

Eccles-iastical Dualism:

Review of *Evolution of the Brain: Creation of the Self* by John Eccles

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REVIEW OF: John Eccles (1991). *Evolution of the Brain: Creation of the Self*.
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1. Eccles is no Darwinian

Darwin might never have written *Origin of Species* (Darwin, 1859) had it not been for the arrival of a paper that shook him to the core - a paper from Alfred Russel Wallace, wherein was set out, in essentials, the very theory of evolution which Darwin had already devised, but had not taken the time to refine and publish. In a flash, Darwin took pen in hand, and hammered out the immortal book that would supersede Wallace's work. All of this, of course, is but a tiny chapter in the history of science - with which many readers are doubtless familiar. Why mention it here? Well, Eccles calls himself a Darwinian, but *actually* he's a Wallacean - and there's a difference, a *big* difference between the two views. As Eccles explains, "Wallace felt that human intelligence could only be explained by the direct intervention of Cosmic intelligence" (Eccles, 1989, p. 235). This was a notion Darwin couldn't stomach. Wallace outraged Darwin by publishing a paper on primitive people (with whom he lived most of his life) in which he declared:

Natural Selection could only have endowed the savage with a brain a little superior to that of an ape, whereas he actually possesses one but a little

inferior to that of the average members of our learned societies (Eccles, 1989, p. 235).

The notion that the powers possessed by homo sapiens sapiens (HSS) were created not by mindless processes, but by the Almighty, is one Eccles is quite at home with. Indeed, this book, despite its empirical-sounding title, is in many ways a progenitor to Christian eschatology.

2. Eccles' Non-Darwinian Story

That this is so is not always clear; you have to read Eccles' entire story, and you have to read it carefully. A casual reading may leave readers with the impression that Eccles is a Darwinian; a careful reading discloses the affinity to Wallace. We don't have the space here to retell the story even synoptically, but we can convey its gist.

Eccles' starts spinning his narrative in the preface, where he informs us that he has "been able to unfold the fascinating story of hominid evolution of the human brain" (Eccles, 1989, xi). But we soon see that there are two separate stories. The first spans the evolution of the mammalian brain from the primates to the emergence of homo sapiens (HS). The second story starts after the first ends, that is, *after* the brain of HS had arrived; it's the story of how we became - to use Eccles' phrase - *human persons*: incorporeal creatures able to control, and have experience through, human bodies.

The first story is in many ways told from the point of view of a detective recounting a solved case. Understanding the brain is made possible by inference from clues - such as changes in posture and locomotion. For example, Eccles infers from the famous footprints found at the Laetoli beds in Northern Tanzania that Australopithecus (A) was erect and bipedal. He also goes on to speak of human-like relationships among A; this Eccles infers from hand-holding, which is in turn inferred from the fact that the footprints in question are side-by-side. That some of the footprints are superimposed one upon another implies, by Eccles' lights, that A was capable of both a fairly high level of concentration and fine motor control. Eccles makes similar types of inferences from such evidence throughout the book.

Eccles' evolutionary story includes his discussion of the development of fine motor control from early primates to HS in connection with expansion of motor cortical representation for the thumb and fingers. He tells us that it wasn't until these features of the brain evolved that tool-making could occur. The idea is that the raw physical ability was present, but there was inadequate brain power.

This raises the obvious question: Why did these features of the brain evolve? In seeking an answer to this question one grasps the gist of Eccles' narrative, and one begins to see that Eccles and Darwin are worlds apart.

Eccles' answer to the question is that periods of stasis are punctuated by periods of rapid evolutionary change (speciation events), but with saltations and the creation of "hopeful monsters." He cites Eldredge and Gould's (1972) theory of punctuated equilibria for support of his saltatory view of evolution.<1>

The interesting thing about Eccles' view is that these changes have no selective value, at least initially. It is only later that they may have such an advantage. This phenomenon Eccles calls anticipatory evolution, which is similar to what Gould and Vrba (1982) call exaptations. The basic idea is that features that may presently have a function that conveys a selective advantage for an organism may have arisen without a selective value or may have had a previously different function than it currently has. (See Gould and Vrba, 1982, for examples.) In a sense, the new function arises by serendipity, but Eccles seems to hold that there is indeed a *reason* for these changes, at least when it comes to the brain. So first we have bodies able to walk erect in bipedal fashion, and then comes the neural machinery able to control such bodies. And first we have a hand physically able to build tools, and then comes the neural machinery enabling the use of such a hand. And first we have mechanisms allowing for the production of an array of sounds, and then comes the neural stuff that can put these mechanisms to work in communicating. In all these cases, the prior mechanism comes *in order to get ready for* the subsequent neurological advance. The ultimate trick of this type is the core of Eccles' second story: the advent of dualist interactionism: the arrival of certain neural machinery in primates makes it possible, many years later, for persons, existing in the non-physical world of the mental, to interact with and control bodies. Such an exotic and teleological scheme certainly isn't Darwin's. It is Wallace's (Clements, 1983). As Eccles proudly confesses:

I believe that biological evolution is not simply chance and necessity. That could never have produced us with our values. I can sense with [Sherrington] that evolution may be the instrument of a Purpose, lifting it beyond chance and necessity at least in the transcendence that brought forth human creatures gifted with self-consciousness (Eccles, 1989, p. 116).

3. Dualist Interactionism

What is dualist interactionism (DI)? In broad strokes, it's really no mystery (in fine strokes, of course, it's nothing *but* mystery!): there are minds, incorporeal entities, and they interact somehow with physical brains. Nowhere does Eccles specify the interaction in question; and he gladly admits that such specification is currently beyond reach. However, he's well aware of the standard objection:

The materialist critics argue that insuperable difficulties are encountered by the hypothesis that immaterial mental events such as thinking can act in any way on material structures such as neurons of the cerebral cortex... Such a presumed action is alleged to be incompatible with the

conservation laws of physics, in particular of the first law of thermodynamics (Eccles, 1989, p. 187).

How does Eccles address this problem? By turning to quantum physics, specifically to the work of Margenau (1984):

Following Margenau, the hypothesis is that mind-brain interaction is analogous to a probability field of quantum mechanics, which has neither mass nor energy yet can cause effective action at microsites. More specifically it is proposed that the mental concentration involved in intentions or planned thinking can cause neural events by a process analogous to the probability fields of quantum mechanics (Eccles, 1989, p. 189).

Such a scheme isn't likely to make any philosophical headway, for the simple reason that that to which Eccles appeals here (as physicists and philosophers of science can confirm) is as controversial as interactionism itself.

4. Arguments for Dualist Interactionism?

Eccles' book is shockingly short on argumentation; we imagine that Eccles himself would confess that argumentation (at least of the rigorous variety) isn't intended to be the book's strong suit. However, a charitable reading (an *extremely* charitable reading) yields three arguments that can be reconstructed from the text. They are:

A1 "The Brain Replacement Argument." The basic idea here is that most of your body is inessential. That is, we can cut off your foot, and replace it with a prosthesis, or even just leave you without it (if we take care of the bleeding). We can do this for your nose, your eyeballs, your hair... in fact, we can clearly do it for everything beneath your chin. And we don't even need to stop when we reach your brain. As Eccles points out (Eccles, 1989, p. 219), removal of the cerebellum gravely incapacitates movement, but the person is not otherwise affected. So we can keep going at least until we get to parts of your neo-cortex. Once at this point, we note that the physical stuff in question can be replaced with other physical stuff as long as the new stuff operates similarly - so how can a mind, a person, as a genuine thing that persists through time (an *ens per se*, to use the Latin), be a particular physical thing (an *ens successivum*)?

A2 "The Argument from the Failure of Evolution to Explain X." The argument here flows from a disjunction to the effect that every X is either explained in natural terms by evolution, or in terms that invoke a realm beyond the physical. Eccles intends that X be instantiated to phenomenal consciousness (P-consciousness to use Block's term; Block, 1995); and he

maintains that such consciousness cannot be explained in exclusively natural terms. If we have P-consciousness (as it certainly seems we do), and evolution can't explain it, then we seem to be sliding toward Wallace rather than Darwin: we seem to be sliding toward an explanation that goes beyond nature toward theism.

A3 "The 'Looking-Down' Argument." Eccles says that he likes to imagine himself floating above Earth, looking down on the drama of evolution as it unfolds. The idea is supposed to be that when one engages in this gedanken experiment, and imagines evolution sped up, it seems implausible that this remarkable ascension from microbes to HSS could have happened as a sort of cosmic fluke. For Eccles, this "looking-down" perspective forces a Dramatist (with a capital, bold 'D') into the picture.

Are these arguments any good? A1, or at least sophisticated versions thereof, is an argument that one of us (Bringsjord) has written a bit about elsewhere (cf. Bringsjord, 1992, and Bringsjord and Patterson, 1995); the same goes for A2 (Bringsjord and Noel, forthcoming). (Perhaps the most interesting instantiation of A2 [where X is set to 'cognitive faculties that search for and find true or at least verisimilitudinous propositions'] is given by Alvin Plantinga, 1993.) In general, Bringsjord finds both A1 and A2 quite promising (not only because he finds Plantinga's argument formidable, but also because he finds related arguments given by Roderick Chisholm (1978) to be powerful). Daraio finds A1 and A2 weak, because he is inclined to believe that there are naturalistic, evolutionary explanations for personhood and consciousness, though he certainly concedes that no such explanations are in hand.

A3 would seem to be a variation on the Argument from Design. For example, presumably the most startling scene when one "looks down" is that at turn after turn in the story of evolution, a fertile route rather than a barren one is taken because of the particular value of some tiny variable. As such, A3 probably stands or falls with the modernized Argument from Design articulated by Leslie (1989).

But for Eccles (at least on a generous reading), A3 is *more* than a thought-experimental version of the Argument from Design: standing alone, the argument in declarative form is indeed supposed to deliver the conclusion that evolution is God's grand design; *but* - and here is the more interesting strand - the mere fact that we can articulate the argument is supposed to be proof that lying beyond the physical world is the world of mind. The notion behind this argument is that in order to articulate A3 one has to use what Eccles calls "creative imagination;" one has to "look down." Einstein, as much as anyone, employed this type of thinking; as is well-known, he sought to "become," for example, objects travelling at great speed (Einstein, 1952). Eccles holds that the sort of cognition involved here is beyond the physical realm: it's an activity of pure mind, not an activity to be identified with any brain process. Since (as is the norm in this volume) no argument is given for this view, readers are left to ponder whether there is anything to recommend it.

And that's pretty much the upshot overall: an interesting book, yes, but one that leaves the reader with a choice: since there are no arguments to speak of, do I bother to consider whether the views advocated herein can be established, or at least defended? Or do I place it in some recess never to be retrieved, a tired, pontifical recasting of Descartes' spooky theory of mind?

Notes

<1> By the way, this seems to us to be a misunderstanding of Eldredge and Gould's theory. Change may be relatively rapid in their scheme, but they don't postulate that it's discontinuous.

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