Not So Disinterested or Objectivist:
John A. Mills' *Control: A History of
Behavioral Psychology*

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Mills' book begins as a self-stated intellectual history of behavioral psychology, but in the end is a social constructionist critique of the very idea of a natural science of behavior. In between, it offers brief but welcome coverage of overlooked behaviorists (e.g., Guthrie, Kantor, Kuo), well-researched critiques of neobehaviorists (e.g., Hull), and praise and proper caution about Skinner (e.g., early scholarship and inductive fallacies, respectively). Unfortunately, its treatment of Skinner contains some rather rudimentary misunderstandings, for instance, that he was antitheoretical, adopted a mechanistic form of materialism, and adhered to an operationism that was explanatory, not descriptive. In this, and in its treatment of behavioral engineering, the book's scholarship is dated. Still, the book is a must-read for professional scholars of the history of behaviorism.

Key words: history of behaviorism, behaviorism, radical behaviorism, B. F. Skinner

John A. Mills' *Control: A History of Behavioral Psychology* (1998) is a well informed but frustrating book. Historians will praise its broad, careful use of archival resources to account for behaviorism and neobehaviorism in their own times, yet sense a "presentist" intent to justify a postmodern perspective. Social constructionists, who see knowledge, including scientific knowledge, as socially contingent, will warm to the book's placing behaviorism in social and cultural context, yet nevertheless discover some essentialism. Cognitive psychologists will applaud the book's critical assessment of behaviorism at mid-century, yet see its arguments also directed at them. And, behaviorists will eagerly anticipate "the most comprehensive history of behaviorism yet written" (inside front

dust jacket), but find mainly the longest history yet published, and sometimes wonder whose behaviorism it is anyway—not always theirs. In short, the book's premises will delight some readers, but its conclusions will dismay others.

Mills' basic premise is insightful:

Behaviorism remains an enigma because its dominance in American psychology *blocks* [italics added] our efforts to understand its role and its nature. American psychologists . . . are trained to think behavioristically from their earliest undergraduate years, usually without being made aware, or realizing, that this is the case. (p. 1)

That is, American psychologists cannot fully appraise the role and nature of behaviorism in American psychology because American psychologists are behavioristic. They cannot step outside the stream of their own behavior for a disinterested and objectivist account. This is a point well taken, but it implies that behaviorism can be fully appraised only by scholars external, not internal, to the discipline, that is, by scholars *not* trained to think behavioristically, and thus not blocked in their efforts to understand its role and its nature. However, not being trained to think behavioristically does not mean no training at all. It means training to

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Mills, J. A. (1998). *Control: A history of behavioral psychology*. New York: New York University Press.

I thank Joseph V. Brady and Charles E. Rice for prompting me to complete this review and Andrew Winston for providing incisive comments on a later version of it, as well as for referring me to reviews of which I was unaware (Danziger, 1999; Winston, 2001b).

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think other than behavioristically, sometimes *antibehavioristically*.

As we shall see, Mills seemingly sets himself up to the task of writing a disinterested and objectivist history of behavioral psychology. Among his credentials, he was born in England and trained in South Africa, and was a student of Kurt Danziger's, a well-regarded social constructionist historian (see Danziger, 1997). Mills afterwards taught for many years at the University of Saskatchewan but is now retired. His early research was in psycholinguistics and comparative psychology, whereas his current scholarship is in the history of psychology. He is a long-standing member of Cheiron (the International Society for the History of Social and Behavioral Sciences) and participates in its conferences and governance. He is a founding member of the International Society for Theoretical Psychology and is on the editorial board of *Theory & Psychology*, for which Kenneth Gergen, a leading social constructionist, is an advisory editor (see Gergen, 1985). Mills, then, stands outside behaviorism, but not outside a perspective—a perspective known for its antipathy to the field whose history he takes as his subject matter.

The forums in which Mills presents and publishes are influential sources of scholarship on psychology's history and historiography. Thus, when Mills' colleagues give his text positive reviews (e.g., Danziger, 1999), as well as book jacket endorsements—for example, "This book will surely signal a turning point in our historical understanding of behaviorism" (Henderikus J. Stam, editor of *Theory & Psychology*)—then it warrants notice in the behavior-analytic literature. Behavior analysts need to stay abreast of work that affects how their field is understood, depicted, and taught. For this reason, Mills' book is worth at least a belated review. In any case, it is a must-read for anyone seriously interested in the history of the field.

Returning to Mills' premise that

American psychologists are "blocked" in their efforts to understand the role and nature of behaviorism because they are behaviorists, we can put his argument this way: Behaviorists—in particular, methodological behaviorists—are mainstream in experimental psychology, and thus are not often asked to define and defend their work in ways that would make them especially cognizant of their intellectual commitments. However, the implication that all behaviorists are likewise unaware of their perspectives does not necessarily follow (see Krasner, 1999). In fact, behaviorists who are committed to psychology as a natural science (e.g., radical behaviorists, interbehaviorists) are so often asked to define and defend their nonparadigmatic position that many of them are quite aware of their intellectual commitments (see Skinner, 1963, 1971, pp. 241–243, on the social basis of consciousness).

Mills' thesis is also ironic because it is not reflexive. As noted above, he avers that American psychologists have perspectives about which they need to be cognizant and forthcoming if they are to appraise behaviorism fully. However—although he is undoubtedly cognizant—Mills is not forthcoming about his own perspective, such that we can fully appraise his text. Moreover, when the text is a destructive critique of behaviorism—which is often—it offers no constructive alternatives. Here and there, we find hints of a social constructionist and post-modern alternative (see Mills, 1992), but nothing explicit. In fact, in response to Boakes' (1999) review of *Control*, Mills (1999) claimed that alternatives were beside the point:

Professor Boakes asks what I would put in Behaviorism's place. To ask such a question implies, I would submit, a misunderstanding of the historian's role. As I see it currently, an intellectual historian must take a major theory as he or she finds it and try to discover the forces that shaped the theory and brought it to prominence. (p. 311)

Mills is here taking an objectivist stance: a positivistic historian gather-

ing facts (e.g., about behaviorism) for disinterested analysis (e.g., to discover forces). Such a stance, however, is not defensible in either social constructionism or modern historical scholarship (see Furumoto, 1989). Current historiography tends toward historicist and contextual accounts, not those that are presentist or decontextualized.

STYLE

As for its style, the book will be off-putting to readers inclined to a behavioral perspective, especially to Skinner's. For example, Mills often falls into pejorative language, commenting for instance that the friends of neobehaviorism are "sympathizers" (p. 183), that neobehaviorism had "acolytes" (p. 184), and that Skinner was a "polemicist"—"establishing" and "engaging" in "propaganda"—and "fatuously coy about his sources" (pp. 123, 124, 127, 129, 134, 143). As Brady and Heaton (2000) commented,

Mills has an ax to grind, a disdain betrayed by the emotionally laden language of his writing: He repeatedly equates American psychology's pragmatic emphasis on serving society with a need to control. The use of the word "control" to trigger a negative reaction is legendary and tiresome. Mills describes behaviorists as sharing a "*lust* for quantification" and an "*obsession* with prediction and control" (p. 9; *italics mine*). (p. 187)

Some non sequiturs also appear. For example, Skinner "seemed to have had a lowly estimation of his achievements as a scientist. No sooner had he expressed his ideas in the form of his first book than he launched himself into Project Pigeon, a lengthy piece of applied work" (p. 123; Skinner, 1960).

Although Mills' language and its implications may sound harsh to the American ear, we should not be overly provincial. This is the frank, direct, and pithy style found throughout much British scholarship, and characteristic of intellectual disagreements therein. Still, to the extent that style suggests a perspective, then in this case it suggests an antibehavioral bias.

CONTENT

Turning to the book's content, the history of behavioral psychology is covered in an introduction and seven chapters. The introduction begins with an essentialist account of behaviorism: "The essence of behaviorism is the equating of theory with application, understanding with prediction, and the workings of the human mind with social technology" (p. 2). Mills extends this point by asserting that *all* behaviorists share seven "prior commitments": commitments to practical application over theory, science over philosophy, pragmatic versions of positivism, materialism, the goal of practical "prediction and control," the empirical basis of behaviorism in the animal laboratory, and an extreme form of utilitarianism (e.g., morals are means not ends).

He afterwards elaborates on these, criticizing behaviorism (a) for accepting "the experiment" as a veridical representation or mirror of nature but not an explanatory one (e.g., about the "intrinsic life of the mind," p. 3; the "inner, unobservable, factors [that] control behavior much of the time," p. 10), and (b) for maintaining two "covert" aims: to provide objective operational definitions for subjective commonsense terms referring to mind and consciousness, and to replace the causal explanations of commonsense psychology with mechanistic explanations.

Skinner would generally have disavowed the essence of behaviorism described above, a number of the prior commitments, and a fair portion of their elaboration. However, Mills does not much distinguish Skinner's behaviorism from methodological behaviorism, and thus the naive reader may incorrectly assume that Mills' critique applies equally to every behaviorism when it does not. Not every behaviorism is a variation of the essentialism Mills describes; they often vary significantly among themselves.

The Birth of Psychological Behaviorism

Chapter 1 is organized around various "motivating factors" in the birth of behaviorism: social science's need for practical application, from American progressivism; philosophical respectability, found in the neorealist philosophers, mainly Perry and Holt; a behaviorist body of theory, attempted by Meyer and Weiss; and an empirical basis from animal psychology, pioneered by Kuo and Hunter. These factors are variously covered in other treatments of behaviorism, but the behaviorists Mills cites have often been overlooked, and thus he offers a refreshing perspective. Kuo (1967), in particular, warrants greater attention (see Gottlieb, 1972).

Mills also offers extended coverage of Kantor's (1959) interbehavioral psychology, with which he resonates for its antimechanism, functional definitions of stimuli, and emphasis on the contingent nature of historical causation. These features also characterize Skinner's radical behaviorism, but this is not acknowledged, although pertinent literature is cited (e.g., Morris, 1982). Also, Mills' outline of the history of behaviorism is reminiscent of Kantor's (1963, p. 161) two cycles of naturalism in the history of psychology, but on a shorter time scale and to different ends. In Kantor's analysis, naturalistic psychology emerged in Hellenic Greece, notably through Aristotle; it declined thereafter, into the High Middle Ages; and it began ascending in the 18th century. In Mills' outline, behaviorism had two cycles, both in the 20th century: "Behaviorism was born in a time of social optimism, rose to its apogee during a period of unprecedented economic prosperity, and collapsed into a group of obscure sects during the current neo-conservative era" (p. 22). Mills is here arguing that behaviorism was based in progressivism, political agendas, and economic exigencies, not in science, and that its collapse supports this in-

terpretation because, if behaviorism were based in science, then it would have survived. This is presentist history (Brady & Heaton, 2000; see Kantor, 1969; Leahey, 2000).

Watson, Tolman, and Hull

The next three chapters take us from theoretical behaviorism into neobehaviorism. Chapter 2 establishes Watson's "true role in behaviorism's history" (p. 55), by which Mills means his *non*role as *the* creator of behaviorism, but this is not a new assessment (see Leahey, 1992). Mills, though, does offer an enlightening analysis of Guthrie as a transitional figure between theoretical behaviorism and the behaviorisms that followed (see also Malone, 1990, pp. 119–139). Chapter 3 describes the conceptual foundations of neobehaviorism, for instance, (a) the operationism of Boring and Stevens, (b) intervening variables and hypothetical constructs, (c) Tolman's purposive behaviorism, and (d) the analysis of variance in defining experimental psychology. Chapter 4 offers a thoughtful and well-researched analysis of Hull's work and of factors driving it, most interestingly, the threat of un-American Gestalt psychology. In the end, though, Mills reiterates the usual problems found in Hull's theory (e.g., the failure of quantitative predictions, closed deductive systems, mechanism; see Koch, 1950).

B. F. Skinner

Chapter 5 addresses Skinner's theory of mind and values, philosophy of science, and utopianism, but not for the first time. Mills' coverage of Skinner is found throughout the text, beginning with the misspelling of his name—"Frederick" (p. 2; see also "Skinner, Burrhus Frederick" in the index, p. 243); it is, instead, "Frederic" (Bjork, 1993, p. 2).

More substantively, Mills observes a few pages later that radical behaviorism holds "that mental events can be fully explicated in a physicalist language" (p. 3). Actually, not quite.

Mental events are explicated as functional relations among physical events; they are not reducible to physical action (Skinner, 1971). Mills also notes that Skinner dismissed "the need for theory" (p. 4). Not really. He dismissed the need for certain kinds of theories about certain kinds of constructs at certain points in the evolution of a science (Skinner, 1950). Otherwise, as Skinner (1947) wrote, "experimental psychology is properly and inevitably committed to the construction of a theory of behavior. A theory is essential to the scientific understanding of behavior" (p. 302).

Mills also argues that Skinner developed a new kind of operationism—a "productive operationism" (pp. 14–15, 101). By this, he presumably means the production, in laboratory and controlled applied settings, of behavioral relations referred to in ordinary-language terms, for example, the production of "hunger" by food deprivation (Skinner, 1932) or of "cognition" through contingencies (see Epstein, Lanza, & Skinner, 1981). Productive operationism is not, in itself, necessarily objectionable. What Mills objects to is the assumption that the operations used to produce these behavioral relations are also the means through which they develop in the natural environment. Although synthesis and simulation are fundamental in science, including behavior analysis (see Epstein, 1984; Hake, 1982), the inductive leap from the laboratory to the natural environment is, of course, faulty, and Mills is right to note this, but it was never inherent in Skinnerian logic.

Mills also aligns Skinner's operationism with another form of operationism, but a qualitatively different one, that of Boring and Stevens, lamenting that it "captured psychology's language and effectively robbed all neobehaviorists of the power of speech. And, of course, the operationist says that those who cannot speak cannot think" (p. 179). Skinner (1945), however, explicitly broke with Boring and Stevens and adopted a descriptive

account of psychological terms in which meaning lies in the variables that control use (see Moore, 1975; Smith, 1986, pp. 259–297). On this account, speaking of "hunger" and "cognition" is controlled by patterns of behavioral relations in context as opposed to underlying psychological and physiological constructs (see also Day, 1969, on Wittgenstein, 1953).

The behaviorist as philosopher. In his chapter on Skinner, Mills often praises him but ultimately damns him. In his opening sentence, for instance, Mills writes, "Behavioral science reached its highest and most complete development in Skinner's writings" (p. 123), but adds—borrowing a line from Winston Churchill—that Skinner "was a riddle wrapped in a mystery inside an enigma" (p. 123). To be sure, Skinner's work sometimes needs considerable unpacking (Morris, 1992), but the situation is not that dire.

Following this, Mills orients the chapter around three themes in Skinner's intellectual life:

The conflict between his incorporation into animal science and his desire to be a technologist of behavior; the contrast between his self-presentation as a polemicist and his apparent wish to be taken seriously as a scholar, especially a philosopher of mind; and the disjunction between his love of art and culture and his apparent brusque, indeed crude, dismissal of humanistic values. (p. 123)

As for the first theme, Mills writes that Skinner "showed psychologists what it meant to be a creative scientist" (p. 123) but then offers the non sequitur quoted earlier, "Skinner himself seemed to have such a lowly estimation of his achievements as a scientist" (p. 123), and reinforces it:

It is, in my view, impossible to give an instance of a substantive Skinnerian finding [in the principles of operant conditioning] whose truth would not be seriously contested. Skinner might have acted the part of a creative scientist perfectly, but the lines he delivered have been consigned to psychology's history. (p. 124; see Mills, 1988)

In discussing *Verbal Behavior* (Skinner, 1957), Mills adds that Skinner's theory of operant principles was "con-

ceptually and empirically bankrupt” (p. 134; e.g., circular; cf. Chomsky, 1959; but see Andresen, 1990; Catania, 1998, pp. 68–71; MacCorquodale, 1970).

On the second theme, Mills writes that “as a theory of mind, Skinner’s version of behaviorism has much to recommend it” (p. 124), but concludes that Skinner was mainly a “polemicist” whose theory of mind consisted of little more than demonstrating that “seemingly cognitively controlled behaviors could be patiently shaped in the Skinner box [i.e., productive operationism]” (p. 124).

As for the third theme, Mills writes,

His early articles were beautifully argued and were models of scholarship. But from the 1950s onward his writings consisted of a repetitive (and it must be said, frequently rebarbative) stream of unsubstantiated, unscholarly platitudes [e.g., against humanism and subjectivity, and for social control]. (p. 127)

This is not a new claim and is worth clarifying and analyzing (see Staddon, 2002).

Mills’ chapter also offers some Skinner biography, describes his unacknowledged “theoretical imperatives” (e.g., physicalism, mechanism, positivism, utilitarianism), and analyzes *Walden Two* (Skinner, 1948) and *Verbal Behavior* (Skinner, 1957) in some detail (e.g., autoclitics). In the process, Mills offers useful challenges (e.g., to fallacies in the arguments from analogy), but sometimes misunderstands Skinner’s unique take on the isms, as well as some more basic points (e.g., “Skinner took the sentence as the fundamental linguistic unit,” p. 131). He concludes by asserting “the ultimate vacuity of Skinner’s theory” (p. 150).

Behaviorists as Social Engineers

In chapter 6, Mills begins with this premise: “To study the history of behavior modification is to prove that *ideology*, [italics added] not science, controlled the movement” (p. 152). He had not previously made so bold a

claim about “ideology,” but his earlier discussions about behaviorism’s covert aims, agendas, and exigencies were clearly in that vein. As for the ideologies that controlled behavior modification, Mills lists four: progressivism, an instrumental theory of value, anti-humanism, and a robust populism.

The chapter also covers (a) the origins of behavior modification in the attempts of “American psychologists, mental hygienists, and educators to apply the principles of conditioning to social and psychological problems” (p. 154) and (b) the application of “operant principles . . . in token economies” (p. 165). In Mills’ analysis, the origins of behavior modification are “frankly ideological”—social and scientific progressivism. Although he views this as a problem, others see it as a promise, albeit unmet because of countervailing ideologies, not science. As for token economies, Mills subjects them to a withering critique. In particular, he asserts that “*all* [italics added] Skinnerians are guilty of the inductive fallacy” (p. 171) of assuming that because psychiatric symptoms can be produced by operant conditioning (e.g., holding or carrying a broom; see Ayllon, Haughton, & Hughes, 1965; Haughton & Ayllon, 1964), then every symptom is operant in origin. Although “all Skinnerians” is, itself, an inductive leap, the chapter does offer some palliatives to the excesses of enthusiasm.

Mills concludes this way: “Regrettably for behaviorists, the collapse of token economies and the restrictions one must place on the use and interpretation of behaviorist therapies provide *empirical disproof* [italics added] of their theories” (p. 178). But this too is a logical fallacy. The so-called collapse was due to several factors, one of them being the evolution of the field itself. Had Mills reviewed more recent work—especially that in the functional assessment and analysis of chronic aberrant behavior (see, e.g., Iwata, Dorsey, Slifer, Bauman, & Richman, 1982)—he might have tempered his

conclusion. As for the restrictions placed on behaviorist therapies, these were determined by what Mills calls "ideology," for instance, by quite appropriate concerns over civil rights and the right to the least restrictive treatment, not by empirical disproof.

Faithful unto the Last

In his final chapter, Mills describes the hegemony of neobehaviorism in psychology between the 1940s and the 1970s and astutely notes that the cognitive psychology that followed was but another form of methodological behaviorism and, thus, not revolutionary (see Leahey, 1992; Moore, 1995). Some of his analyses, however, are overdrawn, for instance, "The three great themes of modernism [which neobehaviorism embraced] were the substitution of form for substance, the universalization of cultural, aesthetic, and metaphysical themes, and the exaltation of technology" (pp. 192–193). Others of his analyses address the "crippling limitations" of methodological behaviorism (pp. 10, 192) and the "crippling constraints" of radical behaviorism (p. 128), for instance, the limitations and constraints of operationism, positivism, and utilitarianism. In neither case, however, are these themes and limitations wholly applicable to Skinner.

Mills ends the chapter this way: "But now the sun of modernism, which nourished behaviorism and its seed, operationism, has sunk beneath the horizon. Bereft of its [modernism's] support, the psychological technologies of yesteryear are pale, limp, and etiolated" (p. 193). This is fair poetry but not great science reporting.

A CAVEAT

Before concluding, I comment on one point, lest my review seem disingenuous: I make no claim of being "disinterested"—disinterested in the subject matter of Mills' book. Like most behavior analysts, I am deeply interested in the possibilities and pros-

pects of a natural science of psychology, a psychology that is not mentalistic or reductionistic but one whose experimental methods give way naturally to application because behavior is both what it studies and its subject matter.

As for who is more "blocked" by their interests—Mills or I—I leave it to others to triangulate (a) Skinner's work, (b) Mills' rendering of it, and (c) this review. One means of doing so is to compare and contrast this review of *Control* with the others. Here, except for Danziger (1999), we find that they are mixed, especially about Mills' treatment of Skinner.

Krasner (1999), for instance, writes that Mills' "chapter on Fred Skinner, my favorite psychologist, aroused a strong feeling of disagreement with [his] interpretation of Skinner's publications" (p. 496). Winston (2001b) notes that Mills did not understand Skinnerian "causality" as Machian functional relations (Mach, 1883/1960; see Chiesa, 1992; Marr, 1985; Winston, 2001a), leading to his "harsh" judgment about Skinnerian theory, a judgment Casas (2000) applied to Mills' treatment of behaviorism in general (see also Brady & Heaton, 2000). Boakes (1999) and Casas fault Mills for having done no archival research on Skinner, as he had for the other behaviorists, arguing that this likely accounted for some misattributions. On this point, Casas comments that Mills' assertion that behaviorists "despise" humanism fails to characterize the constructive relations between Skinner and humanism (cf. his Humanist of the Year award; Skinner, 1972) and the warm personal relation between Skinner and Rogers (see Skinner, 1983). In general, then, the reviews are agreed about Skinner (although this does not necessarily make them correct).

CONCLUSION

Although informed and scholarly in many respects and the product of considerable archival research, Mills' ex-

egesis seems, in part, a social construction—underdetermined at least by Skinner's behaviorism. Or, conversely, his analysis is overdetermined by his own ideology, and thus based less on disinterested and objective analysis than is implied. To put a social constructionist take on this, we might say that Mills "constructed the subject" (cf. Danziger, 1990). Still, he reminds us that behaviorism has many origins, some of them still with us, and that they are worth examining if we want to understand the role and nature of behaviorism in American psychology (see, e.g., Bakan, 1966; O'Donnell, 1985).

Control not only falters as disinterested, objectivist history, but its indictment of the very idea of a naturalized psychology is not constructive. Where methodological behaviorism fails as this psychology—which Mills adeptly argues—and where social constructionism cannot countenance such a science, then psychology is left with a void. To fill it, psychology may need to encompass both a natural science and natural history of behavior, that is, a natural science of basic behavioral processes (e.g., reinforcement, stimulus control, establishing operations) and a natural history of behavioral products (e.g., knowing how, remembering, motivation), the former based in evolutionary biology and the latter in individual development. One of Mills' points is that our understanding of the former (e.g., the modernist view that reinforcement is a basic behavioral process) cannot yield a full account of the latter (e.g., the postmodernist view that reinforcers are local and idiosyncratic), and he is right. But, he discards natural science, retaining only natural history. A natural science of psychology, however, is likely to require *both*—both a natural science and a natural history of behavior—not just one or the other (Guerin, 1992; Hake, 1982; see Morris, in press). We need all the naturalism we can get, not less.

REFERENCES

- Andresen, J. T. (1990). Skinner and Chomsky 30 years later. *Historiographia Linguistica*, 17, 145–165.
- Ayllon, T., Haughton, E., & Hughes, H. B. (1965). Interpretation of symptoms. *Behavior Research and Therapy*, 3, 1–7.
- Bakan, D. (1966). Behaviorism and American urbanization. *Journal of the History of the Behavioral Sciences*, 2, 5–28.
- Bjork, D. W. (1993). *B. F. Skinner: A life*. New York: Basic Books.
- Boakes, R. (1999). [Review of *Control: A History of Behavioral Psychology*.] *Journal of the History of the Behavioral Sciences*, 35, 309–311.
- Brady, J. V., & Heaton, N. (2000). [Review of *Control: A History of Behavioral Psychology*.] *Bulletin of the History of Medicine*, 74, 186–188.
- Casas, M. (2000). [Review of *Control: A History of Behavioral Psychology*.] *ISIS*, 91, 424.
- Catania, A. C. (1998). *Learning* (4th ed.). Upper Saddle River, NJ: Prentice Hall.
- Chiesa, M. (1992). Radical behaviorism and scientific frameworks: From mechanistic to relational accounts. *American Psychologist*, 47, 1287–1299.
- Chomsky, N. (1959). Review of B. F. Skinner's *Verbal Behavior*. *Language*, 35, 26–58.
- Danziger, K. (1990). *Constructing the subject: Historical origins of psychological research*. New York: Cambridge University Press.
- Danziger, K. (1997). *Naming the mind*. New York: Sage.
- Danziger, K. (1999). [Review of *Control: A History of Behavioral Psychology*.] *Canadian Psychology*, 40, 272–273.
- Day, W. F. (1969). On certain similarities between the *Philosophical Investigations* of Ludwig Wittgenstein and the operationism of B. F. Skinner. *Journal of the Experimental Analysis of Behavior*, 12, 489–506.
- Epstein, R. (1984). Simulation research in the analysis of behavior. *Behaviorism*, 12, 41–59.
- Epstein, R., Lanza, R. P., & Skinner, B. F. (1981). "Self-awareness" in the pigeon. *Science*, 212, 695–696.
- Furumoto, L. (1989). The new history of psychology. In T. S. Cohen (Ed.), *The G. Stanley Hall lecture series* (Vol. 9, pp. 9–34). Washington, DC: American Psychological Association.
- Gergen, K. J. (1985). The social constructionist movement in modern psychology. *American Psychologist*, 40, 266–275.
- Gottlieb, G. (1972). Zing-Yang Kuo: Radical scientific philosopher and innovative experimentalist, 1898–1970. *Journal of Comparative and Physiological Psychology*, 80, 1–10.
- Guerin, B. (1992). Behavior analysis and the social construction of knowledge. *American Psychologist*, 47, 1423–1432.
- Hake, D. F. (1982). The basic-applied continuum and the possible evolution of human op-

- erant social and verbal behavior. *The Behavior Analyst*, 5, 21–28.
- Haughton, E., & Ayllon, T. (1964). Production and elimination of symptomatic behavior. In L. P. Ullman & L. Krasner (Eds.), *Case studies in behavior modification* (pp. 94–98). New York: Holt, Rinehart, & Winston.
- Iwata, B. A., Dorsey, M. F., Slifer, K. J., Bauman, K. E., & Richman, G. S. (1982). Toward a functional analysis of self-injury. *Analysis and Intervention in Developmental Disabilities*, 2, 3–20.
- Kantor, J. R. (1959). *Interbehavioral psychology*. Chicago: Principia Press.
- Kantor, J. R. (1963). *The scientific evolution of psychology* (Vol. 1). Chicago: Principia Press.
- Kantor, J. R. (1969). *The scientific evolution of psychology* (Vol. 2). Chicago: Principia Press.
- Koch, S. (1950). Clark L. Hull. In W. K. Estes, S. Koch, K. MacCorquodale, P. E. Meehl, C. G. Mueller, W. S. Schoenfeld, & W. S. Verplanck (Eds.), *Modern learning theory* (pp. 1–176). New York: Appleton-Century.
- Krasner, L. (1999). [Review of *Control: A History of Behavioral Psychology*.] *Contemporary Psychology*, 44, 495–496.
- Kuo, Z.-Y. (1967). *The dynamics of behavior development: An epigenetic view*. New York: Random House.
- Leahey, T. H. (1992). Mythical revolutions in the history of American psychology. *American Psychologist*, 47, 308–318.
- Leahey, T. H. (2000). *A history of psychology* (5th ed.). Upper Saddle River, NJ: Prentice Hall.
- MacCorquodale, K. (1970). On Chomsky's review of Skinner's *Verbal Behavior*. *Journal of the Experimental Analysis of Behavior*, 13, 83–99.
- Mach, E. (1960). *The science of mechanics* (T. J. McCormack, Trans.). LaSalle, IL: Open Court. (Original work published 1883)
- Malone, J. C. (1990). *Theories of learning: A historical approach*. Belmont, CA: Wadsworth.
- Marr, M. J. (1985). 'Tis the gift to be simple: A retrospective appreciation of Mach's *The Science of Mechanics*. *Journal of the Experimental Analysis of Behavior*, 44, 129–138.
- Mills, J. A. (1988). An assessment of Skinner's theory of animal behavior. *Journal for the Theory of Social Behaviour*, 18, 197–218.
- Mills, J. A. (1992). Operationism, scientism, and the rhetoric of power. In C. W. Tolman (Ed.), *Positivism in psychology: Historical and contemporary problems* (pp. 67–82). New York: Springer-Verlag.
- Mills, J. A. (1998). *Control: A history of behavioral psychology*. New York: New York University Press.
- Mills, J. A. (1999). Professor Mills comments. *Journal of the History of the Behavioral Sciences*, 35, 311.
- Moore, J. (1975). On the principle of operationism in a science of behavior. *Behaviorism*, 3, 120–138.
- Moore, J. (1995). Some historical and conceptual relations among logical positivism, behaviorism, and cognitive psychology. In J. T. Todd & E. K. Morris (Eds.), *Modern perspectives on B. F. Skinner and contemporary behaviorism* (pp. 51–84). Westport, CT: Greenwood.
- Morris, E. K. (1982). Some relationships between interbehavioral psychology and radical behaviorism. *Behaviorism*, 10, 155–162.
- Morris, E. K. (1992). The aim, progress, and evolution of behavior analysis. *The Behavior Analyst*, 15, 3–29.
- Morris, E. K. (in press). Behavior analysis and a modern psychology: Some conceptual convergences on direct action. In K. A. Lattal & P. N. Chase (Eds.), *Behavior theory and philosophy*. New York: Kluwer Academic/Plenum Publishers.
- O'Donnell, J. M. (1985). *The origins of behaviorism: American psychology, 1890–1920*. New York: New York University Press.
- Skinner, B. F. (1932). Drive and reflex strength. *Journal of General Psychology*, 6, 22–37.
- Skinner, B. F. (1945). The operational analysis of psychological terms. *Psychological Review*, 52, 270–277, 291–294.
- Skinner, B. F. (1947). Experimental psychology. In W. Dennis (Ed.), *Current trends in psychology* (pp. 16–49). Pittsburgh, PA: University of Pittsburgh Press.
- Skinner, B. F. (1948). *Walden two*. New York: Macmillan.
- Skinner, B. F. (1950). Are theories of learning necessary? *Psychological Review*, 57, 193–216.
- Skinner, B. F. (1957). *Verbal behavior*. Englewood Cliffs, NJ: Prentice Hall.
- Skinner, B. F. (1960). Pigeons in a pelican. *American Psychologist*, 15, 28–37.
- Skinner, B. F. (1963). Behaviorism at 50. *Science*, 140, 951–958.
- Skinner, B. F. (1971). *About behaviorism*. New York: Knopf.
- Skinner, B. F. (1972, July/August). Humanism and behaviorism. *The Humanist*, 32, 18–20.
- Skinner, B. F. (1983). *A matter of consequences*. New York: Knopf.
- Smith, L. D. (1986). *Behaviorism and logical positivism: A reassessment of the alliance*. Stanford, CA: Stanford University Press.
- Staddon, J. E. R. (2002). Up close: Impersonal. *The Behavior Analyst*, 25, 121–122.
- Winston, A. S. (2001a). Cause into function: Ernst Mach and the reconstruction of explanation in psychology. In C. D. Green, M. Shore, & T. Teo (Eds.), *The transformation of psychology: Influences of 19th century philosophy, technology, and natural science* (pp. 107–131). Washington, DC: American Psychological Association.
- Winston, A. S. (2001b). In and out of control [Review of *Control: A History of Behavioral Psychology*]. *Theory and Psychology*, 11, 725–727.
- Wittgenstein, L. (1953). *Philosophical investigations*. New York: Macmillan.