mode of production. The Asiatic state is a relatively small-scale political unit consisting of a ceremonial center and smaller secondary centers (a two-tiered settlement pattern). The basis of the state is a conical clan whose head controls foreign trade, corvée labor, and the production and distribution of certain tools and sumptuary goods. Women now move in marriage from lower- to higher-ranking groups, and redistribution becomes increasingly asymmetrical. For reasons the universal applicability of which is not made entirely clear, there is increasing bilaterality and matrilocality in the kinship of the upper classes. Religious power constitutes the basis of political power, rich and poor sharing beliefs that support economic inequality, as Godelier argues such beliefs did among the Inca.

As society grows still more complex, the production of prestige goods increases in volume and importance and replaces ritual superiority and kinship ties as a basis of political control. Within royal houses, a split develops between sacred and secular offices, which is projected into a dualism of cosmological concepts.

Eventually, problems of maintaining monopolies over long-distance exchange result in secondary centers' being able to produce their own prestige goods. This leads to a breakdown of control hierarchies, increasing competition, and the emergence of territorial and city states. These are based on intensive irrigation and later on the production of high-value exchange goods. They are also characterized by urbanism and have political systems based on the control of accumulated wealth and external exchange rather than on genealogical status.

Friedman and Rowlands's model contains many familiar elements, such as conical clans and the notion of theocratic control long popular among American anthropologists. It draws attention to certain phenomena recurring in many early states, in particular matrilineal tendencies and dualistic principles. The latter parallels have generally been ignored since W. J. Perry tried to account for them in terms of his discredited hyperdiffusionist theories. Yet it is by no means established by Friedman and Rowlands, any more than it was by Perry, that these phenomena are anything more than fortuitous collections of unrelated developments. It is also by no means self-evident from comparative ethnology that their specific tribal system is inevitable as a basis for early civilization. The connections between the societal aspects of the model and the archeological sequences they purport to explain are so loose as to leave the model untested, a work of pseudohistory such as social anthropologists once rejected outright. However important a role social organization plays in explaining cultural change, any credible theory of the development of civilization must be framed far more than is the present one in terms of variables that are archeologically testable. Moreover, while the model claims to account for how civilizations developed, it does not appear to explain why they did so, let alone why particular civilizations developed where and when they did. We know very little about the social, political, and religious functioning of even the best-documented phases of the early civilizations. Contrary to what Friedman and Rowlands (and many of the anthropologists they criticize) imply, a better understanding of the development of these civilizations may depend on first learning more about their synchronic organization.

I have long advocated that much can be learned about sociocultural change by examining how elements of culture relate to patterns of social interaction. I agree with Colin Renfrew (in this volume) that for many purposes the concept of society can profitably replace that of the archeological culture. Yet in general it would appear that the concept of society is useful more for showing how change takes place than for accounting for why it does. The formulation of systematic theoretical frameworks has never been a strong point of social anthropology. The arguments advanced in this book do not convince me that the demo-techno-economic studies currently popular in American anthropology do not deal with "movers" that are worth studying in their own right. We must also take seriously W. Y. Adams's recent argument (in his *Nubia: Corridor to Africa*, Princeton University Press, 1977) against the idea that a fixed relationship between society and culture necessarily can serve as a principle for understanding cultural history. A full understanding of sociocultural change may require integrating studies of various aspects of cultures within the context of a societal approach. This does not, however, endow the latter with explanatory priority.

Friedman and Rowlands caricature American neo-evolutionary anthropology (including the New Archeology) as being preoccupied with typologies of developmental stages rather than with producing explanatory models of the evolution of social systems. This is clearly a bit of academic mudslinging. It echoes Julian Steward's extraordinary claim that V. G. Childe sought only to delineate universal stages rather than to determine the causes of cultural change (*Theory of Culture Change*, University of Illinois Press, 1955, p. 5).

This book contains a number of essays analyzing particular sequences of social change using ethnological or historical data. Each is of interest in its own right. R. A. Rappaport's essay maintains that the ultimate goal of any general system (such as a society) must be to ensure its survival. In spite of the distinguished natural science credentials of this view, Anne Whyte demurs, as presumably do many of the contributors to this volume (in particular the Marxists). These implicitly favor a more teleological view of social change. Although the other papers do not take up this argument, it is an issue that lies at the core of any discussion of social change.

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A Mesoamerican Culture

The Toltecs. Until the Fall of Tula. NIGEL DAVIES. University of Oklahoma Press, Norman, 1977. xviii, 534 pp., illus. $14.95. The Civilization of the American Indian Series, vol. 144.

In this most recent of a long series of attempts to understand something of the culture history of the Toltecs—a predominantly Nahua-speaking people who may (or may not) have dominated Mesoamerica between the 10th and 12th centuries A.D.—Nigel Davies reviews nearly every available scrap of historical and archeological data pertaining to this remarkable group. As a compendium of carefully weighed information, his study is unmatched in the recent literature. But because there is hardly a conclusion that is not hedged with words such as "perhaps," "the available evidence suggests," and "a more likely solution would be," book-length publication for the general public seems premature.

Technical difficulties abound from the first pages. Historical references to the Toltecs and closely related peoples are indeed frequent in early textual sources, but the available material is, to quote the author himself, "so confused and contradictory that one would be left baffled without the aid of the archaeologist." Unfortunately, the status of pertinent archeological studies is hardly better, given the still contradictory results of radiocarbon dating, to say nothing of chronol-

ogies based on ceramic cross-ties or stylistic criteria, for the Toltec capital at Tollan (modern Tula, Hidalgo) and for other sites, such as Chichen Itza in Yucatan, where Toltec influence is supposed to have prevailed sometime during the Early Postclassic. As a result of this situation, Davies is obliged to match conjectural reinterpretations of calendrical dates available in the historical sources with the still highly uncertain dates suggested by archeology. Many of his interpretations appear to be well founded, but in most instances the argument aims at persuasion rather than proof.

Insofar as the use of history to clarify developmental sequences of the type most clearly represented in the archeological record is concerned, the results are not a great deal better. The historical texts, most of which now exist only in versions composed in Aztec times (around 1300 to 1521), describe Tollan as a magnificently wealthy city that controlled a vastly powerful imperial system. Archeology indicates that it was at least a well-populated urban center (population estimates cited by Davies range up to 60,000 inhabitants), but its ceremonial center was less than imposing by Mesoamerican standards, and there is little physical evidence elsewhere to indicate whether or not territories not in the immediate vicinity were subjected to a Toltec empire. Davies suggests that Aztec historians greatly exaggerated the status of Tollan because their rulers, who claimed lineal descent from a dynasty that included the celebrated priest-ruler-god Topiltzin Quetzalcoatl ("our prince plumed serpent"), hoped to legitimize their own imperialism by right of succession to a previously established hereditary domain. Once again, the argument rests on circumstantial grounds compatible with more than one interpretation.

The most serious weakness in Davies's predominantly historiographic approach, it seems to me, is that the questions posed require definitive answers of a type that cannot now be achieved. It is impossible to quarrel with the idea that history and archeology should be combined whenever possible. *The Toltecs* at least singles out those questions concerning which further research (especially leading to refinements in archeologically based chronologies) may ultimately yield more convincing results.

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Axonal Conduction Processes

Physiology and Pathobiology of Axons. STEPHEN G. WAXMAN, Ed. Raven, New York, 1978. xiv, 448 pp., illus. $32.50.

Although the basic molecular details underlying the generation of nerve impulses in axons have yet to be resolved, many modern neurobiologists seem to feel that the phenomenological description of ionic conductances provided some 25 years ago by Hodgkin and Huxley is all the knowledge of axonal physiology that is necessary for the understanding of "higher functions" of the nervous system.

This volume questions this perspective by suggesting that axons, rather than being merely conduits carrying signals between distant parts of an organism, may actually play significant roles in information processing and that in pathological states many phenomena observed clinically might eventually be traced to alterations in axonal conduction processes. There is an elegant demonstration of the relationships between geometrical features of axons (including variations in their branching patterns) and transmission of nerve impulses and between postactivity threshold changes and alterations in temporal patterns at regions of low safety factor. The book not only contains ample discussion of the origin of pathological states, it also considers changes in axonal conduction under such conditions. There is extensive treatment of the immunobiology and pathophysiology of demyelination and of peripheral neuropathies, with speculation concerning a possible link to aberrations of axoplasmic transport, and the anatomy and physiology of regenerating and remyelinating axons are covered. Introductory material dealing with structural features of normal central and peripheral nervous system fibers is quite complete, including a discussion of the application of freeze-fracture techniques to the study of myelinated nerve, and provides the necessary framework within which to approach the later material. Evidence is presented for the morphological specialization of the membrane of the node of Ranvier as well as of the initial segment. Finally, there is a speculative but interesting chapter that attempts to deal with the relationship between axon and Schwann cell in myelin formation.

The only serious defect in the volume lies in its coverage of biophysical topics. Although there is an excellent treatment of the basic electrophysiology of normal nodes of Ranvier, the other chapters concerning what have been termed "gating currents" and the use of optical probes are narrow in scope and too self-serving to be generally useful. It is probable that as a molecular scheme the Hodgkin-Huxley formulation has serious defects, and it would have been interesting to try to deal with the implications for neurobiology of recent improvements in our understanding of membrane conductance mechanisms.

Nevertheless, the book is fundamentally sound and should find a wide audience, including not only the majority of neurobiologists, but also neurologists, immunologists, and cell biologists concerned with nervous system diseases. Although the book contains 25 chapters by 34 authors, the overall integration of topics is unusually good, and with a few exceptions the chapters are well written and relatively free of bias and contain quite exhaustive references to the literature through much of 1977.

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Automatic Potentiometric Titrations. G. Svehla. Pergamon, New York, 1978. x, 220 pp., illus. $29.50. International Series in Analytical Chemistry, vol. 60. *To order this book circle No. 390 on Readers' Service Card*

Avian Breeding Cycles. R. K. Murton and N. J. Westwood. Clarendon (Oxford University Press), New York, 1977. xiv, 594 pp., illus. + plates. $48.

The Bases of Economic Geography. Ronald R. Boyce. Holt, Rinehart and Winston, New York, ed. 2, 1978. xiv, 434 pp, illus. $14.95.

Basic Biogeography. Nigel Pears. Longman, New York, 1977. xii, 272 pp., illus. Cloth, $16.50; paper, $8.50. *To order this book circle No. 391 on Readers' Service Card*

Basic Electric Circuit Analysis. D. E. Johnson, J. L. Hilburn, and J. R. Johnson. Prentice-Hall, Englewood Cliffs, N.J., 1978. xvi, 526 pp., illus. $19.95.

Behavioral Tolerance. Research and Treatment Implications. Papers from a meeting, Rockville, Md., June 1977. Norman A. Krasnegor, Ed. National Institute on Drug

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