test-taker's English proficiency. Cultural deprivation hypotheses wither in the light of data such as those showing increasing differences between blacks and whites at increasing levels of education.

The rival explanation proposed by the authors is titled a community norm theory:

> A more satisfactory explanation [for overall group performance differences on the tests] is simply that the communities represented by the present more-or-less exclusive sociocultural subpopulations in the United States maintain, for historical reasons, different norms, standards, and expectations concerning performance within the family, in school, and in other institutions that shape children's behavior. Young people adapt to these norms and apply their talents and energies accordingly [p. 158].

The authors' elaboration of this explanation suggests that externally applied standards, such as required test performance, or the numerous reforms allocating social responsibility for improved educational outcomes to schools through more stringent curricula and demands on students' time, are partial and inauspicious solutions to educational shortcomings, including the inequities of selective disadvantage. Rather, the process of raising standards must extend "to parents, families, social groups, and every institution in which members of the community participate," and to be realistic such processes "must work on the scale of decades, and not just years" (pp. 158–59).

These conclusions may prove bitter pills for governors, legislators, educators, or citizen activists. And they question both an American penchant to locate attention to social problems in isolated, uncoordinated, and competing agencies and our chronic overreliance on schools as a means for social change. But there appears to be more truth in this assessment of Bock and Moore's than in the flood of rhetoric prescribing one quick educational fix after another in recent decades, and most particularly in recent years.

Disappointments with the work are few. One is that the authors identify few explicit implications of the touted comprehensiveness of their sample. Beyond a prima facie case for improved representation of the surveyed cohort, what biases latent in other major attempts (such as NAEP) to characterize youth on these dimensions are exposed by this work? A second disappointment is no fault of the authors—namely that we do not have truly parallel portraits from past years, say 1970 and 1960, in order accurately to mark trends in the topics covered in the monograph. Nor do we hear a promise that the work might be replicated for a similar cohort in 1990. Given recent public outcry and legislation in the name of educational excellence, this work constitutes a timely benchmark from which to assess dimensions of progress (or its lack) during the 1980s.

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## The Child in Japanese Culture

**Child Development and Education in Japan.** HAROLD STEVENSON, HIROSHI AZUMA, and KENJI HAKUTA. Freeman, New York, 1986. xii, 315 pp., illus. $24.95; paper, $14.95. A Series of Books in Psychology. Based on a conference, 1982.

Japan's recent economic strength and the high academic performance of its schoolchildren have aroused interest, particularly among Americans, in understanding what underlies these phenomena. This book was conceived to meet such interest by drawing attention to child rearing and education as embedded in the broad cultural context of Japan. These 19 papers are authored or coauthored by 32 scholars, American and Japanese, who are predominantly psychologists but also represent education, human development, anthropology, sociology, history, and linguistics. The collection is thus diverse and rich in content and approach.

Two papers by Stevenson *et al.* address themselves specifically to academic performance, using carefully designed tests and tools to compare Japanese and American grade-school children. Japanese children are indeed found to surpass American children in mathematics to an impressive degree, which the authors attribute to the amount of school time devoted to math education and the importance attached to homework. In reading, however, our preconception of Japanese superiority in literacy is refuted sharply by the Stevenson studies. In a chapter on the history and contemporary status of school education, Inagaki describes a change in educational institutions from the Meiji era on and reinforces our general impression that Japanese teaching is more regulated and standardized than the American counterpart.

Several other papers are concerned more with early socialization, focusing on mother-child bonding and its effect on child development, a major theme of this volume. The continuing impact of the late William Caudill and his associates, who in the 1960s pioneered the observational study of mother-infant interaction in the United States and Japan, is evident here. The chapter by Hess, Azuma, and eight others, a good example of international collaboration, summarizes a longitudinal study of linkages between family socialization and school readiness. The researchers found that in the process of instructing preschool children to perform a task, the American mothers asked for more verbal responses from their children than did the Japanese mothers; this is consistent with the findings of the Caudill team. The Japanese mother encourages her child to perform correctly by elaborating her instructions, whereas the American mother does so by repeating the instructions. In soliciting the child's obedience, the American mother asserts her authority, whereas the Japanese mother appeals to feelings or mentions the consequences of disobedience. The authors suggest that the Japanese maternal strategy is more effective in instilling the expectations and norms of adults and thus better prepares children for school discipline. With maternal expectations well internalized, Japanese children are more likely than American children to approach classroom performance as a matter of "receptive diligence," whether or not they find the assigned task interesting (Azuma).

Several psychological papers take mother-child intimacy as a point of departure for exploring the child's emotions and temperament, centering around such variables as attachment, inhibition, and irritability (Takahashi; Chen and Miyake; Miyake *et al.*). Takahashi's general discussion includes a criticism of the dyadic model of mother and child.

Two other papers employ different historical perspectives to examine the mother-child dyad in the framework of family structure. Befu compares the traditional Japanese structure, in which the sexual division of roles makes the wife/mother exclusively responsible for child rearing, to the American model, in which "conjugal alliance" calls for the couple's joint responsibility. Morioka traces the history of "privatization" of the family, especially marked since World War II, whereby communal, multiple parentage is replaced by personal, exclusive parenting.

Cutting across several papers and partially overlapping the mother-child theme is the theme of cultural views of the child (Yamamura; Kojima; White and LeVine; Kashiwagi; Befu). Yamamura elaborates the Japanese traditional belief in the goodness of the child to the point of sanctifying it; Kojima introduces Tokugawa writings on child education, which treat the child as an autonomous learner with inner potentials, difficult to control by an external agent. This view is consistent with Japanese methods of child discipline, in which the mother avoids

asserting her authority. The historical persistence of this laissez-faire attitude toward the child is illustrated by Lewis's astonishment at the "noise and chaos level of Japanese nursery schools" (p. 196). As Lewis notes, however, such classrooms are not unregulated; rather, the teacher delegates authority to the children themselves and designs her teaching to generate the spirit of group cooperation. Interpersonal harmony, "knowing one's role" (Kojima), and "role perfectionism" (Befu) are equally stressed in Japanese society. These polar views of the child as autonomous and disciplined are reconciled in the cultural emphasis, noted by many contributors, upon "effort" as responsible for accomplishments. White and LeVine find in the common vocabulary defining a good child (for example, *sunao*) a convergence of the child's self-development with the social requirement of cooperation.

Some contributions do not fit the picture outlined above, but deserve mention. Two linguistic papers (Kuno; Hakuta and Bloom) suggest possible foci of investigation for the child's language acquisition. Some of the structural characteristics of the Japanese language emphasize the speaker's empathic relationship with the listener and the person spoken about, thus throwing sidelight upon the Japanese self-concept.

Hatano and Inagaki discuss "two courses of expertise": the adaptive skill involving understanding and adaptability to novel situations, and the routine skill oriented toward efficiency within the familiar repertoire. The authors refrain from characterizing *Japanese* child development, but there are hints that Japan's school education fosters routine skill as exemplified by rote learning. Japanese education is characterized in other papers as biased for processual accuracy at the expense of conceptual grasp. Whether this bias impedes creativity and thus should be regarded as a huge price that Japan is paying in the long run for its short-run success remains unanswered.

The diversity of the papers may frustrate those looking for a coherent thesis; the editors leave the making of connections to the reader. Because of its variety, the collection will appeal to professionals and nonprofessionals, Japan specialists and nonspecialists. Those troubled by the problems of American education will gain new insight, if not solutions, from the cross-cultural material cogently presented. For those interested in further study, the concluding chapter by De Vos and Suarez-Orozco provides pertinent guidelines.

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## Continental Geophysics

**The Continental Crust.** A Geophysical Approach. ROLF MEISSNER. Academic Press, Orlando, FL, 1986. x, 426 pp., illus. $70; paper, $34.95. International Geophysics Series, vol. 34.

Geophysical studies of the continental crust have advanced rapidly in the past decade. This growth followed a preoccupation with the oceanic crust that accompanied the plate tectonics revolution in earth sciences. The period of emphasis on continental studies has been marked by progress in deep seismic reflection and refraction/wide-angle studies, magnetotelluric investigations of deep earth conductivity, potential field investigations of gravity and magnetics, improved laboratory measurements of earth materials, and rethinking of geological concepts by field geologists. In *The Continental Crust* Rolf Meissner succeeds in providing a thoughtful and complete overview of the progress of the past decade, with an emphasis on seismological contributions.

The book is essentially in two parts, each about 200 pages. The first part (chapters 1 through 4) begins with basic definitions of the crust, lithosphere, and asthenosphere from a planetary perspective and continues with a useful discussion of laboratory and field measurements of the physical properties of the lithosphere and its constitutive materials. Included are seismological, electrical, potential field, stress determination, and laboratory methods. Overall, this part of the book is far superior to existing texts on geophysical methods, which are generally geared to seismic exploration rather than broader investigations of lithospheric structure. However, many readers will want to supplement this book with another that gives more details regarding the intricacies of the acquisition, processing, and interpretation of deep seismic reflection data.

The second part of the book presents current ideas regarding the composition, seismic structure, and evolution of the continental crust. The exposition on the mineralogy and petrology of the crust (chapter 5) rarely goes beyond college-level material, and a graduate-level course based on this book would certainly benefit from the addition of an advanced review of the petrology of the crust. The final two chapters, comprising some 150 pages, are more advanced and provide a valuable and insightful discussion of the seismic structure of the earth's crust and its probable evolution. For the research scientist, these highly current and complete chapters will form the heart of the book, material to be read and considered more than once. There exists no comparable critical summary of the key seismological observations and their geological implications. Rather than providing long lists of facts or an endless catalogue of examples, these chapters emphasize what is known about the deep structure of shields, platforms, rifts, orogens, margins, and so forth, and what this structure implies for geologic understanding of crustal evolution. The arrangement of these final chapters in chronological order, from the pre-Archean to the Phanerozoic, provides a valuable perspective on the evidence for changes in the evolution of the crust through time.

The scientific presentation in the book is well balanced, but fortunately Meissner is not averse to revealing his personal views, which have evolved over many productive years of research. Two examples are worth noting. One is his view that vertical crustal accretion (magmatic underplating and similar mechanisms), rather than horizontal accretion, is the primary mechanism of crustal growth. This concept is less surprising when one realizes that Meissner regards the creation of an island arc as vertical growth (upwelling of magma), whereas the horizontal transport and accretion of an island arc at a continental margin are not counted as creating "new" crust. A second novel view concerns the mobility of the crust-mantle boundary in active areas; this concept is invoked to explain unusually thick or thin crust and in some cases multiple Mohos. Recent seismic reflection data appear to support the concept of a mobile Moho.

*The Continental Crust* is a valuable, important, and much needed addition to the geophysics literature. It is very readable, with clear, well-chosen illustrations. I recommend it highly to students and researchers alike who seek an excellent survey of current geophysical research in continental crustal studies.

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## Structure in Ecology

**A Hierarchical Concept of Ecosystems.** R. V. O'NEILL, D. L. DEANGELIS, J. B. WAIDE, and T. F. H. ALLEN. Princeton University Press, Princeton, NJ, 1986. viii, 254 pp., illus. $45; paper, $14.50. Monographs in Population Biology, 23.

Ecological systems comprise many populations of different species of organisms and the abiotic parts of the environment with which they interact. Such systems have no boundaries in space or time—they are not discrete, identifiable units like organisms.