
How does mind emerge from matter? How can we account not only for the purposiveness that minds display, but also for all organisms’ possession of something we may call purpose or function? If modern science banished the idea of final cause, how does such purposiveness emerge and, indeed, is such purposiveness even real?

These are the questions that Terence Deacon sets out to answer in *Incomplete Nature*, a lengthy and sometimes convoluted exposition that has the ambitious aim of settling these questions. Deacon, a professor of anthropology and neuroscience at the University of California, Berkeley, has been working on these problems for some time, and those familiar with his work will find few surprises. Those new to Deacon will find a good example of a scientist’s approach to these enduring questions. Although the framing is that of the scientist, there is no mistaking the larger philosophical agenda at work: Deacon is aiming at something like a systematic metaphysic, one that is completely naturalized and which grounds our understanding of the world.

Deacon begins with the announcement that he seeks to explain ‘ententional’ phenomena in non-ententional terms. *Entention* is the first of many neologisms that Deacon employs, using it to encompass conscious intention and purposiveness as well as those features of organic life that display not only teleology but the ability to signify. Deacon, however, doesn’t quite put it like this. Rather, he defines *entention* as a term to ‘describe all phenomena that are intrinsically incomplete in the sense of being in relationship to, constituted by, or organized to achieve something non-intrinsic’ (p. 27). This introduces another concept—namely absence—and the book begins with an effort to provide a weighty discussion of the significance of absence and how it has shaped the world around us. Deacon sees absence, or the ‘absential’, as key to understanding the emergence of life and mind, for it is constraint in the sense of absence that makes signification possible.

After laying this initial groundwork, a long and, in certain respects, familiar sort of scientific storytelling follows. Deacon wants to explain how the higher order complexity that characterizes organisms can emerge from the simple constituents of physics and chemistry. Emergence is a key term here, and those familiar with the philosophy of biology and philosophy of mind will recognize its significance. Especially in the philosophy of mind, much effort has been expended trying to understand how novel properties such as consciousness and intention can emerge out of the activities of neurons without being merely reduced to them. Deacon thinks much of this literature is misguided precisely because it lacks an adequate understanding of dynamics—if we can understand properly how such things come to be, we will thereby understand what they are. Here follows the significance of the scientific storytelling.

Deacon aims to show that living things are very much physical things constrained in a dynamic flow. For Deacon, ‘homeodynamics’ make possible ‘morphodynamics’, which opens up space for ‘teleodynamics’. Key to this discussion is an analysis of thermodynamics and the relation between information and entropy that enables us to see how meaning and significance can arise out of purely natural structures, and
which can be seen to occur even at the level of the cell. These ideas are exemplified in
a model that Deacon has developed called the ‘autogen’, which he uses to demon-
strate how it is conceivable for a life form to emerge out of a non-living physical
substrate.

These central chapters of the book are the most substantive, and Deacon’s
discussion of thermodynamics and theories of information provide a nice tutorial or
refresher for the nonscientist. It is only in the last three chapters that Deacon transi-
tions to the human person and the phenomena of mind and consciousness. Deacon
rejects computational explanations of mind as being a mere gloss, and he believes that
the ‘hard problem’ of consciousness that philosophers debate and which neuro-
scientists such as Christof Koch seek to explain is really misconceived (Koch 2004). If
we but follow Deacon’s recipe of dynamics and constraint, we realize how conscious-
ness can be completely explained by the physical after all. In these chapters the
language of absence that nearly disappeared in the middle chapters returns.
Subjectivity, he asserts, ‘is not located in what is there, but emerges quite precisely
from what is not there’ (p. 535).

Critics of Daniel Dennett’s Consciousness Explained argued that his theory instead
explained consciousness away. A similar criticism pertains here: if consciousness is
explained as an absence, as no-thing at all, it is hard to see why we should talk about
it. Deacon seems to think that we can talk about what is absent as having causal
powers and goes to some length to describe how. This is an old philosophical debate
and has roots in both European and Asian philosophy, but it remains difficult to see
how that which does not exist can cause anything. The old saw, ex nihilo nihil fit (from
nothing, nothing comes), is still relevant.

The virtue of Incomplete Nature—its sheer ambitiousness—is also its vice. Because
the book largely assumes the workings of physics and chemistry, it stops short of
attempting to provide a theory of everything, but the aim of the book comes close to
that. Although the book’s many neologisms and digressions will deter many, the
framework that Deacon develops provides much to ponder, including whether it
really says something more than what we already knew, scientifically or not. Deacon
claims that the language of computation is simply a gloss on the physical, and there is
a concern that Deacon’s own framework of homeodynamics, morphodynamics, and
teleodynamics does the same. Theories of emergence in the philosophy of mind are
sometimes accused of merely stating the problem rather than resolving it, and it is not
clear that Deacon avoids that charge here. Has Deacon shown that organisms have
something we might really call teleology, or is it an ‘as-if’ teleology imputed by the
human observer? Deacon thinks he has done the former, but I suspect many will think
he has only achieved the latter.

Readers of this journal may wonder how Deacon’s explanatory framework may
pertain to their own work connecting religion, nature, and culture. There is little here
for the historian or religious studies scholar, but the ethicist and philosopher may find
many resources. In addition to providing a framework for understanding the natural-
ness of being human, Deacon’s emphasis on process over substance will appeal to
many, and it has applications well beyond thinking of the human person. Somewhat
surprisingly, there is almost no discussion of multicellular life except for humans,

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References


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