Franke and Chasin correctly identify as the crucial problem for Sahelian development the increasing control of factors of production by "elite groups," and one of the most valuable parts of the book is the analysis of the likely consequences of this class structure for current development projects, the staffs of most of which seem entirely unaware of the dangers that even a superficial reading of, say, the literature on the Green Revolution would alert them to. In contrast to these large projects with uncertain or even entirely negative results, four apparently hopeful projects are also described. All are small-scale, funded by nongovernmental organizations, and staffed by dedicated people with much local experience. Franke and Chasin are alive to the paradox of such projects, which many observers consider to offer the only viable mechanism for future development assistance in the Sahel. These projects work precisely because they are small, have intensive input from well-qualified and dedicated people, are outside the main channels of aid organization and government bureaucracies, and do not threaten on a large scale the vested interests of the local elite or the civil service. For these same reasons small projects are and can only ever be marginal in alleviating the real problems of the Sahel.

The challenge is how to apply the new ideas tested in these small projects through the large-scale means that really can change the situation of peasants and herders—that is, through national bureaucracies and major aid donors. To accomplish this, concerned scholars must envisage a long march through the institutions that control rural development in the Sahel.

Some Sahelian bureaucracies have for short periods gone in the right direction, sometimes with help from outsiders. Although this is often eventually stopped, the gains of rural people are not easily taken away once their expectations have been aroused and they have acquired experience negotiating with the bureaucracy on a more equal footing. Organizations like the Federation of Soninke peasants described in this book are a countervailing power to the weight of the bureaucracy and to the pretensions of aid agency planners, and show the direction in which development projects should go if they are to change the dismal prospect of famine in the Sahel.

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A Program in Epidemiology

Cardiovascular Risk Factors in Children. The Early Natural History of Atherosclerosis and Essential Hypertension. GERALD S. BERENSON and seven others. Oxford University Press, New York, 1980. xviii, 454 pp., illus. $29.50.

Cardiovascular Risk Factors in Children is a comprehensive presentation of a major epidemiologic research program, the Bogalusa (Louisiana) Heart Study. By examining more than 4000 children, blacks and whites, up to 14 years old, the authors determined the total community patterns of factors—principally involving serum lipids and lipoproteins and blood pressure—known in adults to increase the risk of atherosclerosis and its complications, against a background assessment of each child's attained growth and sexual maturation.

The results from Bogalusa are reviewed not in isolation but with careful attention to corresponding data from other studies, thoughtfully discussed and cross-referenced in an extensive bibliography. This book also provides what the usual research report cannot—both a detailed report of the technical and methodologic work preparatory to the main study and a discussion of the practical implications of the conclusions. In consequence, cardiovascular epidemiologists and pediatricians in particular should find the book valuable. It is also to be commended to the attention of physicians in general, persons responsible for health policy pertaining to atherosclerosis and hypertension, and anyone interested in the origins of these major causes of death and disability in the population at large.

With respect to methods, the authors present an instructive account of their approach to the community, by which they obtained the participation of 80 to 90 percent of the target-age children—newborns, preschoolers ($2^1/_2$ to $5^1/_2$ years old), and school-age children (5 to 14 years old). Measurement techniques were evaluated extensively in preliminary studies focusing on laboratory determinations (especially of lipids and lipoproteins), blood pressure measurement, anthropometry, and dietary assessment. Statistical appendices give additional details concerning the analytic methods used.

The methodologic accounts are informative in themselves and offer exceptional insight into the technical foundations of such a study. Further, they aid importantly in the interpretation of the overall results. For example, it is important to understand the extent to which the blood pressure values recorded are affected by choice of instrumentation, cuff size, circumstances of measurement, and criteria for diastolic pressure. The meaning of the resulting data is thus better understood, and the care that must be taken in comparing them with findings of other population studies is more clearly recognized, than could otherwise be the case.

The substantive results of the Bogalusa Heart Study are presented in 15 chapters organized according to the main topics of anthropometry, lipids, blood pressure, diet, and "multiple risk factors." In general, the data are tabulated and plotted by age, sex, and race with simple descriptive statistics as well as correlation or regression analyses. Each chapter closes with a commentary and summary. Having drawn the material in the book in part from their previous publications, the authors acknowledge the existence of some inconsistencies or overlap among chapters, but these do not detract seriously from the presentation of the main results.

The patterns of serum lipids and lipoproteins in childhood are shown to relate (in these cross-sectional data) to chronological age. Lipid levels appear to be essentially established in the preschool years, whereas lipoprotein fractions differ in their variation across older age groups. Especially for blood pressure, variation within each of the four sex-race groups is related more strongly to indices of body size and configuration than to age. The need to take body size into account in interpreting blood pressure levels in children is amply demonstrated by this report; an appendix provides grids for, among other variables, systolic and diastolic blood pressure as related to weight and to height. Some longitudinal observations are also presented for serum lipids (birth to 1 year) and for blood pressure (one-year intervals starting at ages 5, 8, 11, and 14); useful data on prediction of later values are given.

Finally, the authors offer recommendations concerning techniques of examining children and modification of blood pressure, level of serum lipids, and certain specific abnormalities found frequently in their survey examinations. The strategy proposed, in general, is to advocate prudent hygienic measures at the community level and to reserve specific treatment for individuals whose evaluation indicates exceptionally high risk. Support for these recommendations is drawn from the author's and others'

experience, which, though at many points more suggestive than definitive, must be taken into account if the best possible policies and practices are to be adopted in early intervention against atherosclerosis and hypertension.

Much remains to be learned in this important area, and anyone proposing to contribute significantly to further research, at the community level in particular, will profit substantially from study of this book.

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Vertebrate Paleontology

Aspects of Vertebrate History. Essays in Honor of Edwin Colbert. LOUIS L. JACOBS, Ed. Museum of Northern Arizona Press, Flagstaff, 1980. xx, 408 pp., illus. Cloth, $22.50; paper, $9.95.

It is entirely appropriate that this well-written, up-to-date, and diverse collection of essays be presented to E. H. Colbert on the occasion of his 75th birthday. "Ned" Colbert has the distinction of having worked on the paleontology of both mammals and reptiles, and, in addition to over 175 strictly scholarly publications in his field, has written an even greater number of works designed to be accessible to the interested nonprofessional and to students and children. He has had more influence on the public than any other paleontologist of his generation.

This festschrift consists of 22 papers, including Colbert's bibliography. Fifteen are concerned with lower vertebrates and six with mammals. No theme unites them except Colbert's wide-ranging interests, but he has worked on nearly every group or facies mentioned. Five new taxa are described. Two of them are named in Colbert's honor: G. Haas contributes a Cretaceous ophiomorph from Israel with both lizard-like and snake-like features, and A. W. Crompton and K. K. Smith describe a crocodilian braincase from the Kayenta Formation of Arizona. The first known trackway of a prosauropod dinosaur is illustrated and explained by Donald Baird; from A. J. Charig comes the first record of diplodocid sauropod dinosaurs from Europe; and from Heinz Tobien comes a description of a new Miocene mastodont from the island of Chios. Six papers center on faunal correlations and stratigraphy. Four of these concern lower vertebrates of the Upper Triassic and Jurassic, the fifth, by M. C. McKenna, is on an important and still poorly understood Cretaceous-Tertiary contact in northwestern Wyoming, and the sixth, from E. H. Lindsay, N. M. Johnson, and N. D. Opdyke, is a stratigraphic correlation of the famous Siwalik faunas of Pakistan. There are also several varied and perceptive essays on particular aspects of vertebrate paleontology.

The book is heavily weighted toward Mesozoic reptiles, as one might expect. Almost coincidentally, several papers form a reasonable synthesis of our knowledge of vertebrate faunas and biogeography at the time of the rise of the dinosaurs (Late Triassic–Early Jurassic). P. E. Olsen compares the Triassic-Jurassic transition in two basins of the Newark Supergroup of Eastern North America, a region that is now proving to be a much richer piece of the Mesozoic terrestrial puzzle than was suspected earlier, and one that provides an intriguing contrast to the contemporaneous horizons of the Southwest. The latter region is represented by a study of the vertebrates of the Upper Triassic Chinle Formation by L. L. Jacobs and P. A. Murry. Though there is considerable faunal overlap between East and West, many important differences remain to be considered in conjunction with future sedimentologic and paleoecologic studies. The descriptions of these promising horizons are enriched by reviews of Jurassic tetrapod discoveries in South America (from J. F. Bonaparte) and of the fauna of the Lower Jurassic Kota Formation of India (from S. L. Jain). Much of the South American Jurassic is Middle to Upper Jurassic, and most of it is unstudied. The relatively well-known Kota Formation, on the other hand, provides much important biogeographic evidence of Laurasian-Gondwanan relationships in the Late Triassic and Early Jurassic. The next decade should witness a dramatically deeper understanding of this most interesting stage of vertebrate history.

In other papers on lower vertebrates, J. T. Gregory analyzes the taxonomic meaning of the otic notch in metoposaurid labyrinthodonts; E. C. Olson discusses the North American Seymouriidae; E. Kuhn-Schnyder reviews the traditional criterion for the classification of reptiles, the temporal openings of the skull; J. H. Ostrom supplies an inventory of the (sometimes synonymized) theropod dinosaurs *Coelurus* and *Ornitholestes* and shows that they are different; Timothy Rowe redescribes the dicynodont *Geikia*; and D. A. Russell discusses how to approach what dinosaurs were and what they may mean to us. In the single paper on fishes, Bobb Schaeffer and K. S. Thomson consider monophyly in vertebrates, cyclostomes, and gnathostomes and conclude that fossil agnathans do not provide critical information to test hypotheses of agnathan-gnathostome relationships.

The shorter mammalian segment of the book begins with an appreciation by G. G. Simpson of Colbert's contribution to the study of fossil mammals. There follow three papers mentioned earlier and two others. The penultimate, by L. G. Marshall, reviews many past ideas about the geographic origin and spread of marsupials. Though thorough in coverage, it may be unfair to those workers who have modified their views since the advent of vicariance biogeography, and the essay comes to no real conclusion. The final paper, by T. A. Vaughan, describes how woodrats have shaped the vegetative character of the Southwest by selectively pruning junipers—the perspective of neontology in a closing note.

On behalf of all of us who, as children, read Colbert by flashlight under the covers after bedtime and later grew up to use his valuable professional papers, the authors and editor are to be thanked for a fine tribute to a seminal figure in vertebrate paleontology, who mastered and taught the field before it grew too large for one person, however accomplished, to do so. His like, as the Aran poet said, will never be again.

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Cosmology

Ninth Texas Symposium on Relativistic Astrophysics. Munich, Dec. 1978. JÜRGEN EHLERS, JUDITH J. PERRY, and MARTIN WALKER, Eds. New York Academy of Sciences, New York, 1980. xvi, 600 pp., illus. $105. Annals of the New York Academy of Sciences, vol. 336.

The wayfaring Texas Symposium assembled in Munich in 1978 for a six-day review of the state of high-energy astrophysics and relativity theory. Given the diverse group of scientists the symposium attracts, the approach has traditionally been to review the progress of the previous two years and to develop a prospectus for the next five or ten. This