cussed in the introduction. The attempts that are made in the book to construct bridges to the general theory of motivation are rather limited. For example, "drive" has been around for a long time. No one seems to know quite why we need the concept, but we keep putting it on display. It tends therefore to assume a variety of uncertain functions. Stellar and Stellar don't add much in the way of clarification. They write, "Motivated behavior is goal-directed behavior and is thought by most theorists to be dependent upon specific arousal or *drive* of the organism" (p. 29).

I'm not sure whether we are to accept or to abandon the Hullian notion of drive as an internal source of motivation. The term "acquired drive" is introduced in the book, but, in the light of attempts to condition eating and drinking behavior, it is not clear to me what an acquired drive is or even whether it exists.

I would like to have seen more attempt at a synthesis and more critical evaluation of the general implications of the results obtained. For example, reward needs to be central to learning theory. Although the book does justice to Cabanac's hedonic model, the opportunity to link it with Rolls's neuronal model or Bindra's incentive theory model has been missed. I was disappointed to see that contemporary studies of ingestive behavior are integrated rather little into the book. They would have provided a context for the authors' ideas.

The authors have stuck to their brief rather closely and have moved only a little way toward addressing the theory of motivation. However, even that is most welcome, and the book is to be recommended.

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Landform Evolution

Geomorphology. RICHARD J. CHORLEY, STANLEY A. SCHUMM, and DAVID E. SUGDEN. Methuen, New York, 1985. xxiv, 605 pp., illus., + plates. $30.

Geomorphology is concerned with the origin, description, and evolution of the landscape, which necessarily entails a concern with the long-term influence of tectonism and climate change. The science has its modern origins in the late 19th century, when investigators developed general models of landform evolution that could apply to landscapes having continental scale. As the authors of this book note, the measurement of geomorphic processes was avoided; the prevailing view was that landforms changed so slowly that no meaningful measurements applicable to landscape evolution could be made. Models of landform development were thus unverifiable. In the past 40 years there has been a dramatic shift toward the study of surficial processes involving the quantitative analysis of short-lived phenomena. In certain instances measurement of processes and landform change can be utilized to construct and verify models of landform development. Renewed interest in landform evolution has also been brought about by the realization that in some environments modern surface processes may only be etching the surface of a landscape inherited from an earlier geomorphic regime.

This book is notable because the authors have integrated modern concepts of landscape evolution with a comprehensive review of process geomorphology. The book has a coherent, well-defined structure. The historic development of landform models is treated by way of a thought-provoking review of the contributions of Davis, Gilbert, Penck, and King. Both the strengths of these earlier models and their weaknesses, particularly the lack of hard data on landform change, are described. The dependence of the models on the views of global tectonics that prevailed when they were developed is evident. In modern research, structure and tectonics form one of the boundary conditions for models of landform evolution. Modern theories of landscape development incorporate not only a progressive denudation chronology, inherited from these earlier theories, but also subordinate, internally driven cycles that operate through feedback and threshold mechanisms. In particular, process geomorphology has been important in identifying the nature and role of these subordinate cycles in landform evolution.

The book's treatment of structural geomorphology will provide students from outside the field of geology with an introduction to earth materials, structure, and the resulting landforms. From a pedagogical point of view this is an important consideration. In practice, however, a section of the book that discusses minerals, rocks, and sediments detracts from the continuity of the book. In future editions the section should be pared down to omit details that are not incorporated in later discussions.

The heart of the book is a review of process geomorphology in which the authors point out the major inconsistencies and gaps in our present knowledge. For example, despite nearly a century of effort, it is difficult if not impossible to make estimates of sediment transport rates and sediment budgets that can be translated into predictions of landform change. The discussion of process geomorphology will introduce the student to the complexity of the natural system.

Climatic geomorphology and the theory of morphogenetic regions are treated with caution. Such caution is warranted, for geomorphologists still do not have an adequate understanding of the manner in which climate affects landform development and process geomorphologists may have overemphasized the importance of modern processes relative to landscape inheritance from past climatic regimes in the control of landform development.

The book ends with an afterthought on the role of geomorphology in evaluating environmental problems.

Overall this is an excellent book. The level of discussion assumes some prior training in the subject. Still, the book will find wide acceptance at the advanced undergraduate and graduate levels and will be a primary reference for researchers in the field.

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Issues in Quantum Physics

The Creation of Quantum Mechanics and the Bohr-Pauli Dialogue. JOHN HENDRY. Reidel, Boston, 1984 (distributor, Kluwer Boston, Hingham, Mass.). xii, 177 pp. $34.50. Studies in the History of Modern Science, vol. 14.

Hendry begins this study of the beginnings of quantum mechanics by examining the views of Bohr and Pauli around 1922 concerning the kinds of concepts that can or should be used in a physical theory. Are all classical concepts legitimate (Bohr's view), or must theories be restricted to dealing with observable properties (Pauli's)? Are the notions of field and continuity crucial to our understanding of certain physical phenomena (Bohr), or must we work only with the notions of particle and discontinuity (Pauli)? Should energy conservation be relinquished in order to retain something like classical space-time descriptions (Bohr), or are such descriptions unimportant (Pauli)? A full chapter is devoted