discussion of the Pinson and Helena mounds. New data are presented on the Cow Mound and Keller phases of the Marksville Period.

The Baytown Period presentation contains a review of the distribution of the Baytown and Barnes traditions in the region with emphasis on the Hoecake Phase in the Cairo Lowland of southeastern Missouri.

In chapters 10, 11, and 12 the ascension, fluorescence, and ultimate demise of the Mississippian lifeway are traced. The authors point to the Cairo Lowland as a place central to Mississippian development, an idea with which I do not agree. There is no doubt that inhabitants of the Cairo Lowland shared in the development of Mississippian, but it probably developed simultaneously over most of the Bootheel of southeastern Missouri, in the extreme northeastern portion of Arkansas, and in the stream valleys draining the eastern Ozarks. In the seventh or perhaps eighth century A.D. there developed an important tradition marked by the presence of shell-tempered, red-filmed, or highly oxidized ceramics typified by globular jar forms with recurved rims, a tradition that must be considered directly on the cultural trajectory that ultimately led to that lifeway typified by the complex sociopolitical organization after about A.D. 1150. The famous Cahokia site to the north is no place to look for the origins of this tradition, for, as several recent studies have indicated, while Cahokia was still using ceramics tempered with crushed limestone shell-tempered, red-filmed jars, presumably from southeastern Missouri, were being acquired through trade.

A credible review of Mississippian consolidation after about A.D. 1000 and Mississippian nucleation about A.D. 1350 is presented, with a description of the subsequent abandonment of that area where the Mississippian lifeway was first forged. The authors attempt to tie provinces visited by the De Soto expedition with archeological phases in eastern Arkansas.

The volume ends with a chapter on historical archeology in the Central Mississippi Valley. The Spanish and French periods are discussed as well as the archeology of the 19th century after the Louisiana Purchase. There follows an intriguing documentation of a case of archeological counterfeiting involving the manufacture of bizarre sandstone sculptures, allegedly by a Jonesboro, Arkansas, resident in the 1920's and 1930's, and the public's belief in the authenticity of these specimens, reputedly of Aztec origin.

Though I do not agree with all the views presented in this work I fully appreciate it as the first serious attempt to bring together the full range of archeological resources in the Central Mississippi Valley. Though it is not the last word on many subjects with which it deals, it provides new insights and points to new directions for research. I recommend it to anyone interested in North American archeology.

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Embryology

Time, Space, and Pattern in Embryonic Development. WILLIAM R. JEFFERY and RUDOLF A. RAFF, Eds. Liss, New York, 1983. xviii, 396 pp., illus. $44. MBL Lectures in Biology, vol. 2. Based on a lecture series, Woods Hole, Mass., 1982.

The choice of topics in this book shows how much can be learned from the comparative analysis of the same developmental process in different organisms. The book also shows that we are now in a position to ask meaningful questions about where and when in the embryo certain events occur and to address questions concerning the molecular basis of a pattern and the nature and the mode of operation of morphogenetic determinants.

Although the basic mechanisms of gene expression are similar in prokaryotes and eukaryotes, the egg is not a bigger and better *E. coli*. At the time of fertilization the egg is endowed with a developmental program that results from the expression of its own genes during oogenesis. A classical example, discovered half a century ago, is that in the mollusks the chirality of the spiral cleavage is controlled by maternal genes expressed during oogenesis. Indeed, dextral cleavage depends on a product of the dominant gene (Freeman). Chapters by Mahowald and Kaufman show how much the astute analysis of some *Drosophila* mutants, when combined with the new tools provided by recombinant DNA, may contribute to the understanding of certain developmental events.

It was mainly the work of Davidson and his group that led to the finding that the expression of individual genes changes during development; and changes in gene expression are paralleled by changes in the pattern of proteins synthetized at different times during development (Brandhorst *et al.*). However, the significant role played by post-translational events should not be overlooked. Of particular interest is the case of the mollusk *Spisula*, in which different messenger RNA's are selected from the pool of maternal templates for translation at different times after fertilization. In addition, not only do the first two blastomeres synthesize different RNA's but when separated the embryos developing from the two halves fail to synthesize one protein typical of the larva (Ruderman *et al.*). This interesting finding together with the work on mouse embryo described by Johnson and Pratt highlights the role of interactions between blastomeres in the control of differentiation. New vistas are opened with the ingenious experiments in fusing unfertilized and fertilized sea urchin eggs described by Bennett and Mazia.

The combination of DNA cloning, monoclonal antibodies, in situ hybridization, and blastomere isolation has led to the long-sought demonstration that different cell lines synthesize different messenger RNA's and different proteins at different times (Klein *et al.*; Angerer and Angerer; Harkey; McClay *et al.*). However, caution should be exercised in inferring the localization of macromolecules from cell fractionation procedures. The nuclear localization of the histone mRNA in the sea urchin egg is a case in point (Raff).

The vegetal body in the polar lobe of annelid embryos (Dohmen) and the cytoplasmic component that is selectively segregated in the germ line of the nematode *Caenorhabditis* (Wood *et al.*) are examples of morphogenetic determinants. The anterior and posterior determinant proteins in *Smittia* (Kalthoff) are intriguing. The ascidian embryo is one of the classical materials for the study of morphogenetic determinants. Now it has been discovered by Jeffery that the cytoskeletal elements are differently organized in the different blastomeres and that they are associated with mRNA. This association may provide the basis for the establishment of specific patterns.

Although the reorganization of the egg following fertilization has long been known and its importance for the establishment of the embryonic axes generally acknowledged, its molecular basis is still very poorly understood. In this respect a discussion by Gerhart *et al.* of the polarity of the amphibian egg provides food for thought.

Jeffery and Raff have put together a first-class collection of lectures. A chapter on the theoretical aspects of pattern formation would have been a worthwhile addition.

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Some Other Books of Interest

Current Ornithology. Vol. 1. RICHARD F. JOHNSTON, Ed. Plenum, New York, 1983. xvi, 425 pp., illus. $39.50.

The series *Current Ornithology* is an outcome of the Workshop on a National Plan for Ornithology initiated in 1975–76 under the sponsorship of the American Ornithologists' Union and the National Science Foundation. The intent is to present, at regular intervals, relatively short "reviews or position statements concerning the active fields of ornithological research" that "often will be done from the viewpoint of a readily-identified group or school." The papers in the first volume include discussions of comparative avian demography by Ricklefs, the determination of clutch size in precocial birds by Winkler and Walters, variation in mate fidelity in monogamous birds by Ford, and the evolution of differential bird migration by Ketterson and Nolan. The remaining eight papers, by Carey, Corbin, Cracraft, Hinchcliffe and Gumpel-Pinot, Martin, Rising, Shields, and Sibley and Ahlquist, deal with other issues of ecology, phylogeny, systematics, genetics, and development.

—K.L.

Planning and Analysis of Observational Studies. WILLIAM G. COCHRAN. Lincoln E. Moses and Frederick Mosteller, Eds. Wiley, New York, 1983. xiv, 145 pp. $21.95. Wiley Series in Probability and Mathematical Statistics.

This is a posthumous work that has been prepared for publication by two of the author's associates. The class of studies it is concerned with is those in which controlled experimentation is impossible, as in the assessment of a given medical treatment or public health hazard when "the groups of people whom the investigator wishes to compare are already selected by some means not chosen by the investigator." The presentation is "addressed not to statisticians but to subject-matter people who do or may do" such studies. It is arranged according to concepts of methodology rather than of "subject matter," with chapters on sources of variation in responses, statistical techniques involved in drawing conclusions from data, the planning of studies, the matching of populations and adjustments in the statistical analysis as ways of dealing with the problem of confounding variables, and studies in which there is no external comparison group. Some examples from actual studies are cited, and short lists of references to other literature dealing with issues of methodology are included.—K.L.

Tree Rings and Telescopes. The Scientific Career of A. E. Douglass. GEORGE ERNEST WEBB. University of Arizona Press, Tucson, 1983. xiv, 242 pp., illus. $19.50.

Andrew Ellicott Douglass (1867–1962) began his career in astronomy as an assistant to William H. Pickering at Harvard. Moving to Flagstaff, Arizona, in 1894, he was active in the establishment of the Lowell Observatory there and became principal assistant to Percival Lowell. Dismissed by Lowell in 1901 in the wake of his increasing skepticism toward Lowell's theories concerning life on Mars, he eventually found a position at the University of Arizona in Tucson. There he was instrumental in the establishment of the Steward Observatory, of which he served as director until 1937. In addition to his activities in solar and planetary astronomy Douglass pioneered in the science of dendrochronology. Particularly concerned with relating terrestrial weather to solar activity, he developed techniques for using the annual growth rings of trees for dating archeological remains as well as for tracing climatic cycles. The Laboratory of Tree-Ring Research at the University of Arizona is part of his legacy in this field. In the present biography Douglass's two overlapping careers are traced separately. The author, a historian, has drawn heavily on the Douglass papers on deposit at the University of Arizona library.—K.L.

Observers Observed. Essays on Ethnographic Fieldwork. GEORGE W. STOCKING, JR., Ed. University of Wisconsin Press, Madison, 1983. vi, 242 pp., illus. $19.95. History of Anthropology, vol. 1.

As the editor notes in the introductory chapter, the series this volume inaugurates is an outcome of the development of a more systematic concern on the part of both anthropologists and historians with the history of anthropology. It is intended that the individual volumes of the series will generally be organized around particular themes "of historical and contemporary anthropological significance," although miscellaneous studies on "non-theme topics" will also be accommodated. The present volume contains seven papers on the theme of "participant-observation" as a style of inquiry: a partial translation by Douglas Cole of Franz Boas's Baffin Island letter-diary of 1883–84; accounts by Curtis Hinsley of the work of Frank Cushing and Jesse Fewkes in the American Southwest, by Stocking of fieldwork in British anthropology in the late 19th and early 20th centuries, and by James Clifford of the development of Marcel Griaule's ethnographic method; a consideration by Joan Larcom of Bernard Deacon's work in the New Hebrides in the light of her own subsequent work there; a retrospective account by Homer Barnett of his own work in Palau; and an "essay review" by Paul Rabinow of Clifford's *Person and Myth: Maurice Leenhardt in the Melanesian World*. There is also one "miscellaneous" paper, a study by Richard Handler of the development of the ideas of Edward Sapir.—K.L.

Books Received

Abstracting and Indexing Services in Perspective. Miles Conrad Memorial Lectures 1969–1983. M. Lynne Neufeld, Martha Cornog, and Inez L. Sperr, Eds. Information Resources Press, Arlington, Va., 1983. xii, 300 pp., illus. $27.50.

Access to the World. A Travel Guide for the Handicapped. Louise Weiss. 2nd ed. Facts on File, New York, 1983. xviii, 222 pp. $14.95.

Acid Deposition. Atmospheric Processes in Eastern North America. A Review of Current Scientific Understanding. National Academy Press, Washington, D.C., 1983. xvi, 376 pp., illus. Paper, $16.50.

The Acoustic Sense of Animals. William C. Stebbins. Harvard University Press, Cambridge, Mass., 1983. xii, 168 pp., illus. $16.50.

Acute Diarrhea. Its Nutritional Consequences in Children. Joseph A. Bellanti, Ed. Raven, New York, 1983. xvi, 224 pp., illus. $25. Nestlé Nutrition Workshop Series, vol. 2. From a workshop, Washington, D.C., May 1982.

Advances in Cancer Control. Research and Development. Paul F. Engstrom, Paul N. Anderson, and Lee E. Mortenson, Eds. Liss, New York, 1983. xx, 524 pp., illus. $62. Progress in Clinical and Biological Research, vol. 120. From a meeting, Washington, D.C., March 1982.

Advances in Solar Energy. An Annual Review of Research and Development. Vol. 1, 1982. Karl W. Böer and John A. Duffie, Eds. American Solar Energy Society, New York, 1983. viii, 312 pp., illus. $95.

Advances in Two-Phase Flow and Heat Transfer. Fundamentals and Applications. S. Kekac and M. Ishii, Eds. Nijhoff, The Hague, 1983 (U.S. distributor, Kluwer Boston, Hingham, Mass.). Two volumes. xx, 920 pp., illus. $125. NATO ASI Series E, Nos. 63 and 64. From a workshop, Spitzingsee, Germany, Aug. 1982.

The Ambivalent Mind. The Neuropsychology of Left and Right. Michael C. Corballis and Ivan L. Beale. Nelson-Hall, Chicago, 1983. xii, 312 pp., illus. $24.95.

Annual Review of Military Research and Development: 1982. Kosta Tsipis and Sheena Phillips. Praeger, New York, 1983. xii, 172 pp., illus. $24.95.

Annual Review of Plant Physiology. Vol. 34. Winslow R. Briggs, Russell L. Jones, and Virginia Wal-