

“experimental ethnographic writing” that still allows Rottenburg to “speak truth to power.”

Apart from its inventive narrative, several other characteristics distinguish *Far-Fetched Facts* from the mainstream of development studies. First, Rottenburg works within the laboratory studies and other approaches of science and technology studies. Second, he makes contributions to three ongoing theoretical debates: social constructionism; the struggle among anthropologists, following their return from periphery to metropole, to overcome their “blind spot” regarding the “*canonic institutions and citadels of modernity*” (p. xxv); and localism versus globalism as the focus of anthropology.

The work is lucidly written and fluidly translated. Its modest objectives are both refreshing and realized. Sociologists of knowledge, anthropologists of science and technology, students of development, and historians of technology will all learn from this challenging and stimulating volume.

STEVE BREYMAN

Alexandra Rutherford. *Beyond the Box: B. F. Skinner's Technology of Behavior from Laboratory to Life, 1950s–1970s.* xi + 210 pp., illus., bibl., index. Toronto/London: University of Toronto Press, 2009. \$24.95 (paper).

B. F. Skinner dwells in our cultural imaginary as a scientific buffoon, a caricature of the now so evidently naive ambition assiduously to extend reductionism, naturalism, experimentalism, and materialism to all of human nature. Skinner typically is remembered for his efforts to undo the promises of humanism (in debates with Carl Rogers), of structuralism (in debates with Noam Chomsky), and cherished spiritual commitments (as in his proposal to overhaul the Alcoholics Anonymous program). He stands accused, in the eyes of many, not of aiming to dismantle soul and mind (much of modern psychology had already undertaken such deconstruction), but rather, and more crucially for midcentury Americans, of terrorizing the ideals of freedom, choice, and dignity—not to mention threatening the validity of subjective experience and morality itself. Skinner thus appears in cultural memory as the bad boy of American experimental psychology, taking to the extreme that discipline's masculinist fantasies—control and manipulation of human nature, the vanquishing of all things sentimental, and the effecting of a coldly distanced, disinterested relation to social life. Such imaginings of Skinner fail to explain or even substantively address the remarkable

triumph of the behavior techniques he developed and championed. Historians need somehow to square Skinner's public infamy and the consequent sidelining of radical behaviorism in histories of the psychological sciences with the undeniably wide-ranging and long-lasting success of behavior analysis technologies, particularly operant conditioning. How did it come to be that his psychology, roundly decried as scientific, simplistic, and even fascist, nevertheless generated ever-evolving implementations of behavior technologies? How did it come to be that multiple and massive social projects resulted from Skinner's laboratory findings that behavior response rates are determined by reinforcements and, therefore, that behavior can be controlled by its consequences?

Alexandra Rutherford addresses this lacuna in the history of experimental psychology, furnishing an ingenious map of operant conditioning's journey from the Skinner box, a laboratory apparatus designed for the experimental study of small animal behavior, to elaborate and extensive behavior control programs established in hospitals, schools, prisons, and self-help literature. Rutherford's map takes the reader from a starting point in the scientific terrain of Skinner's laboratory through ever-expanding territories of behavior technology applications. Commencing with a chapter on his own environmental engineering, notably the “air crib,” an enclosed, environmentally controlled crib Skinner invented in the 1940s, and the “teaching machines” and “programmed instruction” he introduced in the 1950s, Rutherford next introduces several psychologists whose various connections with Skinner's brand of behaviorism inspired their redesign of larger environments in order to produce operant conditioning. Their behavior control subjects included primates, autistic children, psychotic patients, and preschoolers. These early enterprises at once constituted research *and* practice: the programs were engineered and directed by behaviorally trained researchers who were persuaded of the efficacy of positive reinforcement in the carefully controlled environments that Skinner's scientific work indicated. Their challenge was to expand and refashion the Skinner box to human-appropriate and room size. Similar reworkings of the box continued with the design and implementation of behavior change projects in hospitals and total institutions. The physical constraints of the box were ultimately removed with the production of self-help manuals and the creation of experimental communities. In the former technology the box was replaced by a book that offered instruction on the limitless possibilities of self-control, while in the latter it was replaced by social networks whose

invisible yet tightly conscripted boundaries figured in their ultimate abandonment. The detailed examination of these projects—their inception, funding, reception, and outcomes—at once illuminates the social opportunities for implementing behavior change technologies and also the resistances to what initially appeared to many as harsh, inhuman, and even illegal practices. Rutherford's account of these openings and resistances imparts an attendant story of midcentury Americans' self-perceptions, tacit notions of human capacities and rights, and desiderata for everyday life.

Beyond the Box charts the plentiful successes of Skinner's scientific undertaking via technologies that often became distanced from his name. As such, it moves toward explaining the apparent disconnect between his troubled reputation and his remarkable accomplishments and contributes significantly to the underexamined history of applied psychology. The value of *Beyond the Box*, however, extends beyond these important revisions to psychology's history by offering historians of science a vivid case study of how science travels from the laboratory to life. Behavior technologies illustrate how psychological scientists employed universal truth claims and painstakingly reproduced the material and cultural conditions of the laboratory in other sites. This case study of operant conditioning likewise demonstrates how technologies are adopted despite the public's contrary beliefs about science and human nature and shows how extensively behaviorism has changed us, despite our reluctance to believe in or abhorrence of behavior control systems. Rutherford boldly suggests that "reinforcements and rewards took on different connotations in a post-Skinnerian world, and our relationship to them changed" (p. 15). With no small measure of irony, behaviorism appears to have come to inhabit our cultural unconscious: vigorously renounced, denied, and sometimes even forgotten, it continues to shape our lives.

JILL G. MORAWSKI

David Sepkoski; Michael Ruse (Editors). *The Paleobiological Revolution: Essays on the Growth of Modern Paleontology*. xi + 568 pp., illus., index. Chicago/London: University of Chicago Press, 2009. \$60 (cloth).

The Paleobiological Revolution explores the transformation, chiefly in the 1960s and 1970s, of the old-fashioned, stamp-collecting "idiographic" paleontology into the theoretical, biologically and ecologically focused "nomothetic" paleobiology of today. The book comprises

twenty-six chapters by twenty-eight authors, the majority of whom are paleontologists. Other contributors include four philosophers, two historians, and four blended HPS scholars. This proportion, of paleontologists to historians- and philosophers-of-, is no hindrance to the interest or quality of the book and largely, I think, reflects the relative newness of the discipline(s) of history and philosophy of paleontology. We are still at that beginning stage when much of the historical and philosophical work on this science comes from the practitioners themselves, and I hope this volume will serve as an inspiration for future work in this burgeoning field.

Editors David Sepkoski and Michael Ruse divide their book into three parts: major innovations in paleobiology, the historical and conceptual significance of recent paleontology, and "reflections" on recent paleobiology. The contents could easily have been divided along slightly different lines: I count six chapters primarily devoted to punctuated equilibrium (most pro, some con) and another six that explore broadly sweeping theoretical questions or future directions for paleobiology; the remaining fifteen chapters are narratives about particular people, theories, fossils, or moments of importance in the history of paleobiology (highlights include Susan Turner and David Oldroyd's recounting of Reginald Sprigg's discovery of the Ediacaran fossils of Australia [Ch. 13] and Manfred Laubichler and Karl Niklas's discussion of the morphological tradition in German paleontology [Ch. 14]). Contrary to what might be the unthinking assumption, the theoretical papers are not all by historians or philosophers, and the narrative chapters are not all by paleontologists.

This volume is not meant for readers with no prior knowledge of geology, paleontology, or evolutionary biology; while some terms are defined, familiarity with most technical concepts is assumed. For example, Arnold Miller (in a fascinating tale of how paleontologists came to agree on the overall pattern of the diversity of life through time [Ch. 18]) defines "trace fossils" but doesn't explain terms like "Phanerozoic," "Mesozoic," and so forth. While this may sound like a criticism, I think it is actually a strength: the majority of books about paleontology—certainly those that might be picked up by nonpaleontologists—are very basic, so it is refreshing to find one directed at a more advanced audience. Definitions can be looked up elsewhere as necessary, and room is left for a more sophisticated and nuanced discussion of some important topics in paleobiology.

These topics include the rise of paleoecology and molecular phylogeny, as well as the clearest