logically indeterminate and persons have freedom of choice. Theologically, he distinguishes between God as creator and God as he deals personally with his creatures (God-in-dialogue). In the light of this, he discusses randomness, religious knowledge, and eternal life.*

**Keywords:** Brain, Cognitive mechanism, God-in-dialogue, Logical indeterminacy, Gifford Lectures.

---

Donald MacKay delivered the Gifford Lectures in October and November 1986, a few months before his death in February 1987. The taped version of the lectures has now been edited and made into book form by Valerie MacKay, to produce *Behind the Eye* (Blackwell, Oxford, 1991). The result is a detailed treatment of Donald MacKay's neuroscientific thinking over 40 years of active research, remarkable as much for its consistency as for its perceptions.

Much in these pages is original, creative and intellectually vigorous, showing very clearly the contribution of his background as a physicist, and his expertise in a number of philosophical realms, especially logic. For the first half of the book there is little that is obviously relevant to Christianity or even to a theistic view of the world. However, as one proceeds, much of the groundwork that has been so meticulously laid begins to bear fruit beyond neuroscience. MacKay never deserts questions concerning brain function, and in no sense is any discussion about religious issues an awkward add-on. Nevertheless, it is in the latter part of the book that interest of specific concern to Christian apologetics lies. And there is a feast in store for those with the determination to follow the arguments through to their rigorous conclusions.

**Setting the scene**

One of several interesting themes is MacKay's treatment of what is generally known as the mind-brain problem. MacKay firmly distinguishes between the 'I-story' and the 'brain-story'. 'It is people who think not brains.' And he emphasises the primacy of the former: 'We are first and

foremost persons with an I-story to tell and it is as part of that body of facts that we have a well-founded belief that we are also physical objects that have a claim to be reckoned with in the physical world' (p. 61). But MacKay was a 'hands on' scientist as well as a theoretician and for him matter certainly matters: 'the matter of our brains as well as the informational program embodied in our brains is important to what and who we are'.

His aim is to put forward a philosophical 'option which can do justice to what mechanistic materialism and Cartesian interactionism are respectively trying to conserve, without their negative implications.' (p.62) The key notion is that of embodiment. MacKay's suggestion is that our conscious experience is embodied in our brain activity: but in no sense is conscious experience identical with brain activity nor is it quasi-physically interactive with it. His is a recognition of duality which has no place nor need for the extreme of interactionist dualism.

A characteristic of MacKay's approach to the organized complexity of the brain is his use of the language and ideas of information theory. Initially, he considers the component parts of a simple feedback loop, as might be found in a thermostat. These include effector and receptor systems, a comparator and an organizing system. Consideration of a simple arrangement like this enables him to stress that such a feedback loop acts without any claim to consciousness. In order to consider consciousness, MacKay extends the flow system by introducing a supervisory system, an integral part of any flow system capable of modifying its own goals, and part of a hierarchic organization. MacKay argues that this supervisory activity is an information-flow structure with some of the necessary features to serve as a direct correlate of conscious experience, since such an overall system has some of the capacities of human beings to select and change goals in the light of experience. He further develops these ideas, and concludes that the human organism can be viewed as a self-supervisory evaluative agent.

Basic to these arguments is a presupposition, and this is that the brain can be regarded as a completely autonomous system. This places him in opposition to those who, like Eccles, argue for some form of interactionist dualism, with a non-physical mind influencing a physical brain. He admits he cannot disprove this postulate, but he sees no need for it. In similar vein, he rejects epiphenomenalism, with its emphasis on mental properties emerging from physical brain activity.

MacKay approaches the notion of belief in terms of the state of conditional readiness of the organizing system of the brain (a concept worked out with regard to perception). The embodiment of our beliefs, MacKay suggests, is the state of conditional readiness to reckon with the world after the updating process in matching response to sensory demands. What is important here is that knowing and believing have physical costs. All experienced changes in one's beliefs are embodied in physical changes in brain structure.

### **Logical indeterminacy**

MacKay deals with this concept in a number of places, and expresses it in slightly different ways on different occasions. Nevertheless, the thrust of his argument remains unchanged. On the basis that every physical event has determinants in other physical events, MacKay asks whether it follows that we have no choice. He takes on the toughest case: he imagines that the flow system within our brains is as deterministic as the solar system, and could in principle give rise to specifications, CM, of the cognitive mechanism. A super-observer, O, will obtain this specification CM(t), as the present state of an agent's, A's, cognitive mechanism, and will have to recognize that it has an unconditional claim to his assent. However, A has strong logical reasons for not believing CM(t), because CM(t) is accurate only in relation to the present state of his cognitive mechanism. If A were to believe CM(t), or if any change were to take place in A's cognitive mechanism, CM(t) would no longer be accurate. And so, MacKay contends, there can be no complete specification of CM(t) which is equally accurate whether or not A believes it. This principle of logical relativity means that CM(t) which has an unconditional claim to the assent of O should be disclaimed by A. CM(t) is unbelievable for A even if it has an unconditional claim to O's assent. Hence, some aspects of the state of A's cognitive mechanism are indeterminate for A. Not only this, but a prediction of A's cognitive state cannot logically be labelled either 'true' or 'false'.

This is the essence of the principle of logical indeterminacy, according to which: 'there does not exist any such specification unknown to us with a unique and unequivocal claim to the assent of everyone if only they knew it' (p. 198). So the brain may be physically determinate but logically indeterminate. He goes on to argue that, if A's embodied brain state is altered to CM1(t), to allow for the effects of A's believing O's predictions, CM1(t) would be accurate only if A believes it. But since A need not believe it, there is nothing unconditional about the claim to A's assent, who would be correct either to believe it or to disbelieve it.

From this, MacKay concludes that actions have no unique determinate specification in advance of making up one's mind and taking them; they have no unconditional claim to our assent. Consequently, even if it is assumed that there is a mechanistic embodiment of the thinking that determines our actions (the O-story), we remain free as persons (the I-story). This echoes a previous distinction he made: brains are not the kind of things to have free will, only persons are.

### **God-in-dialogue**

As MacKay moves into more specific theological territory, he elaborates his case for logical indeterminacy. But he adds something, and this is the analogy of an author and her play, whereby God is viewed as the author of all that is. MacKay argues that authors would be the first to insist that what

they know about the immediate future of their characters is not something these characters could be correct to believe, because a character who believed it would not be the character of whom the story was written. Hence, even God could not specify the immediate future of individuals' cognitive mechanisms in such a form that they would be correct to believe it and in error to disbelieve it. Consequently, even God in dialogue with us meets us and knows us as determinators. 'He knows us as determinators of an immediate future which is indeterminate . . . both for us and for Him in dialogue with us. For one who comes into dialogue with a cognitive agent . . . is in a situation in which there does not exist one and only one specification of the total situation with an unconditional claim to the assent of either of them' (p. 211).

This leads him to make the extremely important distinction between the God who creates, and the God who deals personally with his creatures. 'By following through the logical implications of the concept of dialogue, we reach the conclusion that if we are to have a theology in which there is any room for dialogue with God, we cannot have a model of God simplified to a single Person. We need at least two personal projections of the being of God if we are to do justice to the two aspects of what we are attributing to the Deity' (p. 211). Accordingly, the knowledge associated with God in eternity would not be the same knowledge associated with God in dialogue with us.

From this follows one of Donald MacKay's major insights, that God-in-dialogue is a personal concept. According to him, theism holds that dialogue-with-God is part of the I-story of created human beings. God-in-dialogue does not know the future of the dialogue in which he engages, since he lacks the kind of predictive (determinative), timeless knowledge of the space-time of his creatures that the author has. He writes: 'A God . . . willing to project himself into our world as an agent in dialogue with us, is a God who knows us in dialogue as beings whose future is as yet undetermined until the outcome of that dialogue is mutually decided by the two participants' (p.236). A footnote by Valerie MacKay emphasizes that Donald MacKay's aim was not to develop theology, but to put forward an operational and logical point about the different relationships that are possible with an author who allows himself to be an author-knowable-by-his-creatures.

A number of specific insights follow. The first of these is randomness. In discussing the coherence of the world, MacKay argues that the coherence of events does not imply that they are more dependent on the creative fiat of a divine author than the incoherence of events we classify as random. Random is not equivalent to meaningless; it simply means patternless. MacKay stresses that the content of the author's drama is up to the author; it is up to him if he wishes inhabitants of the created world to recognize some of the events as random and others as law-abiding, and it is entirely for him to say what degree of coherence there is between events. Random events are no less within his creative sovereignty than are the

events we call law-abiding.

The second issue he brings out is the confusion between serial and parallel logic—between discourse appropriate to explicit knowledge and discourse appropriate to the perceptual ‘Gestalt’ knowledge (of the kind cumulatively built up in personal and religious convictions). This, in turn, demands a distinction between a Gestalt parallel perception of reality, and wishful thinking. He views the latter as analogous to the imposing of meaning arbitrarily and baselessly on a random blot pattern. Its parallel would be an arbitrary decision to go in for God-talk without anything in conscious experience. However, in biblical testimony, there is a welter of images. Do these cohere so as to bring out in a parallel processing operation, some kind of coherent perception of the One who is to be reckoned with?

MacKay also argues that spiritual life could be embodied in psychological life, as psychological life is embodied in physical life. When born anew, he argues there may be a change in the mode of cooperativity: to a new kind of cooperative self-organization with a new God-centred principle as opposed to the previous self-centred principle. Receiving eternal life is represented as the consequence of allowing the Spirit of God, God-in-dialogue, to become a participant in the cooperative process of norm setting—a shift in the dynamic of the priority-setting system.

The third issue MacKay deals with concerns whether the hypothesis of embodiment rules out any hope of eternal life. Since death involves the irreversible extinction of the self-supervisory cooperative activity within the information-flow structure of the nervous system, there is nothing automatic about immortality. He argues that what is of importance is an individual’s history; that person’s world-line throughout space and time is crucial in defining his or her identity. If this is correct, it is inept to attempt to pin down an individual’s identity to a particular brain structure at one point in time. ‘What makes you you, as distinct from anyone else, is the unique sequence of personal acts and decisions made throughout your history. Human individuals must be viewed as entities extending through time as well as space, of which the embodiments at a given time are momentary “cross-sections”’ (p.267). He suggests, therefore, that only a process that maintains structural continuity with our present embodiment (as in sleep or coma) can qualify as the physical basis of our continuing existence as individuals.

While there is no biblical evidence that there will be a re-assembly of the original body after death, there is continuity, since the basic doctrine is the resurrection of the body (and not the persistence of the disembodied). What, then, of eternal life? For MacKay, the essential idea of eternal life is the integration of our normative process here and now (of our whole priority scheme) with the priorities of the giver of our being. And so, MacKay states his hope: ‘If it is His will that the end of our conscious agency in our present space-time shall not be the last episode in our

unfolding relationship of dialogue with Him, no precedents that are set by our present embodiment would seem to stand in His way, however surprising to us the ultimate reality may prove to be' (p. 272).

### **Assessment**

Donald MacKay's stance throughout his life was characterized by a rigorous and tough approach to scientific matters, and by a profound and well thought-out Christian faith. This book is a supreme example of both aspects of his thinking and life and also of the vigorous way in which he attempted to hold both of them together. He was never willing to isolate his work from his faith, by putting them into discrete, non-communicating boxes; indeed, this was anathema to him.

He was open to experiment, and this included an ever-present desire to find more adequate ways of expressing reality, especially where scientific and spiritual domains overlapped. This could be construed as dangerous territory for a Christian, and yet MacKay was ever vigilant to make eminently clear the hypothetical nature of his approach. Those who fail to grasp this element in his thinking frequently misunderstand important elements of his apologetic. However, he was exceedingly careful never to give away anything theological.

What is of such value is precisely this: the manner in which MacKay elevates both human responsibility and the sovereignty of God. Indeed, in this, his apologetic is such a contrast to that of many scientists (and theologians), who appear willing to sacrifice biblical imperatives in attempts to demonstrate the 'scientific' nature of their religious position. However, the integrity of MacKay's stance shines through on every page, as the working scientist and devout Christian live in harmony, and as he shuns easy slipshod answers.

Does this mean that MacKay's approach solves all our problems in brain science? Of course not. I am sure he would have been the last to claim any such infallibility. What we have here is a grand hypothesis, that entices us to think logically and take biblical insights seriously. Personally, I think his scheme leaves us with a number of hiatuses at important junctures (especially with regard to the trinity and death); it raises numerous questions in bioethics (questions that require tackling by others), he makes leaps of faith at various points (and perhaps there is no escape from these for any of us), and as a peripheral matter all his examples refer to males. Nevertheless, his scheme deepens our appreciation of the God-who-is-in-dialogue with his people, and opens up new vistas in the worship of God. There is much more to be done, but this book is a worthy testament to one of God's faithful servants.

**D. Gareth Jones is Professor of Anatomy and Director of the Neuroscience Research Centre at the University of Otago, Dunedin, New Zealand. His research interests centre on the plasticity of nerve cells and synaptic connections in the brain. He also has an interest in bioethical issues.**