flow with record highs along its axis and more than twice the world mean along its coasts. This may restrict the hydrocarbon potential to gas.

With all these exciting developments Coleman's book on the geology of the Red Sea is most timely. Although it is a slim volume (152 pages of text plus a very useful 21 pages of references), it contains a wealth of information ranging from geomorphology, stratigraphy, volcanic and sedimentary history, structure, and geophysics to plate tectonics and economic aspects. The subject treated in the most detail is the volcanic history, reflecting the author's interests. This chapter is a personal account of Coleman's experiences in the Red Sea. He repeatedly raises the vexing problem of the amount of oceanic crust. Unlike the Gulf of Aden, the Red Sea has huge thicknesses of evaporites, and it has been extraordinarily difficult to answer the question of what lies beneath them. After following the U.S. Geological Survey line postulating shore-to-shore oceanic crust at least in the southern Red Sea, Coleman in his epilogue says: "I now believe that the crust under the thick evaporite section consists of extended Precambrian crust invaded by tholeiitic intrusives." Like the biblical parting of the Red Sea, it remains a mystery.

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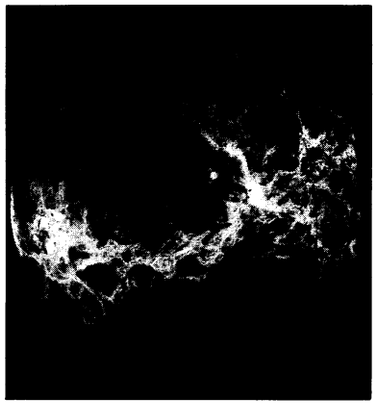
## The Veiled Planet

**Venus.** The Geological Story. PETER CATTERMOLE. UCL Press, London, and Johns Hopkins University Press, Baltimore, MD, 1994. vi, 250 pp., illus., + plates. £25 or $49.95.

The recent success of the Magellan mission to Venus has resulted not only in a significant increase in the amount of available data on this planet but now in mountains of new research papers. With *Venus: The Geological Story* Peter Cattermole attempts to summarize the current state of our knowledge of the surface and interior of Venus. The book captures the essence of a dynamic planet that fascinates specialists and nonspecialists alike owing to its unique spectrum of volcanic and tectonic features and its fantastic geological activity to within at least the last several hundred million years.

The time is indeed ripe for a book on the geology of Venus, and Cattermole has, to use the words of Nathan Bedford Forrest, gotten there "first with the most men." However, the forced march of a quick writing (many of the references are to material published in October 1992 and the preface is dated March 1993) has resulted in an uneven product. The author remarks that the book represents his attempt "to abstract, from a wealth of data, the bare bones of the geology of Venus, almost as it is being written." Indeed, he may not have had time to construct any real synthesis. In 1992, 48 original research papers reporting on Magellan observations were published in two weighty issues of the *Journal of Geophysical Research*. Cattermole's detailed summaries of many of these papers form the bulk of the book. Unfortunately, an absence of continuity between these essays has left the material in a state of disorganization. For example, the most detailed discussion of highland formation occurs in the context of an analysis of one paper about one highland. The organizational problems are especially evident in the presentation of related material, either illustrations or text, from different research papers with no critical analysis of the distinctions between them. In general, the material is not well integrated, with pre-Magellan research not placed in its appropriate post-Magellan context.



*Left*, the western hemisphere of Venus; centered on the area known as Beta Regio. Magellan MRPS 42303. *Right*, a perspective view of Maat Mons, a 5-kilometer-high volcano with a summit caldera complex. "This view, looking south, shows radar-bright volcanic flows extending northwards and embaying ejecta from a 23 km diameter impact crater." Magellan image P-40175. [From *Venus*]

The book gives a balanced overview of impact cratering, surficial processes, volcanism, and tectonism. The material on tectonism is distributed throughout three separate, nonadjacent chapters. Terminology is sometimes confusing: For example, Magellan established that Venus has no globally interconnected tectonic network, which is a signature of plate tectonics. Cattermole recognizes this absence of a network, yet repeatedly refers to Venus's tectonic patterns as "global-scale." The description of the planet's physiography is excessive; much of the information could be obtained simply by looking at a map. In addition, the text reveals some significant misconceptions concerning gravity, isostasy, and heat loss and contains an above-average number of misquotations and minor errors. This is definitely a book to read with pencil in hand.

Despite these flaws, *Venus: The Geological Story* will meet the needs of the nonspecialist seeking a single-volume introduction to the subject. Containing good geological background material and up to date through 1992, it fills the gap between the research journals and more popular, coffee-table books. As in any active scientific field, in Venusian geology it is difficult to pick a stopping point and say, "This is it." This book provides a convenient first stop. It is unfortunate that more recent findings such as the implications of Magellan's gravity data for the interior structure of the planet did not make it into the book. With NASA's apparent early cancellation of Venus-specific data analysis programs, such work may slow, and it is unclear when, in Cattermole's words, "a more complete picture of Venusian geology will . . . emerge."

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## Language and Interaction

**The Transition from Infancy to Language.** Acquiring the Power of Expression. LOIS BLOOM. Cambridge University Press, New York, 1993. xiv, 350 pp., illus. $44.95 or £35.

Regardless of their theoretical persuasions, researchers in language acquisition today recognize (at least in passing) that both nature and nurture are necessary to the child's achievement of language. Most, however, continue to construe those terms in traditional ways that perpetuate an "ei-

ther-or" (or at least primary-secondary) argument. On the one hand, nature is construed as language-specific predispositions for or constraints on the ways grammars, or, more recently, lexicons, can be conceived by the child; on the other hand, nurture is primarily operationalized as care-giver behavior (especially talk) in interactive contexts with children. More than two decades of research have failed to resolve the old debate about the predominance of one element over the other. Moreover, neither a focus on inherent capacities nor a focus on social interaction has led to uncontroversial explanations of the well-described courses of development that language-learning children display. Progress in building a developmental theory of how nature and nurture function jointly to accomplish language acquisition may require moving beyond the traditional construals of those terms.

Lois Bloom, in *The Transition from Infancy to Language*, takes up this formidable challenge by addressing the need for a theory accountable to the developmental data of lexical acquisition while at the same time providing an alternative to the language-specific–constraints view of the child's mental capacities. She proposes an interactive model of language development—interactive in her scheme both because the child's situation in a social context is essential and because language development is essentially related to cognitive and affective capacities. Although Bloom shares much with others in the social interactionist camp, she creatively extends that perspective by proposing a generally plausible, more specific account of the child's mental abilities that inextricably mesh with the social context to explain lexical development.

The child as depicted by Bloom is guided into language by *mental meanings*—dynamic intentional states, personal meanings represented in consciousness—that the child has available for expression. These states are driven by and based in intersubjectivity; mental meanings are at once a product of and a source for participation in a social world. Moreover, they change in character over time as a consequence of more general cognitive developments, for example, as children increase their ability to construct specific semantic relations between objects.

Bloom proposes three cognitive principles, or as she says, generalizations, to explain the child's development of expression of mental meanings: *relevance* refers to the child learning words for things in mind, typically actions or objects with affective importance; *discrepancy* refers to the increasing tendency to talk about things (objects and events) not immediately discernible from the nonlinguistic context; and *elaboration* refers to the increasing importance and complexity of relations among objects, actions, and events. Together, these principles describe how the child develops a vocabulary rich in relational as well as object and action terms. The proposal that cognitive development constrains language development is in the tradition of old cognitive-prerequisites-for-language arguments, but Bloom's principles and the way they intimately relate to the specifics of word learning are an original contribution. Bloom argues that her model of the child's mental development in a social context accounts for the facts of lexical acquisition, with no need for specifically linguistic, inherent constraints on word learning.

Bloom deftly interweaves a broad array of others' research (including Piaget's) among her arguments, but the data for the model come primarily from a major longitudinal study by Bloom and her students of 14 children interacting with their mothers in a playroom as they progressed to first words and then through a vocabulary spurt. Details of her study have been published elsewhere; hence in this volume Bloom focuses only on the main findings. Some of the reports, such as those relating changes in vocabulary to developments in play with objects, are convincing and help to clarify the notion of interrelations among areas of development; others seem more tangential to the theoretical claims of the book (for example, the intricate discussion of the analyses concerning displays of emotion and their possible relation to language production). More examples of actual dialogic interactions between parent and child as instances of intersubjectivity and the developing complexity of mental meanings would have been welcome additions.

Despite the importance to her model of intentionality and intersubjectivity, Bloom explicitly denies that the child has command of a full-blown theory of mind. By doing so, she separates herself from the untenable view that the child has broad knowledge of others onto which language can be easily and readily mapped. Although it is not always clear just what Bloom is granting the child in the way of mental understandings, her approach is a sensible one, grounded in a conservative yet comprehensive view of the young language learner's cognitive and social competencies. Thus she provides a persuasive account of the early stages of word learning. It remains to be seen whether the kinds of inherent language-specific constraints that are largely rejected by Bloom will still be required to account for later lexical progress or the acquisition of grammar or whether, as she says, "linguistic assumptions acquired early in language learning can be expected to 'bootstrap' subsequent language learning." In either case, this book is an important step forward in the attempt to account for early word learning from the perspective of real children faced with the task of acquiring and using a language.

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## Books Received

**The Ancient Southwestern Community**. Models and Methods for the Study of Prehistoric Social Organization. W. H. Wills and Robert D. Leonard, Eds. University of New Mexico Press, Albuquerque, 1994. xvi, 256 pp., illus. $45. From a symposium, Albuquerque, NM, Jan. 1990.

**The Antarctic Paleoenvironment**. A Perspective on Global Change. James P. Kennett and Detlef A. Warnke, Eds. American Geophysical Union, Washington, DC, 1993. xiv, 273 pp., illus. $57; to AGU members, $39.90. Antarctic Research Series, vol. 60. From a conference, Santa Barbara, CA, Aug. 1991.

**Anthropometry**. The Individual and the Population. S. J. Ulijaszek and C. G. N. Mascie-Taylor, Eds. Cambridge University Press, New York, 1994. xiv, 213 pp., illus. $54.95. Cambridge Studies in Biological Anthropology, 14. From a workshop, Cambridge, U.K.

**Anticancer Drugs from Animals, Plants, and Microorganisms**. George R. Pettit, Fiona Hogan Pierson, and Cherry L. Herald. Wiley, New York, 1994. xiv, 670 pp., illus. $89.95.

**Atlas of Neptune**. Garry E. Hunt and Patrick Moore. Cambridge University Press, New York, 1994. 84 pp., illus. $27.95.

**Bioprocess Engineering**. Systems, Equipment and Facilities. Bjorn K. Lydersen, Nancy A. D'Elia, and Kim L. Nelson, Eds. Wiley, New York, 1994. xiv, 805 pp., illus. $89.95.

**Bird Migration**. A General Survey. Peter Berthold. Oxford University Press, New York, 1994. x, 239 pp., illus. $52.50; paper, $26.50. Oxford Ornithology Series, 3. Translated from the German edition (1990) by Hans-Günther Bauer and Tricia Tomlinson.

**Breast Cancer**. I. S. Fentiman and J. Taylor-Papadimitriou, Eds. Cold Spring Harbor Laboratory Press, Cold Spring Harbor, NY, 1993. viii, 239 pp., illus. $69. Cancer Surveys, vol. 18.

**The Collapse of Chaos**. Discovering Simplicity in a Complex World. Jack Cohen and Ian Stewart. Viking, New York, 1994. x, 495 pp., illus. $23.95.

**Collins Dictionary of Astronomy**. Valerie Illingworth, Ed. HarperCollins, New York, 1994. viii, 520 pp., illus. Paper, £8.99. New edition of *Macmillan Dictionary of Astronomy*.

**Computational Geometry in C**. Joseph O'Rourke. Cambridge University Press, New York, 1994. xii, 346 pp., illus. $59.95; paper, $24.95.

**Concepts in Virology**. From Ivanovsky to the Present. Brian W. J. Mahy and Dmitri K. Lvov, Eds. Harwood, Langhorne, PA, 1993 (distributor, International Publishers Distributor, Langhorne, PA). xxii, 438 pp., illus. $90 or £59. From a symposium, St. Petersburg, Russia, Sept. 1992.

**Concise Encyclopedia of Chemistry**. De Gruyter, Hawthorne, NY, 1994. viii, 1201 pp., illus. $69.95. Translated from the German edition (Mannheim, 1993) by Mary Eagleson.

**Corticotropin-Releasing Factor**. Wiley, New York, 1993. x, 357 pp., illus. $72. Ciba Foundation Symposium 172. From a symposium, London, March 1992.

**The Dictionary of Science**. Peter Lafferty and Julian Rowe, Eds. Simon and Schuster, New York, 1994. iv, 678 pp., illus. $45.

**Environmental Impact Assessment for Waste Treatment and Disposal Facilities**. Judith Petts and