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Behaviorism and Logical Positivism. A Reassessment of the Alliance. Laurence D. Smith. Stanford, California: Stanford University Press, 1986, ix+398 pages, $42.50.

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This is a first-rate book in the history of psychology. Based on the author's doctoral dissertation in the New Hampshire program in the history of psychology, the book is notable for careful documentation and judicious conclusions. It is the first substantial historical study of behaviorism in almost a decade and, as far as I am aware, the only lengthy historical examination of the relationship of neobehaviorism (Tolman, Hull, Skinner) to logical positivism. Though the book is free of polemics, it upsets received views concerning the various neobehaviorisms, and therefore seems likely to provoke discussion and reassessment of those claims.

Smith examines two historical theses that have formed a major part of what he calls "the standard view" of the development and current status of neobehaviorism. The first historical claim, called by Smith "the importation thesis," and promulgated in various publications by Sigmund Koch, holds that neobehaviorists imported their methodological views from prominent logical positivists (pp. 7–10). The second historical claim, called by Smith "the subordination thesis," and advanced by Brian Mackenzie in his *Behaviourism and the Limits of Scientific Method* (Mackenzie, 1977), holds that behaviorists (primarily, but not exclusively, early behaviorists in Mackenzie's study) subordinated their substantive psychological views to methodological considerations that were part of a general positivism (pp. 10–11).

Since both historical claims propose that neobehaviorism was closely tied to logical positivism, both claims justify evaluating the conceptual framework of neobehaviorism as an example of logical-positivist philosophy in the social and behavioral sciences. But because logical-positivist philosophy of science has by now been widely rejected as a model of natural-science structure and progress, it would be proper to conclude that neobehaviorism is fundamentally mistaken and therefore moribund though not actually deceased at this point in time. Such unfavorable evaluation of neobehaviorism, stemming from the historical decline of logical positivism, Smith calls the "linked fates" thesis. In questioning "the standard view" of neobehaviorism, his monograph provides a sustained disconfirmation of the historical foundation of a "linked fates" thesis. Thus does he leave the door open for an appropriate evaluation of the long-term success of neobehaviorism (pp. 313–316), which seems to be his goal.

After an introductory chapter that describes the issues that will be addressed and the theses that will be defended in the book, Smith proceeds to set out the major claims that were advanced in the development of logical positivism and the dates of their first published enunciation. This he does primarily in the second chapter, with piecemeal additions in later chapters as called for by topics germane to particular neobehaviorists. Smith's second chapter is a very capable exposition of the background

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of logical positivism and its most widely agreed-upon claims. Among these claims were: (1) rejection of metaphysics as meaningless pseudopropositions; (2) rejection of psychologism and other naturalistic accounts of science; (3) an emphasis on rational/formal techniques in elucidating the meaning of concepts and in justifying scientific claims to certainty; (4) some version of verifiability as a basis for that certainty; (5) the "received view" of scientific theory as a hierarchical and formal structure whose components are coordinated to the observational base through correspondence rules; (6) a distinction between the context of scientific discovery (or creation) and the context of rational appraisal of the adequacy of theory; (7) the proposal that the universal language of science is the physical-thing language (not a phenomenalistic language); and (8) a program of efforts to demonstrate the unity of the diverse sciences.

These are the components of logical positivism which Smith looks for in the writings of neobehaviorists. He then describes the development of metatheoretical views of each of the three major theorists—Tolman in chapters 3–5, Hull in chapters 6–8, and Skinner in chapter 9—and makes a chronological and substantive comparison to the development of logical positivism, in order to ascertain points of agreement that would support an inference that logical positivism was a source of specific systematic claims by neobehaviorists. Published materials are searched for indications of historical linkage, and unpublished materials (e.g., Hull's idea books) are scrutinized for clues and answers in the search for neobehaviorist origins. Smith also corresponded, in the early 1980s, with a number of individuals who knew the three protagonists or who were involved in various parts of the logical-positivist program, and he makes use of their often illuminating comments and replies to his questions. Smith's historiography is painstaking and detailed. He has thereby established new standards of exactness, discrimination, and evidence to judge claims of writers who have been accustomed to treat neobehaviorism as straightforwardly committed to logical-positivist doctrines. It is to Smith's credit that the description of his findings is not a mere laundry list of evidence for historical influence and lack of influence.

Smith's historiography starts with an examination of the most prominent metaphors which each theorist used, and he proceeds, using published and unpublished materials, to fill out a picture of the theorist's theoretical and methodological commitments. Thus, he proposes that Hull's theorizing was guided by the analogy of organisms and "intelligent machines" (pp. 155–162, 242–245). Smith does an especially skillful job of reconstructing Hull's scientific world view through careful sketching of the development of Hull's theories, ideas and interests, aided by judicious selection of passages from his articles and books, idea books, and correspondence. His picture of Hull is a new and full-bodied one, which illuminates many of Hull's theoretical preferences.

Smith does a fine job of making Tolman's pragmatic open-mindedness the very essence of the man. He makes epistemological sense of Tolman's early involvement with the neorealism of Harvard philosophers E.B. Holt and R.B. Perry (pp. 74–80) and its influence on the early form of behaviorism (pp. 80–90) that antedated Tolman's visit to Vienna in 1933–34 and his constructive encounter there with Egon Brunswick (pp. 105–116).

The single chapter on Skinner fastens on the role of Ernst Mach's brand of positivism. Prof. Skinner has called the chapter "the best thing written on my views" (personal communication, August 18, 1986).

This would be an informative book if it contained only the detailed and well integrated expositions on each neobehaviorist theorist. But it goes beyond such description to make a case that "there was in general no close intellectual association between behaviorism [i.e., neobehaviorists Tolman, Hull, and Skinner] and logical positivism" and that the metascientific views of these neobehaviorists "were drawn from their

own deep-seated presuppositions about organismic behavior" (p. 301). Smith finds Darwinism to be the conceptual system that was singly the most powerful influence upon these three theorists—with pragmatism running a close second—though each theorist took his Darwinism via some mediating system of ideas. For Tolman, that mediating system consisted of William James's pragmatism, the neorealism of E.B. Holt and R.B. Perry, and the contextualism of Stephen Pepper, a colleague at Berkeley. For Hull, it was the organism-machine analogy. For Skinner, the mediator was the biologistic philosophy of Ernst Mach, in which efficient adaptation to an environment of demands is the principal heuristic.

Having extensively documented his thesis that neither Tolman, Hull, nor Skinner had the interest or logical sophistication to attend closely to the technical refinement of logical positivism, Smith concludes that "the standard view" of the association between these two enterprises and the "linked fates" appraisal of neobehaviorism are inaccurate. He concedes that portions of Kenneth Spence's work appear to fit "the standard view," (p. 19 note, 213–216, 317–318), in particular, work that was produced in collaboration with Gustav Bergmann in the 1940s. But Smith does not initiate a detailed investigation of Spence's substantive work in experimental psychology and, accordingly, leaves it an open question whether Spence's work deserves a "linked fate." If a better case can be made for a close affiliation between logical positivism and Spence's version of behaviorism, then the "standard view" of neobehaviorism pure and simple could be scaled down to a researchable claim about portions of Spence's work.

This book is full of fresh information. For example, Hull's ideas regarding adaptive systems appear to have played a role in the development of new institutional arrangements at Yale's Institute of Human Relations (pp. 180–182). (A similar notion, elaborated more from an institutional perspective, has recently been advanced elsewhere [Morawski, 1986].) Hull's involvement with the English philosopher of biology, J.H. Woodger (pp. 195–206), and his concern with logical issues (pp. 245–255) are matters that have hitherto received little notice. The extent of involvement of both Hull and Tolman in the Unity of Science movement is described for the first time. Though Smith has elsewhere sketched the role of philosophic New Realism in Tolman's theorizing, in this book he gives a considerably expanded and integrative account, and he goes on to describe the issues that figured in Tolman's shift to a rather different metatheory in the second half of the 1930s.

A subject of this philosophical sort *could* be somewhat dull; this book is not dull. The narrative steps along briskly, uncluttered by repetition and merely tangential material. The author makes excellent use of helpful previews and summaries. It is a highly polished book, quite enjoyable to read, and admirably free of polemics. I found no typographical errors at all, the end-notes are informative, and there is a detailed index. The book can be read with profit and enjoyment by anyone interested in forms of influence and collaboration between psychology and philosophy; or in any of the three theorists who are profiled; or in the present status of neobehaviorism and in the foundations of the contemporary framework of appraisals of neobehaviorism; or in questions about the making of historical judgments that concern the tenability or untenability of a psychological system.

Smith's intention seems to have been to remove the logical-positivist albatross. That would make behaviorism more presentable in a post-positivist age, and would encourage or invite a reassessment of neobehaviorism (pp. 312–316), an assessment that has yet to be performed adequately (p. 314). In the aftermath of the loss, by neobehaviorism, of its position of dominance in American experimental psychology, some readers may question the worth of such an undertaking. Smith's closing discussion includes an exploration of future possibilities for continued neobehaviorist development (pp.

313–327), and is interesting, suggestive, and free of dogmatism.

Zuriff's (1985) *Behaviorism: A Conceptual Reconstruction* and a collection of Clark Hull's *Psychological Review* papers (with commentary: Amsel and Rashotte, 1984) were published within the last two years. Consider further the special publication of Skinner's more important articles in *Behavioral and Brain Sciences* (Catania and Harnad, 1984). It is apparent that neobehaviorism is actively being reconsidered, freshly assessed in its own right, and with varied intentions to defend, to revise, and to expand. Where these activities will lead cannot be predicted, but it is certain that Smith's book provides the basis for an improved understanding of the history of neobehaviorist developments.

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