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# Time and Complexity in Historical Ecology: Studies in the Neotropical Lowlands

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***Time and Complexity in Historical Ecology: Studies in the Neotropical Lowlands.* William Balée and Clark L. Erickson, editors. New York: Columbia University Press, 2006. The Historical Ecology Series. xii + 417 pp., maps, figures, tables, notes, references, index. \$80.00 (cloth). ISBN 0-231-13288-3. [www.columbia.edu/cu/cup]**

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The field of historical ecology has to a large extent emerged from recent research on the tropical lowlands of the New World (the Neotropics). This major volume, edited by two of the most prominent scholars in the field, builds on a symposium on “Neotropical historical ecology” organized at Tulane University in 2002. Ten of its twelve chapters deal with South America, and eight of these (comprising Part 2) with Amazonia. Two of the four non-Amazonian chapters (comprising Part 1) focus on areas in Mesoamerica formerly inhabited by Maya (Petén and Belize), the third on coastal Peru, and the fourth on the Manabí area of western lowland Ecuador.

Historical ecology has become an important complement to environmental history. While both fields emphasize inter-disciplinary studies of human-environmental relations over the long term, the approach of historical ecology differs from mainstream environmental history by prioritizing the use of data from natural science rather than historical sources. This commendable concern with the tangible, biophysical evidence of ancient human-environmental interaction at times creates problems of transdisciplinary communication. Although both editors are anthropologists, and the volume seems directed at a primarily anthropological readership, many methodologies and technical terms from plant ecology, soil science, and zooarchaeology remain obscure to the average anthropologist. It is obvious and perhaps inevitable that the different contributors to this symposium volume must have had some problems fully understanding each other. Although hardly mentioned in any of the chapters, the question remains which implications this should have – beyond the value of collaboration and joint publication – for the organization of research and training in historical ecology.

There is no doubt, however, that the main message of historical ecology is an important one. Even where least expected, as in the tropical rainforests of Amazonia, landscapes are to a significant extent anthropogenic. Careful inventories of tree species in Petén and various parts of Amazonia indicate how human intervention has helped shape the composition of putatively pristine forests over millennia. Eduardo Neves and James Petersen relate the formation of anthropogenic Amazonian Dark Earths (ADE) at several sites on the central Amazon to ancient socio-political processes involving recursive human-environmental interaction. Elizabeth Graham

argues that the celebrated Amazonian Dark Earths should really be called Neotropical Dark Earths (NDE), as they are probably as widespread in tropical Mesoamerica as in Amazonia. Christine Hastorf shows how inhabitants of the arid coastal valleys of Peru have shaped the biological composition of their irrigated environments for thousands of years by selectively adopting food plants from tropical areas, primarily Amazonia. Peter Stahl scrutinizes archaeological finds of small vertebrates in sites along the Jama River in western Ecuador, and interprets their frequencies as indications of different degrees of human activity. William Denevan reiterates his influential insights on the probability of semi-permanent cultivation with frequent organic inputs and in-field burning over much of pre-European Amazonia. Charles Clement discusses the tending and harvesting of fruit trees as an important form of food production in some parts of the Neotropics. Loretta Cormier shows how foraging among the Guajá of eastern Brazil was an adjustment to post-Columbian depopulation within an anthropogenic and productive but post-agricultural landscape. Clark Erickson and William Balée present their research on artificial mounds and other earthworks in the periodically inundated Llanos de Mojos of Beni, lowland Bolivia, demonstrating how archaeological excavations and forest inventories converge in indicating the degree to which this is a thoroughly *cultural* landscape. In a separate chapter, Erickson elaborates his understanding of how the pre-Columbian inhabitants of this part of the Bolivian Amazon had “domesticated” their landscape through the use of burning, raised fields, causeways, canals, mounds, anthropogenic islands, ring ditches, ponds, dams, and fish weirs. By regulating vegetation and water levels and facilitating transports, they had organized a highly productive socio-ecological system that sustained impressive population densities. In the same vein, but with less substantive data on landscape ecology, Michael Heckenberger’s chapter proposes that indigenous pre-Columbian settlement patterns on the Upper Xingú may be classified as a form of urbanism. Only a few pages of Heckenberger’s wide-ranging chapter are devoted to his important excavations on the Upper Xingú, however, its main concern being a rather amorphous application of various strands of socio-cultural theory of tenuous relevance to historical ecology.

At least two important discussions of general theoretical interest are raised in this volume, one analytical and one ideological. The first concerns the philosophical implications of historical ecology as a field aspiring to transcend the nature/culture dichotomy. Although Graham’s struggles to show how “cultural and natural activity can be inextricably intertwined” (p.71) lead her to suggest, at one level of analysis, an abandonment of the concept of culture (p.79), the editors instead advocate “a version of cultural determinism” (p.5). Indeed, although intertwined in practice, it would be inadvisable to jettison the anthropological ambition to disentangle the cultural from the natural. Whether food preferences influencing the selection of fruit trees or social imperatives to

produce crops destined to be transformed into fermented beverages, it should always be possible to *analytically* distinguish cultural meanings from their biophysical repercussions.

The second discussion concerns the political implications of the argument of historical ecology that human activity may very well increase biodiversity, and that there are ancient technologies for sustainably intensifying agricultural production in the Neotropics. While the rejection of notions of adaptation and environmental determinism is thoroughly justified, Erickson's slightly exaggerated point that indigenous pre-Columbian populations are "responsible for what we now call nature in the Neotropics" (p.264) ought to be complemented with a critical account of the non-indigenous, capitalist socio-economic forces currently devastating Neotropical biodiversity. Eduardo Brondizio's final chapter on post-Columbian and contemporary land-use and land-cover change in Amazonia, in part approached through remote sensing, does not fully compensate for this omission. Historical ecology can demonstrate the technical feasibility of sustainable resource management in the Neotropics, but it does not provide much hope for transcending the economic system that for centuries has systematically dismantled such practices. Nevertheless, this volume persuasively champions new perspectives on sustainability and challenges its readers to seriously rethink long-term processes of human-environmental interaction.