

COMMENTARY

Second Thoughts on the “Hard Problem” of Consciousness
(and the “Easy Problem,” Too)

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Klein (2021) is right to insist on the centrality of subjective experience in the study of consciousness, but research on consciousness does not require a whole new science, much less a whole new metaphysics. Setting the “hard problem” aside, there are plenty of interesting questions that can be answered employing the traditional scientific apparatus of self-reports, reaction time, behavior, controlled observation, and quantitative analysis.

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Klein (2021) gets to the heart of this journal’s mission with his meditation on the scientific study of consciousness. He correctly identifies consciousness with “first-person subjectivity” (p. 74) but worries that phenomenal experience will elude a conventional scientific approach because science, as we currently conceive and practice it, assumes that “everything from molecules to minerals to minds is wholly physical” (p. 74). This raises the “hard problem” of consciousness (Chalmers, 1996): Explaining how subjective experience could arise out of physical processes operating on physical substances. Klein rightly rejects both mysterianism and epiphenomenalism—neither of which solves the hard problem anyway. The mysterians just throw up their hands (McGinn, 1999), but even those who believe that consciousness can play no causal role in the universe still must be curious about just how sentience—illusory or pointless as it might be—arises from neural activity (as Chalmers asks, “Why doesn’t it all go on in the dark?”). Panpsychism, an increasingly popular solution (Goff, 2019), isn’t a solution either: It

just kicks the problem down from the neuroscientists, who only have to determine how the brain generates consciousness, to the physicists, who now must figure out how thermostats do it.

That leaves us with the eliminative materialists, who solve the hard problem by—well, eliminating psychology altogether in favor of neuroscience (or even physics). Klein (2021) seems to have them in mind when he insists on the reality of conscious experience. Here he appears to side with Searle (1992), who argues that consciousness has a reality all its own—even though that reality depends on an observing, experiencing subject. In Searle’s terms, consciousness has a first-person or observer-relative ontology. The apparent discrepancy between the first-person ontology of consciousness and the third-person ontology assumed by “current scientific method and dogma” (p. 9, emphasis original) suggests to Klein that modern science is not up to the task of understanding consciousness. The limitation is not in our minds, as the mysterians would have it, but in our science.

I confess: In more than 40 years of teaching and writing on various aspects of consciousness (Kihlstrom, 2020), I have not lost a minute’s sleep over the “hard problem”—the question of *just how* neural processes generate subjective feelings of knowing, feeling, and desiring. And I haven’t lost any sleep over the *easy* problem, of simply identifying the neural correlates of consciousness, either. That is because I am a

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psychologist (*not* a “psychological scientist”; psychology is already a science).

Psychology is an inherently dualistic discipline, in that psychologists have always been willing to study mental life without being overly concerned about the biological basis of mind in the brain, the rest of the nervous system, and the rest of the physical body—much less the “hard problem” of consciousness. This was the case from the beginning. Kant (and perhaps Galileo before him) declared psychology to be an impossible science, because the mind, being immaterial, could not be measured. But this was disproved by the 19th-century psychophysicists, who simply asked people to assign numbers to their conscious experiences and found that these judgments varied lawfully with physical stimulation. Later, Donders employed reaction times to infer the components of mental processing, while still later Pavlov, Ebbinghaus, and Hull (among others) identified various principles of learning and memory. Closer to our own time, Rescorla, Seligman, and others showed that conditioning was a matter of prediction and control, rather than spatiotemporal contiguity. Craik and Lockhart showed the importance of depth of processing to the encoding of memories, and Tulving showed the importance of encoding specificity to their retrieval. Simon, Kahneman, and Tversky challenged the economic theory of rational choice using observational and questionnaire data. Rosch overthrew 2000 years of the philosophical analysis of concepts in much the same way. None of these advances, and hundreds of others, depended in any way on solving the hard problem. All of these researchers simply assumed that the brain does it, somehow, James (1980) and got on with the business of advancing James (1980) “science of mental life.”

True, 19th-century psychology also had a group of “physiological” psychologists, who believed that psychology must be grounded in the facts of physiology. But when Young and Helmholtz attempted to deduce the principles of color vision from their knowledge of optics and physiology, the resulting trichromatic theory proved to be insufficient. Hering, by contrast, developed a more accurate opponent-process theory from self-reports—namely, the experience of color afterimages and the fact that observers perceived yellow as a pure color, not a blend of red and green.

While some contemporary neuroscientists have advocated a “rhetoric of constraint” in which psychological theories should be based on knowledge

of brain structure and function, there is not a single cogent example (Coltheart, 2013; Kihlstrom, 2010). In fact, precisely the reverse occurred. Neuropsychological cases of amnesia, blindsight, and the like have contributed much to our understanding of memory, perception, and other aspects of mental life, but the neurological details of these cases—whether, for example, H. M.’s lesion was in the hippocampus or elsewhere—had nothing to do with this outcome. The psychology of memory was not affected by the increasingly precise delineation of the medial temporal lobe memory system, but the interpretation of hippocampal function closely tracked theoretical developments in the cognitive psychology of memory. This is just one example of how “psychology without neuroscience is still the science of mental life: neuroscience without psychology is just the science of neurons” (Kihlstrom, 2010, p. 762).

We may never solve the hard problem, but there is so much to learn about consciousness without even entertaining, much less solving it. What are the valid criteria for identifying basic sensory qualities? Does Stevens’s Law need repealing? What is the balance, for a given task, between conscious (effortful) and unconscious (automatic) processing? How is implicit (unconscious) memory expressed, and under what conditions can implicit memory be dissociated from explicit memory? Can the implicit–explicit distinction be extended to other domains of cognition, such as perception, learning, and thinking? What are the limits of subliminal perception? Does incubation really occur in problem-solving? Does it make any sense to talk about unconscious emotion and motivation? What is the best way to monitor consciousness during general anesthesia? Can cognitive processing occur during sleep, adequate general anesthesia, and even coma? What, if anything, do dreams mean? Are implicit and explicit cognition dissociated in the conversion and dissociative disorders? What is the nature of hypnotic alterations in consciousness, such as analgesia and posthypnotic amnesia? How do states of absorption, flow, daydreaming, and mind-wandering affect the ongoing experience, thought, and action? Does practicing meditation really change how people think? How do psychedelic substances alter perception and the self?

There are even aspects of the mind–body problem that can be addressed without ever asking the question of “how the brain does it.” That is because there is not just one mind–body problem: There are at least four. There is the traditional question of the

effect of the body on the mind, the ostensibly “easy problem” of consciousness, interpreted as the search for its neural correlates—what Wittgenstein had in mind when he wrote of the “unbridgeable gulf between consciousness and brain-process. . . .

THIS is supposed to be produced by a process in the brain!” (Wittgenstein, 1958, Part I, Section 412, p. 124e). This naturally requires neuroscience. But there are also questions about the influence of the mind on the body—what Freud had in mind when he wrote of the “puzzling leap” from the mind to the body (Freud, 1915/1961, 1917/1963, p. 258). Freud was talking mostly about hysteria, but the question extends to placebo effects and psychosomatic interactions as well. Do placebos affect only the subjective experience of pain or illness, or can they alter underlying pathology? Does believing that you’ve contacted an allergen trigger an actual allergic reaction? Then again, there is the question of whether we can have bodies without minds as we usually construe them—whether, for example, automatic processes so dominate experience, thought, and action that we are little more than conscious automata operating on reflex, taxis, instinct, and conditioned response. And finally, there are questions about whether there can be disembodied minds: Whether mental states can be transmitted from one mind to another without a physical medium—the traditional domain of spiritualism and parapsychology.

None of these questions requires a new science, much less a new metaphysics. Since the beginning of the Consciousness Revolution, psychologists have been addressing them successfully using our standard apparatus of scientific psychology: Self-reports, behavioral responses, reaction time, experimental control, and quantitative analysis (Farthing, 1992).

Especially self-reports: As Klein (2021) correctly points out, where consciousness is concerned, “subjective experience comes first” (p. 75). Psychology began as the study of consciousness, and introspection was its primary method (Boring, 1953; Danziger, 1980). Discrepancies between what subjects report and how they behave are the primary evidence for unconscious mental life, as in dissociations between explicit and implicit memory (it is a matter of some irony that some psychologists will only trust the self-reports of people who are brain-damaged). Accordingly, consciousness researchers must strive to create experimental conditions where subjects will feel it legitimate to report

accurately on their experiences. That is all we need to do our work.

References

- Boring, E. G. (1953). A history of introspectionism. *Psychological Bulletin*, 50, 169–189. <https://doi.org/10.1037/h0090793>
- Chalmers, D. J. (1996). *The conscious mind: In search of a fundamental theory*. Oxford University Press.
- Coltheart, M. (2013). How can functional neuroimaging inform cognitive theories? *Perspectives on Psychological Science*, 8(1), 98–103. <https://doi.org/10.1177/1745691612469208>
- Danziger, K. (1980). The history of introspection reconsidered. *Journal of the History of the Behavioral Sciences*, 16, 241–262. [https://doi.org/10.1002/1520-6696\(198007\)16:3<241::AID-JHBS2300160306>3.0.CO;2-O](https://doi.org/10.1002/1520-6696(198007)16:3<241::AID-JHBS2300160306>3.0.CO;2-O)
- Farthing, G. W. (1992). *The psychology of consciousness*. Prentice-Hall.
- Freud, S. (1961). *Introductory lectures on psychoanalysis*. In J. Strachey (Ed.), *The standard edition of the complete psychological works of Sigmund Freud* (Vols. 16). London: Hogarth Press. (Original work published 1915)
- Freud, S. (1963). *Introductory lectures on psychoanalysis*. In J. Strachey (Ed.), *The standard edition of the complete psychological works of Sigmund Freud* (Vols. 17). Hogarth Press. (Original work published 1917)
- Goff, P. (2019). *Galileo’s error: Foundations for a new science of consciousness*. Random House.
- James, W. (1980). *Principles of psychology*. Harvard University Press. (Original work published 1890)
- Kihlstrom, J. F. (2010). Social neuroscience: The footprints of Phineas Gage. *Social Cognition*, 28(6), 757–783. <https://doi.org/10.1521/soco.2010.28.6.757>
- Kihlstrom, J. F. (2020). *Consciousness* (Course Website). Retrieved June 1, 2020, from <https://www.ocf.berkeley.edu/jfkihlstrom/ConsciousnessWeb/index.htm>
- Klein, S. B. (2021). Thoughts on the scientific study of phenomenal consciousness. *Psychology of Consciousness: Theory, Research, and Practice*, 8(1), 74–80. <https://doi.org/10.1037/cns0000231>
- McGinn, C. (1999). *The mysterious flame: Conscious minds in a material world*. Basic Books.
- Searle, J. R. (1992). *The rediscovery of the mind*. MIT Press. <https://doi.org/10.7551/mitpress/5834.001.0001>
- Wittgenstein, L. (1958). *Philosophical investigations* (G. E. M. Anscombe, Trans.; 2nd ed.). Blackwell. (Original work published 1953)

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