

Edward C. Tolman (1886–1959)

E. C. Tolman was another who was concerned with the anti-mentalism of Watson. While Tolman (1959) reported that he was sold on objectivism and behaviorism as a psychological method, he found that he could not escape mentalistic categories. He sought to develop a behaviorism that included commonsense mentalism and that “rejected the extreme peripheralism and muscle-twitch-ism” (p. 94), i.e., Watsonian behaviorism. The conscious stuff of the mentalists was to be rejected and only overt behavior was to be of interest (Tolman, 1926/1966c). Such overt behavior would promote inferences regarding conscious processes. Consciousness, according to Tolman, was an aspect of overt behavior, as were purpose (evident in persistence) and cognition (evident in learning). A drop in a learning curve—an indication of less errors—suggested the presence of consciousness. In the study of humans, one can discover in their behavior and in their words the environmental properties being responded to and this displays memories (E. Tolman, 1935/1966). In this, Tolman was prepared to rescind the efforts of Watson to exclude mental phenomena:

The account of memorial perspectives, i.e., of visual and other images, and of internal speech which now gets into our psychology, while certainly far less reliable and less valid than our accounts of perceptual perspectives, is nonetheless, I would declare, quite as objective. (Tolman, 1935/1966, p. 109)

In fact, according to Tolman, humans could form mental hypotheses and could even test them mentally. A conscious animal (human and possibly other great apes) can assess one intention against another, and assess hypotheses against perceptions and memories and, if required, to alter hypotheses. There was nothing scary or ghostly about mental phenomena. Watson was right to dismiss the dualism of mental stuff but removing mental stuff did not mean the removal of mental processes. Mind is a perfectly natural and inferable phenomenon.

Tolman also took issue with the *molecular* approach of Watson (Hergenhahn, 2001). To Watson, complex human behavior could be accounted for in terms of S-R reflexes, momentary elements from the flow of engagement with the world that were studied in isolation. Tolman preferred to examine *molar* behavior which involved larger segments of conduct extending over a larger period of time. It was by examining larger segments that one became aware of the purposive nature of animal behavior, such as a rat seeking food. Rather than inferring purpose from behavior, Tolman found purpose in behavior. Increasingly he believed that cognitive processes existed and determined behavior. Behavior-acts, though no doubt in correspondence with the underlying facts of physiology and physics, have, as “molar wholes,” certain emergent properties of their own and it is the molar properties of behavior acts that were of primary interest

The study of the underlying, molecular facts of physiology and physics will not reveal molar properties. Such new properties are presumed to be correlated with physiological states, and dependent on them, but not explained by them. A rat runs a maze, a cat gets out of a box—nowhere is there mention of muscles or glands or nerves. To resolve the problem of mentalism Tolman treated cognitive processes like purpose, goal, or expectation, as intervening variables involving operational definition of all terms and connection to observable behavior.

References

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Tolman, E. C. (1966). Psychology versus immediate experience. In E. C. Tolman (Ed.), *Behavior and psychological man* (pp. 94–114). Berkeley, CA: University of California Press.
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