POSTSCRIPT TO AN ANTHOLOGY OF REVIEWS¹

A. CHARLES CATANIA AND PHILIP N. HINELINE

UNIVERSITY OF MARYLAND BALTIMORE COUNTY AND TEMPLE UNIVERSITY

Of course, we are not finished. Books have already been published that could prompt additional reviews for each of the parts of the present volume. With regard to Part I, on the background of the *JEAB* reviews, this very volume could be a target of commentary, but it is more fitting to remind the reader that many reviews were left out in paring this volume down to manageable size, and still others have since appeared. The journal continues to publish not only book reviews (e.g., Shull, 1995, on Donahoe & Palmer, 1994; Stolarz-Fantino & Fantino, 1995, on Gilovich, 1991; Sundberg, 1996, on Savage-Rumbaugh et al., 1993), but also theoretical essays. Some of these have also included commentaries by other scholars and replies by the authors, modeled after the treatments pioneered by Stevan Harnad in his editorship of *Behavioral and Brain Sciences* (e.g., Staddon, 1993b, on the conventional wisdom of behavior analysis; Horne & Lowe, 1996, on naming as a higher order behavior class).

Readers interested in the antecedents of behavior analysis (Part II) might examine *Modern Perspectives on John B. Watson and Classical Behaviorism* edited by Todd and Morris (1994). As Hilgard reminds us in the foreword, Watson's influence extended not only to behaviorism but to the behavioral sciences more broadly conceived as embracing a variety of disciplines, including sociology, economics, and so on (although some writers in those fields might disavow the label).

It is sometimes useful to reach even further back, and Gaukroger's (1995) intellectual biography of Descartes not only provides a sam-

pling of how differently we humans spoke about our own behavior just a few centuries ago but also illuminates the context of Descartes' contributions. Some of his statements about the body and the mind may have been as much determined by what was happening to Galileo as by the logic of his subject matter. Chomsky's debt to Descartes is evident not only with regard to intellectual matters but also with regard to combative personality. But human thinking has come a long way in three centuries or so, and it is interesting to contrast the preevolutionary views of Descartes and his contemporaries with the intellectual context within which Darwin formulated his positions on natural selection. This is compellingly described in the biography of Darwin by Desmond and Moore (1991). Curiously, as recounted by Monk (1990), the anguished 20th century life of the philosopher Wittgenstein seems intellectually more distant even though it is more recent than Darwin's.

The origins of behavior analysis itself (Part III) are outlined in Bjork's (1993) biography of B. F. Skinner, which places Skinner solidly in the historical context of American social traditions and American make-do ingenuity and invention. Richelle's (1993) reappraisal of Skinner's contributions, on the other hand, provides a uniquely European perspective, showing affinities with Piaget, Freud, and other European thinkers. The two books supplement each other well, together providing a view of Skinner's life and work. A broader spectrum of views on Skinner is available in *Modern Perspectives on B. F. Skinner and Contemporary Behaviorism*, edited by Todd and Morris (1995), a companion volume to Todd and Morris (1994). The role of the contrasting associative tradition (Part IV) plays an important part in Amsel's *Behaviorism, Neobehaviorism, and Cognitivism in Learning Theory* (1989), which points out the shared mediational assumptions in associative neobehaviorism and cognitivist theory.

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Correspondence concerning this article can be addressed to A. Charles Catania, Department of Psychology, University of Maryland Baltimore County, Baltimore, Maryland 21228-5398 (E-mail: catania@umbc.edu) or to Philip N. Himeline, Department of Psychology, Temple University, Philadelphia, Pennsylvania 19122 (E-mail: himeline@astro.ocis.temple.edu).

Behavior analysis and behaviorism have many voices, and some short works have provided different and occasionally incompatible accounts of contemporary perspectives (e.g., Baum, 1994; Chiesa, 1994; Rachlin, 1994; Staddon, 1993a). Their different treatments of the interpretive language and methods of behavior analysis (Part V) often have an insular character, in the sense of being more wide-ranging in their citations outside of behavior analysis than within it. To some small extent they do refer to each other. Their subtitles illustrate their diversity, however, and the reader may find it instructive to identify their similarities and their differences.

Those who wish to explore evolving beliefs and developing arguments that impinge on the common concerns of biology and behavior analysis (Part VI) will find Weiner's *The Beak of the Finch* (1994) a stimulating summary of genetic research that demonstrates speciation in natural environments within human lifetimes. The descriptions of the Galapagos research of Peter and Rosemary Grant convey the excitement of that scientific enterprise. The irony of Weiner's account of a conversation with a southern fundamentalist about selection of boll weevils for resistance to insecticides will not be lost on those concerned with cultural selection. The conversation went well for a while, with the fundamentalist excited about the implications for the farming of cotton, until he learned that this great idea was called evolution. If cultural contingencies continue to operate, perhaps the economic implications of evolution will eventually make a dent on such intellectual prejudices, but verbally governed behavior has its own problematic properties.

Biology connects not only to behavior analysis but also to other disciplines, and Dennett on *Darwin's Dangerous Idea* (1995) provides philosophical speculation on the implications of evolution for behavior. His ways of treating the limitations of "Skinnerian creatures," however, suggest that he does not regard imagining, planning, and verbalizing as varieties of behavior. In another extension from biology, Wright's *The Moral Animal* (1994) introduces an "evolutionary psychology" that completely misses the idea of ontogenic selection.

Those concerned with sensory psychology as analysis of the effective environment (Part

VII) may find that this specialization has moved away from behavioral treatment toward physiological analyses of sensory systems, but its particular relevance to the behavior of the scientist is highlighted in a different literature. Many of the chapters in the two-volume *Handbook for Data Analysis in the Behavioral Sciences*, edited by Keren and Lewis (1993a, 1993b), are explicitly concerned with how the researcher discriminates among various properties of data. Perception of randomness, causal judgment, and exploratory data analysis, among the many topics covered, are all concerned with discriminating between data produced by uncontrolled variables and data produced by experimental manipulations. Although no particular sensory receptors are involved, the issues remain those of the contingencies that maintain appropriate discriminative performance. What has happened in the behavioral sciences is that some discriminations have become too subtle to be established through natural contingencies, and therefore other contingencies, including those following from logical and mathematical behavior, have gradually come to substitute for the "intuitive" or contingency-shaped judgments of the experimenter.

Conflicting perspectives on cognition as behavior (Part VIII) are amply represented in the expanding literature of the behavioral sciences. In their edited volume, Hayes, Hayes, Sato, and Ono (1994) have juxtaposed behavior-analytic and cognitive chapters, with a heavy emphasis on verbal behavior. Dreyfus (1979, 1992) has added new material to his critique of artificial reason: *What Computers Can't Do* has become *What Computers Still Can't Do*. And anyone at all concerned with equivalence classes will need to look at Sidman (1994), which brings several key papers together along with insightful commentaries on research methods, data analysis, and other aspects of the behavior-analytic enterprise.

Cognitivist theory has played an important role in developmental psychology, and the work of Vygotsky has become prominent in such approaches. One of the main references has been an apparently abridged edition of his key book, translated as *Thought and Language* (Vygotsky, 1986). This edition obscures affinities with behavior analysis that are evident in a more complete version included in

Vygotsky's collected works, edited by Rieber and Carton (1987), where the book title is translated as *Thinking and Speech*. Cognitive development has another potential point of contact with behavior analysis in studies of the child's acquisition of the language of private events, as in Wellman (1990). Such studies appeal to the child's evolving theory of mind rather than to the natural contingencies that select the vocabulary of private events. Wellman avoids some pitfalls, however, by noting that when the child's theory of mind is the object of study, it does not follow that it should also be the theory that guides such study. If reports of private events are established on the basis of the public events available to the verbal community, it should not be difficult to construct artificial contingencies that would be effective in teaching such vocabularies. A successful research program along those lines could go a long way in establishing the legitimacy of a selectionist account of verbal behavior.

There is rarely a dearth of books that deal with relevant philosophical traditions (Part IX), but they seldom give as much attention to behavior as to mind and consciousness, although it has become de rigueur to appeal to the evolutionary origins and therefore the functional significance of those cognitive entities (e.g., Dennett, 1991; Dewart, 1989; Humphrey, 1992; Searle, 1992). Such accounts give occasional lip service to the dependence of the survival of organisms on their behavior, but behavior is, as usual, mostly treated as an index of something else rather than as a subject matter worthy of study. An exception, Smith's *Behavior and Its Causes* (1994), provides useful distinctions between the experimental program of operant research, the stance of radical behaviorism, and the relation of both to philosophy and to folk psychology.

In the arenas of verbal behavior, language, and linguistics (Part X), controversy is still the norm. Pinker's *The Language Instinct* (1994), in contrast to Chomsky, treats language as an evolved human capacity, but his focus on syntactic and related structural issues is so intense that his book is virtually devoid of any consideration of function. One might hope for some treatment of those manifestations of the verbal governance of behavior that are evident in aspects of contempo-

rary culture (e.g., Levy, 1993; Marty & Appleby, 1991). For example, do some of the contingencies alluded to in Schoenfeld's (1994) *Religion and Human Behavior* enter into such phenomena? But if one looks to syntax for illumination of such issues, one looks in vain. It is therefore refreshing to discover that works like Pinker's do not represent the actual diversity of linguistic theory. For example, the title essay in Pullum's (1991) collection, *The Great Eskimo Vocabulary Hoax and Other Irreverent Essays on the Study of Language*, debunks purported Whorfian data on the extravagance of the lexicon of snow in Eskimo languages; the other essays are wide-ranging, including punctuation and political correctness and even an interchange between Chomsky and Science Officer Spock of the starship *Enterprise*.

Affinities with the social sciences (Part XI) are illustrated whenever natural social contingencies are shown to operate selectively, and selection itself is the main theme of Petroski's (1992) *The Evolution of Useful Things*. Pins, paper clips, tableware, and zippers are among the everyday artifacts the book surveys. It is of interest that selective ontogenic contingencies are a more explicit theme in Petroski's treatment of relatively contemporary technology than in Schick and Toth's (1993) account of the evolution of stone tools in human prehistory. By making their own primitive tools, however, Schick and Toth have replicated some of the contingencies that must have operated on the behavior of early human toolmakers.

We have now completed our sampling of candidates for treatment in each of the categories chosen for this volume. Those categories do not exhaust the possibilities, but nevertheless we have reached an appropriate place for a pause (not a stop). We believe the works surveyed demonstrate that behavior analysis is not a static and finished edifice. It is instead a vital, growing, and dynamic enterprise. If you are not already a participant, join us in exploring its possibilities further.

Finis et initium.

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