

Book Reviews

The Xavante in Transition: Health, Ecology, and Bioanthropology in Central Brazil. By Carlos E.A. Coimbra Jr., Nancy M. Flowers, Francisco M. Salzano, and Ricardo V. Santos. xxxii + 344 pp. Ann Arbor, MI: University of Michigan Press. 2002. \$69.50 (cloth).

This book represents one of the most detailed descriptions available on the history of contact, transition, and acculturation from a biological perspective for an indigenous population of Amazonia. The focus of research is a well-studied village of the Xavante, a population of some 8,000 Je-speaking people living in the central Brazilian highlands. Ironically, although the Xavante were first described in detail ethnographically by David Maybury-Lewis, founder of "Cultural Survival," this work is mainly about the biological survival of the Xavante. The book is a multidisciplinary synthetic work by four authors with specialties ranging from human ecology to public health to genetics, covering three decades of field data collection (1962–1995), with a complete literature review on the Xavante up to 2002. Chapters cover the ecology of the Xavante region, a description of their history, a population overview, genetics, demography, subsistence ecology and development, and three chapters on disease patterns and epidemiology. The authors describe the focus of their work as a study "on the Xavante as a society in transition, with emphasis on the demographic, ecological and epidemiological effects of ongoing change" (p. 8). Indeed, a careful documentation of change is really at the core of this work, and history, economic development, dietary and sanitary transitions, and the Brazilian political context are all woven together to create a true "ecology" of the Xavante.

The book presents some surprises, as well as patterns that will be familiar to any specialist in acculturation in lowland South America, or in tribal societies around the world. The book contains good news and bad news. First, the good news is that the Xavante are not on the road to extinction. Ever since Ribeiro's (1956) shocking demonstration that most tribes in Brazil peacefully contacted in the 20th century had gone

extinct, anthropologists have feared that they would become helpless witnesses to the demise of one native group after another. Here we learn that Xavante mortality has decreased quite substantially from the 1960s to the present and that fertility has risen. The population has rebounded from the disasters of violent conquest and diseases of the contact period and is rapidly growing.

But on the other hand, the Xavante, like other native populations, suffer from worse health and a lower level of economic success than the nonindigenous rural poor who surround them, despite the latter having access to less land, not significantly more initial capital, and probably not much more governmental support. And the authors also document fairly low genetic heterozygosity in the Xavante (due to a founder effect and endogamous marriage) that could result in high disease susceptibility for many years to come. Infectious respiratory and parasitic gastrointestinal diseases have become the major killers in the population. The profile of Xavante health problems suggests that a functioning water system, improved housing, and effective human waste disposal would be much more cost-effective ways to reduce morbidity than the haphazard medical treatment programs that reach them from time to time. In contrast, tuberculosis levels are much lower than for many other native groups, something that should be investigated carefully in order to provide help to indigenous populations not so fortunate.

The solutions to low economic productivity, however, are more obscure. The authors describe how the Xavante were the recipients of the largest development project ever implemented in a Brazilian native community (the mechanized rice project), and yet that project failed miserably. I will let the reader discover the causes of that failure, but I should note that no obvious new ideas for economic development are apparent here. The data are cause for serious reflection on the indigenous situation in South America. Indigenous communities need schools, medical facilities, housing and sanitation, improved nutrition, and most desire recreational facilities as well. How will they pay for such things? Are they to depend on government subsidies indefinitely?

Despite the failure of the rice project, however, one piece of good news is that the

Xavánte are now more dependent on wild foods than they were 20 years ago, and yet they now also have more leisure time. The wild foods they obtain include game, fish, and collected fruits, roots, and nuts, which are nutritionally far superior to the rice and noodles, or manioc flour diet that is typical of native groups that abandon traditional foraging patterns. These wild foods, because of their low glycemic index, will hopefully postpone the transition to obesity and high prevalence of type II diabetes that is so commonly seen in acculturated native populations around the world. And the increased emphasis on a diet of wild resources has also led the Xavánte to form alliances with conservation biologists in order to manage their game and fish populations.

The book is filled with other fascinating details about the genetic and epidemiological profile of the Xavánte that will be critical to future successful health interventions with that group. But most important, the book represents, as Emilio Moran states in the series Introduction, "human biology with a conscience." It is critical and timely, following the recent well-publicized attacks by Patrick Tierney (2002) on biomedical research with indigenous people. Francisco Salzano, the most senior author of this volume was portrayed by Tierney as a blood-collecting exploiter of native peoples, in cahoots with the Brazilian military dictatorship of the 1960s. But in this book the authors clearly illustrate how careful research by well-meaning scientists who are concerned about providing relevant information to indigenous communities is critical to finding solutions to indigenous problems and should be welcomed, not condemned. This sentiment is echoed by Xavánte chief Tsupto Buprewen Wairi in the book's Foreword: "In former times . . . we were very strong and resistant because of the way we ate . . . there was no tuberculosis, no diabetes . . . many things have changed . . . There are many more kinds of diseases . . . our bodies, the bodies of our children, can't stand up to all of this, they can't resist . . . These things that come to the village from the outside have to be investigated . . . We also see research as a way for people outside to learn about our lives. We have health problems that people outside don't know about so they don't look for solutions. Well I think that these things should be studied in more depth so that if solutions for these things

that are happening can be found, they will be."

Hopefully this book will be published in Portuguese, but if not, chief Wairi's statement should be read to the Yanomami who have been thoroughly misled by anti-science interest groups into believing that biomedical research represents exploitation rather than assistance. The Yanomami have been encouraged to sue biomedical researchers and to demand that valuable genetic samples be destroyed. Such actions will lead to abandonment of scientific research on indigenous populations, a sad development for native groups faced with special genetic problems due to inbreeding and a disease profile that is truly frightening, and which will require extensive outside assistance to defeat. Keeping biomedical researchers out of native communities may serve the goals of some territorial interest groups who wish to control all access to native peoples for their own gain, but it cannot possibly serve the interests of these groups whose situation is so precarious. The Xavánte book is an excellent illustration of that fact.

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Health and Ethnicity. Society for the Study of Human Biology Series: 41. Edited by Helen Macbeth and Prakash Shetty. x + 250 pp. New York: Taylor and Francis. 2001. \$89.95 (cloth), \$34.95 (paper).

Cultural practices and disease history can have significant impacts on a population's biology. These impacts may play a role in an individual's physiological responses to environmental stressors, medical treatments

such as reactions to medications, or dietary changes, to name a few. Thus, consideration of an individual's cultural and biological history seems logical if one is to understand the contemporary health of individuals. Unfortunately, that consideration is usually subsumed under one question. What is your race or ethnicity? The response to that question is not likely to clarify these relationships. Hence the confusion when the biotech firm, VaxGen, concludes its AIDS vaccine trials, finding little efficacy of its vaccine for European Americans but suggesting there may be protection for African and Asian Americans (Cohen, 2003). These are labels for heterogeneous groups and sample sizes for non-Europeans were quite small. Thus, their conclusions are likely premature.

The relationship between health and ethnicity is complex, and this volume does a fabulous job of elaborating on that complexity which Macbeth and Shetty highlight in their introductory chapter. The next four chapters explore concept definition and measurement issues. Chapter 2 by Macbeth details how cultural practices affect biology. She also points out that ethnic boundaries are fluid and impossible to define but that "some factors, which deserve to be called ethnic, are highly significant to health experience" (p. 18). Chapter 3 by Bhopal notes that contemporary biology has demonstrated how small genetic differences among human subpopulations are. In spite of that, the concept of race has been used to justify horrific actions, making many wary of the concept, but who do not provide an adequate replacement. Bhopal argues that race and ethnicity are significant factors for epidemiological research because it is hard to counter the inequities in health care access without a consideration of these issues. Thus, measuring those "ethnic" variables that have an impact on health is important but, as he notes, what should be measured relative to "ethnicity" will depend on the purpose of the study, the hypothesis, and the context. In Chapter 4, Nazroo and Smith scrutinize morbidity and mortality rates for the US and Britain in order to determine which socioeconomic factors contribute to ethnic inequalities in health. The challenges of such an analysis are clarified; they also advocate a life-course perspective. Lewis, in Chapter 5, explores the many ways one can think about the meaning of health.

The rest of the chapters describe specific health issues relative to specific populations. Bittles and colleagues in Chapter 6 document how consanguineous marriages are still preferred in many parts of the world, but that the adverse genetic effects have been overestimated. If so, then differences in morbidity and mortality need to be re-examined relative to socioeconomic differences. Weatherall, in Chapter 7, provides a brief overview of the population biology of the hemoglobinopathies, which he views as an increasing health threat, as there are socioeconomic improvements globally that affect nutrition and sanitation and reduce infant and child morbidity and mortality. Ward, in Chapter 8, critiques the overemphasis on genes to explain population differences in disease causation and that community ecology must be studied relative to "ethnicity" in order to understand how culture and biology interact. The complexity of the "genes level" is beautifully illustrated with many examples. By contrast, McKeigue, in Chapter 9, describes his methodology, admixture mapping, for assessing the contribution of ethnicity (i.e., ancestry) to disease risk.

In Chapter 10 McMichael reviews the extensive discussions on the evolution of noninsulin-dependent (type II) diabetes mellitus (NIDDM), a major scourge for contemporary urban populations. Shetty, in Chapter 11, elaborates on many aspects of dietary change in human evolution. Populations vary in how they have adapted to the shifts, depending on their traditional relationships with local ecology. Anand and Yusuf, in Chapter 12, describe the population differences in the experience of cardiovascular disease (the biggest killer worldwide) relative to many interrelated factors. Parkin tackles population variability in cancer rates from an epidemiological perspective in Chapter 13 and argues for increasing efforts to elucidate the genetic pathways that may differ among ethnic groups.

In Chapter 14 Littlewood looks at what culture and race mean relative to population differences in mental health. He notes that British psychiatry has historically focused more on "Black" rather than "White" immigrant mental health, has been preoccupied with increasing rates of pathologies rather than on successful adaptations, and has been more interested in hospitalized psychotic

patients rather than patients with the less debilitating forms of stress. He suggests that few have examined what immigrants bring to their new home, how they manipulate that setting, or how their beliefs about medicine and healing affect their adjustment. Fenton and Wellings, in Chapter 15, examine sexual health relative to ethnicity. One's cultural background influences how we learn about sex, our attitudes and behaviors associated with sex, choice of partners, how we respond to messages about sex, and how we use the health system relative to sex. Any of these variables can raise or lower risk for sexually transmitted disease. Finally, Balarajan discusses the implications of ethnic diversity for the provision of health services.

All in all, this volume is a wonderful exposition on the challenge of considering ethnic variation for any aspect of human health. Each brief review provides numerous opportunities for discussion, and all make it clear that this is an arena that needs more, not less, exploration.

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How the Cows Turned Mad. By Maxime Schwartz. Translated by Edward Schneider. viii + 238 pp. Berkeley, CA: University of California Press. 2003. \$24.95 (cloth).

This is a succinct history of the efforts to understand the spongiform encephalopathies from the earliest descriptions of the disorder in sheep by farmers and veterinarians to the latest tragedies associated with growth hormone injections and mad cow disease. The scientific efforts are emphasized but all manifestations of the disorder are presented in a lively, accessible manner. I had trouble putting it down. The volume was originally published in France in 2001 but this English edition also has an additional chapter describing the developments in 2001.

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Obesity, Growth and Development. Edited by Francis E. Johnston and Gary D. Foster. xi + 207 pp. London: Smith-Gordon 2001. \$50.00 (paper).

The International Association for Human Auxology in their tri-annual meetings have been sponsoring symposia addressed at reviewing principles governing growth and development and the environmental factors that modify them. Results of these symposia have been published in two proceedings volumes. In addition, the association also commissions editors to create volumes that describe the state of the science on a specific topic. The first monograph is entitled "Saltation and Stasis in Human Growth and Development" edited by Lampl (1997), provides a comprehensive review of the process of growth during childhood. It documents that growth does not progress in a uniform fashion, but is an irregular process whereby periods of rapid growth alternate with periods of stasis. The first proceedings volume named "Human Growth in Context" edited by Johnston, Zemel, and Eveleth (1999), is based on the auxology meetings held in 1997 in Philadelphia and reviews the state of knowledge about human growth from birth to 20 years. The second proceedings volume is called "Human Growth from Conception to Maturity," edited by Gilli, Schell, and Benso (2000) and is based on the auxology meetings in Turin, Italy held in 2000 and summarizes both the findings regarding human growth and the methodology to evaluate the process from conception to maturity. The second monograph entitled "Obesity, Growth and Development," edited by Johnston and Foster (2001), is the subject of the present review.

Obesity has become a global problem that is affecting both developed and developing nations. The specific objectives of the volume are to provide an updated synthesis on the origins of obesity. It included a wide array of experts from the biological, behavioral, and clinical fields. It is divided into 11 chapters. The first chapter, by Robert E. Malina, presents an excellent review of the major issues in the evaluation of childhood and adolescence obesity. From the review of Anthony G. Comuzzie presented in Chapter 2, we realize that despite the claims of many researchers the role of genetics on the risk of obesity and excess weight is not easy to

discern. Noel Cameron and Ellen W. Demerath, Chapter 3, summarize the role of maturation on the expression of body size and body composition through childhood and adolescence. Chapter 4 presents a review about the physiological aspects of obesity by Angelo Tremblay and Eric Doucet. These authors present the provocative hypothesis that the increased prevalence of obesity associated with industrialized nations is related to pollution and stress rather than just excess energy intake or low physical activity. The epidemiology of the increased frequency of obesity in developed nations given in Chapter 5 is reviewed by Dana M. Catense, Kristin K. O'Byrne, and Walker S.C. Poston. The major conclusion of this chapter is that the lifestyle of industrialized nations is conducive to obesity and this problem will not change unless these factors are altered. That the increasing frequency of obesity occurring in developing nations is also related to changes in the environment is documented by A. Colin Bell and Barry M. Popkin in Chapter 6. Peter J. Brown and Sterling V. Krick in Chapter 7 indicate that the increased prevalence of obesity in both developed and developing countries is related to changes in behavioral attitudes, such as excessive television viewing, that are conducive to decreased energy expenditure. In Chapter 9 the various field and laboratory techniques for the assessment of excess weight and obesity are summarized by Bebette Zemel and Elizabeth Barden. Their insight and awareness about the pitfalls of these techniques is very commendable. The clinical treatment of childhood obesity is presented in Chapter 10 by Robert J. Berkowitz, Jennifer A. Lyke, and Thomas A. Wade, while Chapter 11 reviews the adult negative health implications of childhood obesity. Both these reviews provide a window to see how resistant to treatment this new chronic disease of obesity is.

In summary, all the chapters have been very well edited and each is presented following a coherent sequence. The rich and diverse background of the researchers provides a very interesting assortment of sometimes not easily available information, which are illustrated with specific findings and examples. Taken together, the chapters presented in this volume provide a solid and a coherent picture of the epidemiology, bio-

logical, and social roots for the globalization of obesity and its sequelae in children and adults. The editors Johnston and Foster have produced an excellent and timely volume that will become essential reading for human biologists and clinicians for times to come. It would be a good addition to the readings in any advanced undergraduate course and graduate seminars in biological anthropology or human biology.

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The Human Fossil Record: Volume One: Terminology and Craniodental Morphology of Genus Homo (Europe). By Jeffrey H. Schwartz and Ian Tattersall. xii + 388 pp. New York: Wiley-Liss. 2002. \$125.00 (cloth).

The various, and increasingly numerous, specimens that make up the human fossil record are spread throughout the world in museums and other institutions. Any paleoanthropologist starting a new research project must first locate those fossils that will be relevant to his or her work. There have been volumes devoted to cataloguing human fossils in a systematic way to help scholars locate available material and get access to the relevant literature since the middle of the 20th century, when the fossil record became extensive enough that this was a difficult job. Previous works along these lines include Vallois and Movius' (1953) *Catalogue des Hommes Fossiles*, Oakley et al.'s *Catalogue of Fossil Hominids* (1967), which was updated regularly through 1977, and Day's several editions of the

Guide to Fossil Man (latest in 1986). The book under review represents the first in a projected series of four or, hopefully, five volumes planned by the authors to provide "a resource in which hominid fossils are described in detail on their own individual terms, using a consistent protocol from one fossil to the next" (p. ix). The goals of the authors of this volume overlap with, but go beyond, those of the earlier volumes. This volume provides standardization of terminology and systematic and consistent morphological description in addition to providing a catalog of the fossil record with an archeological and geological context, as well as current location. The authors hope that this volume will enable paleoanthropologists to make comparisons between fossils in a way that has not been possible using descriptions published in the past. Future volumes will be devoted to fossil material of genus *Homo* from other regions of the world (volume 2), earlier hominid cranial fossils (volume 3), hominid endocasts (volume 4), and possibly postcranial remains (volume 5, which at the moment is only "envisioned").

The book begins with an illustrated discussion of terminology used in the descriptions. This is followed by a site-by-site listing of human cranial material attributed to the genus *Homo* from Europe. Each description follows a standardized protocol in which information is presented in the following categories: location of site, date and circumstances of discovery, material preserved, dating and stratigraphic context, archeological context, overview of previous description and analysis, morphological description, references cited, and repository in which the fossil is curated today. The morphological descriptions of the individual fossils are by far the longest sections of each entry and follow a systematic descriptive protocol outlined in the introductory chapter, making it fairly easy for the reader to negotiate these sections. They are accompanied by abundant, standardized, black and white photographs. These have clearly marked scales, although scales are omitted for some close-up photographs. While the photographs are helpful, they are somewhat inconsistent, with some of high quality and others overexposed or even somewhat out of focus and occasionally difficult to orient.

This volume and those that follow represent a laudable attempt to provide informa-

tion about morphology in a systematic, organized, and, most importantly, comparable way. I was surprised that the authors made the decision not to include metric data or analyses on the grounds that "measurement criteria vary so much among practitioners" (p. 3). They have made the decision to focus exclusively on morphology, knowing that their neglect of metrics will be criticized. This reflects their "ongoing concern with the need to better understand and incorporate morphology in systematics" (p. 3). Certainly, they are right that there is considerable variation between observers even in measurements that we like to think of as clearly defined and replicable. But surely this criticism of interobserver variation can also be made of morphological description, which has at least as great (and probably greater) a subjective aspect as metrical observations. The authors do recognize that, in addition to morphology, size is important to paleoanthropologists and make the questionable suggestion that in the absence of measurements the "fact that the vast majority of photographs are to scale will be an adequate guide to the size of each fossil illustrated" (p. 3). Consistent description is an admirable goal, but the overall usefulness of the volume is seriously limited by the authors' decision to avoid metrics. More broadly, the very goal of consistency involves making observation and description in the absence of specific questions or hypotheses and without comparative analysis. Thus, the authors' goals of standardization may limit the analytical value of their description.

The book contains nine simple maps that contain the site locations, but which are not referred to in the descriptions of locations and which are shown as isolated maps lacking the context of the European continent. Although the site entries are alphabetically arranged, there is no index. In those frequent cases where sites or fossils have traditionally been referred to by more than one name, it could be difficult to find the entry.

What is most useful about this book is the up-to-date list of fossil collections, relevant bibliographic references, descriptions of what morphology is present, and where specimens are housed. Despite the somewhat variable quality of the photographs, they are a valuable compilation. *The Human Fossil Record: Volume I: Terminology and Craniodental*

Morphology of Genus Homo (Europe) is a handsomely produced volume which will make a handy reference work for paleoanthropologists studying fossil cranial morphology.

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