

Review of: "Growing Confidence and Remaining Uncertainty About Animal Consciousness"

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Louis Irwin provides a very well-informed, thoughtful, and clearly organized overview of the work of many researchers and thinkers about the phenomenon of consciousness. It is a useful document for both those who have spent time studying and considering consciousness and those beginning to do so. The proposal that consciousness is an emergent phenomenon in multi-layered, hierarchically organized nervous systems is compelling and widely held. The idea that it has functional features that have positive selection value in the evolution of life forms is also compelling.

At the same time, the overview lays bare some of the more vexing challenges to our understanding:

1. Defining elements include both subjective experience and information-processing functionalities. These seem like different categories or types of things, and one wonders if and how they connect and interact.
2. Multiple components are described as contributing to the emergence. One wonders then whether all are necessary, and whether the presence of only some in one organism or at one time, and of others at different times or in different organisms would create different emergents, and whether they should all be considered different forms of consciousness or some considered something different.
3. Irwin refers to primary sensory consciousness without defining its limiting features and boundaries between it and more complex forms of consciousness.
4. Irwin asserts there "May come a time when components of machines may serve as neurons for the generation of consciousness, but for now the only substrate for consciousness of which we may be certain is the complex nervous systems of animals." Why? Animals are, of course, material entities. This assertion is not supported by argument or data.
5. While summarizing and then acknowledging the gap between experience and mechanism, Irwin goes on to assert that that "newer data and insights conveyed through a more suitable vocabulary will clarify the link between mechanism and experience." This seems too facile or uninformative an assertion about a key question. What types of new data? What gaps does the more suitable vocabulary need to fill? Given Irwin's deep familiarity with these issues, the reader wishes for something more specific – any suggestions about the new vocabulary or data?
6. In what seems to me a momentary lapse in perspective, Irwin states "A reasonable assumption is that the agency of consciousness – the "witness" to the relevant neural processes – is itself a specific neural process." This is contrary to the view of consciousness as an emergent process that is nicely developed earlier in the piece.
7. One certainly cannot fault Irwin for not considering a full body of work on consciousness – his reference list alone is a

gift to those trying to address this difficult and important topic – but I would be curious about his thoughts about the work of Roger Penfield on the effects of direct localized stimulation of the human brain during neurosurgery and the MRI work of Robert Shulman and colleagues on patterns of brain activity in response to sensory stimulation at different stages of consciousness secondary to anesthesia.

The summary points at times seem tautological: 1) consciousness is the process by which animals have perceptual and affective experience and feelings arising from their brains or 2) the experience of being consciousness entails being aware and able to focus attention. I respect the need to not go beyond what there is data to support or reach high enough levels of consensus, but the generality and “obviousness” of the summary points leaves one feeling they got less than the introduction promised. But that is probably not to be put on Irwin’s shoulders, as it is likely the true representation of the state of knowledge