Cognition Unawares

Implicit Learning and Tacit Knowledge. An Essay on the Cognitive Unconscious. ARTHUR S. REBER. Oxford University Press, New York, 1993. xii, 188 pp., illus. $35 or £30. Oxford Psychology Series, 19.

One of the hallmarks of the cognitive revolution in psychology was a revival of interest in consciousness. Psychologists were no longer interested merely in tracing functional relations between environmental stimuli and behavioral responses to them but sought to understand the internal mental structures and processes that mediated between stimulus and response. Shortly thereafter came a revival of interest in *non*conscious mental life, the idea that at least some of the mental structures and processes responsible for human behavior might lie outside the scope of conscious awareness, introspection, and voluntary control. Studies involving both brain-damaged and normal subjects now make a convincing case that experience, thought, and action can be influenced by past events that we cannot consciously remember (implicit memory) and current events that we cannot consciously perceive (implicit perception).

Arthur Reber has long argued for another aspect of what has come to be known as the "cognitive unconscious": implicit learning, by which he means the acquisition of new knowledge by subjects who are not consciously intending to learn and who are not aware of what they have learned. In a pioneering experiment reported in 1967, Reber presented subjects with a set of letter strings generated according to the rule of an artificial grammar—for example, TSXS, TSSXXVPS, and PVV. After memorizing 20 such strings, the subjects were presented with a number of new items and asked to determine which ones conformed to the grammar and which did not. Performance on this task was far better than what would have resulted from chance; however, the subjects were unable to report the grammatical rules by which the legal strings were generated. Reber concludes that while they were consciously trying to memorize specific items the subjects also unconsciously induced the grammar that generated them. In his view, the learning of artificial grammars is a laboratory model of the process by which natural language is unconsciously acquired and used. What makes his view unique is that while many linguists hold that unconscious language acquisition occurs by virtue of a language-specific cognitive module, Reber argues that implicit learning is mediated by structures that are not content-specific and allow the organism to pick up a wide variety of regularities in the environment.

Of course, Reber's conclusion does not necessarily follow from the facts as I have described them. It might be that the subjects were aware of the grammar but simply could not articulate it well; or that the subjects' judgments were based on conscious comparison of the test items to memorized exemplars; or that subjects based their decisions on the appearance in the test items of fragments that they recognized from the study set. All of these possibilities would lead to above-chance performance in the absence of the acquisition and use of unconscious rules. A major portion of this book reviews Reber's extensive program of empirical research, as well as the work of other investigators, intended to address these objections. Many of the findings are provocative and convincing, but they will probably not convince the advocates of what Reber calls the "consciousness stance": the view that consciousness has priority and that awareness and self-reflection are the central features of human cognitive function.

Even so, Reber reaffirms what he calls the "implicit stance." In his view unconscious processes are axiomatic: we cannot get along cognitively without them, and we cannot understand cognition without them. Although he admits that it is difficult to convincingly demonstrate unconscious processing in the absolute absence of conscious information, which is the strong version of the implicit stance, he comes down in favor of a softer view: that more information is available for unconscious use than is accessible to conscious introspection.

In the latter, more speculative portion of the book Reber bolsters his case by putting implicit learning into an evolutionary context. From his point of view, "Consciousness is a late arrival on the evolutionary scene. Sophisticated unconscious perceptual and cognitive functions preceded its emergence by a considerable margin" (p. 86). Humans have it, for sure, and perhaps some other animals have it to some degree. But, arguably, not all animals have it. Yet all animals learn. From Reber's point of view, the implicit learning demonstrated in the artificial-grammar experiments is based on unconscious cognitive (and, ultimately, brain) systems that we share both with our evolutionary forebears and with other contemporary species. These systems are robust in the face of insult, injury, and disease; are largely independent of age and intellectual capacity; and admit a very narrow range of individual differences.

The study of cognition outside phenomenal awareness is now a growth industry in psychology and cognitive science. With a sophisticated, ever-enlarging understanding of cognitive processes, it is now possible to discuss unconscious mental life without making any reference to Freud (who, refreshingly, appears nowhere in this book). Although there remain some skeptics, research on unconscious cognition now focuses less on existence proofs and more on analyses of its scope and limits. In arguing forcefully for the concept of implicit learning, and in backing his arguments with provocative, well-designed research, Reber has made important contributions to the study of the cognitive unconscious. In asserting the "primacy of the implicit" (pp. 24–25) and in placing his research in the context of evolutionary biology, he has forged new connections between human and animal cognition. This is a valuable book, that should be read by everyone with an interest in the nature of unconscious mental life.

John F. Kihlstrom
Department of Psychology, University of Arizona, Tucson, AZ 85721, USA

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Growing Up in Context

Children in Time and Place. Developmental and Historical Insights. GLEN H. ELDER, JR., JOHN MODELL, and ROSS D. PARKE, Eds. Cambridge University Press, New York, 1993. xiv, 289 pp. $49.95 or £35. Cambridge Studies in Social and Emotional Development.

Children in Time and Place is a book with much promise for two disciplines. In the mid-1980s the Social Sciences Research Council brought together a group of social historians and developmentalists to study childhood and child development by working across their disciplinary boundaries. What ensued must have been exciting and challenging for participants from both fields; Michael Zuckerman, in reflecting on the process from the historian's perspective, notes the "cordiality" and the "intensity" of the gathering (p. 230), and others make reference to the intellectual stimulation that resulted from collaboration.

The contributors to *Children in Time and Place* provide us with not only some substantive results of their efforts but also a narrative of the process itself. The thrust of the volume is contained in the editors' description of one of the themes emerging

from collaboration: "History matters," the collaborators agreed, but they were less sure about "just how it matters" (p. 191). In this collection readers are offered a view of efforts by a group of very creative researchers to work out the connection.

In "The workshop enterprise," Elder, Modell, and Parke describe the participants' initial judgment of just how far apart are the epistemological foundations of the fields of history and psychology and how different their use of evidence. Social historians who examine "macrochanges" in society have few tools with which to show the linkages between historical events, such as the Great Depression of the 1930s and World War II, and the experiences of individuals. Child developmentalists, on the other hand, begin from the perspective of the individual. But though recognizing the plasticity of individuals, developmentalists have tended to make scant use of the different historical environments in which children have lived and likewise cannot offer causal links between individual behavior and historical experience. To be sure, developmentalists have spoken of the usefulness of historical context for their work, and historians have wanted to borrow theories and arguments about behavior from developmentalists. The conference organizers hoped, however, that the two sets of participants would go beyond simply patching together two different conceptual frameworks.

End of a wartime separation. [Bettmann Archives]

"Transitions" served as a concept around which to organize the study of 20th-century children "in time and place." As the introductory essay explains, historical transitions create changes in individual life experiences, but a historical transition is not experienced by all in the same way. An individual's stage of development and other circumstances will shape the impact of major historical changes. The editors suggest that a life-course approach, in which the family is the point of intersection between individual and historical transitions, offers historians and developmentalists a unique opportunity for cooperation. Three of the six collaborative studies reported on in the volume are organized around the relationship between particular historical and life transitions. Three others consider the variability of life transitions across historical time.

The Great Depression and World War II are the historical transitions that focus William Tuttle's study of father-absent households and Glen Elder and Tamara Hareven's account of the future prospects of two groups of young men growing up during the 1930s. Each essay shows how the social changes initiated by the needs of a country at war affected the experiences of young people. Tuttle, a historian, acknowledges the usefulness of studies of fatherless homes in the present era but points to the significance of historical context in assessing the impact of fathers' absence on child development. Father-absence has a different meaning and is assimilated differently during wartime and at other historical points. Elder and Hareven outline the ways in which the war was a turning point from which young men disadvantaged by the depression moved on to stable economic futures. John Modell and Robert Siegler investigated the issue of development and human diversity by examining changes in IQ scores over the 20th century. "Developmental inequalities of children," they conclude, "seem to have remained fairly stable over the past century . . . despite marked improvements in such resources devoted to child development as nutrition, health care, and formal education" (p. 103). The historical perspectives outlined in these three contributions thus call for a reexamination of the developmental outcomes currently associated with social and familial handicaps.

Adolescent females and fatherhood are the subjects of efforts by three other sets of authors to trace how developmental transitions differ in different historical contexts. Steven Schlossman and Robert Cairns suggest that the juvenile courts' definition of delinquent behavior among adolescent females changed markedly from the 1950s to the 1980s. Arrests for sexual precocity, once the predominant cause of court appearances, are no longer the norm among female juvenile delinquents. The authors speculate that the difference is probably related to changing community standards but call for more research on adolescent girls both historically and in the present. By comparing 19th-century anorexia nervosa with its present-day counterpart, Joan Jacobs Brumberg and Ruth Striegel-Moore relate the upsurge in cases of anorexia and bulimia among adolescent girls to changes in cultural expectations of female beauty and different patterns of eating. They show how the meanings of symptoms for the adolescent girls are dependent on the cultural context of the disease. In "Fathers and child rearing," Ross Parke and Peter Stearns suggest that developmentalists of today are working with implicit assumptions about good and bad fathering in the past, assumptions that historical research will not bear out.

The editors believe that the sort of collaboration exhibited in these essays will move the history of childhood beyond the "snapshot" perspective in which they see the current field mired. In addition to the advancement of historiography, however, they argue that collaboration with historians and use of historical evidence will allow developmentalists to test their assumptions regarding the invariance of developmental processes and to grasp more firmly what Emily Cahan and her co-authors call "the elusive [invented] historical child." As Michael Zuckerman points out in his summary assessment of the project, it is not so much the environmental context that historians offer as evidence for the relativity of cultural assumptions, perhaps even for the social construction of the developmentalists' theoretical models.

While praising the efforts of the group, Zuckerman calls for a more genuine form of cooperation than so far exhibited. Collaboration should involve the reframing of questions by both developmentalists and historians in such a way that developmentalists will get beyond the obligatory nod to history as a prologue to the real stuff of developmental science: "History that does not even inform, let alone transform the colloquy that ensues is history that does not require historians, except for their ritual authority" (p. 232). And the message of this volume is that the historian's perspective and the historian's evidence can make

a difference in the way the developmentalist thinks about children. The research agenda of the future belongs to the historians, the editors of the volume agree, but the vocabulary will come from the developmentalists. Together, working "at the disciplinary boundaries" and shunning the positivism of a narrowly scientific paradigm of child development, they believe they can construct a better version of the past and present of childhood. The six "child studies" (for as hybrids these cases will need a new label) are meant to be read as a "first report from the field," according to the editors (p. 3), and when taken as such they provide both historians and developmentalists with much food for thought. Neither field should ignore the challenges represented by *Children in Time and Place*.

Kathleen W. Jones
Department of History,
Virginia Polytechnic Institute
and State University,
Blacksburg, VA 24061–0117, USA

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Help and Containment

Inventing the Feeble Mind. A History of Mental Retardation in the United States. JAMES W. TRENT, JR. University of California Press, Berkeley, 1994. xii, 356 pp. + plates. $30 or £25. Medicine and Society, 6.

James Trent opens his history with the familiar nursery rhyme, dating from the late 18th century, about "Simple Simon" who, once he found he could not buy a pie, went a-fishing for a whale in his mother's pail. This good-natured, if condescending, view of the feeble-minded, he claims, expressed post-revolutionary Americans' sympathetic, even romantic, view of feeble-minded individuals. During the 19th century, this view changed dramatically and for the worse. Along with the building of specialized institutions intended to help and contain dependent men and women came a reconceptualization (or, to use Trent's stronger term, "invention") of idiots (among others) as exemplars of a general type (in this case, frightening defectives) rather than as individuals.

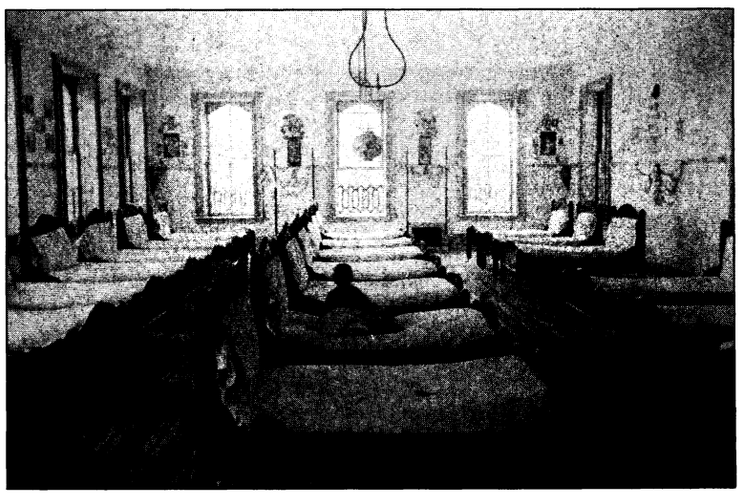
To many historians, this story is a familiar one, first told by David Rothman in *The Discovery of the Asylum* (1971). Trent acknowledges his debt to Rothman, as well as to Erving Goffman, whose *Asylums* (1961) offered a powerful analysis of how deviance is socially constructed. Trent divides social scientists who study the history of social control into two schools: those who, like himself and Rothman, take a "conflict and revisionist approach" and those who, like Gerald Grob and myself, embrace a "consensus-based new humanitarianism," according to which the motives of medical and social reformers' are viewed as well-intentioned or mixed, albeit flawed (pp. 279–280).

Trent is right to suggest there has been a long debate over these issues, but that debate is fast losing freshness and energy. Many scholars, including Trent, are turning to new questions. They are exploring the larger socioeconomic contexts within which institutions of social control, usually state or local, operate. They also are expanding the casts of their sociomedical dramas, forcing doctors and lawyers to share center stage with patients, families, and a host of "lesser" professionals. Sometimes the results are a bit cacophonous, but such works have an emotional intensity not often found in standard institutional and political histories.

"Military drills, inmates at the Massachusetts School for the Feeble-Minded, ca. 1890." [From *Inventing the Feeble Mind*]

Unfortunately, some of these new voices can be heard only faintly, even by the most intent of listeners. Scholars recreate the histories of ordinary Americans with difficulty; those of us interested in men and women who spent most of their lives in large, isolated institutions face a daunting challenge. Often we can but glimpse their experiences, embedded in the notes of those who cared for them and in family letters. Trent responds to this challenge in imaginative ways, mining exposés, re-viewing over 100 years of photographs of institutionalized men and women, reading parents' letters, and looking through the archives of advocacy groups.

Readers not interested in such historiographical and methodological issues still can learn a great deal from this book. Trent interweaves the intellectual history of attitudes toward the mentally retarded (from 19th-century views of idiocy as hereditary pathology and the feeble-minded as social burdens through the turn-of-the century construction of "the menace of the imbecile" to the "normalization" paradigm of Wolf Wolfensberger and others in the 1970s) with the social history of treatments, especially institutional. Particularly original



"Bedroom of the Illinois Asylum for Feeble-Minded Children, ca. 1880." [From *Inventing the Feeble Mind*; courtesy of Southern Illinois University at Edwardsville, Lovejoy Library, Beverley Farm Records]