

is posited to include demographic expansion, the environmental constraints on production systems across the islands, differences in production and intensification between wet and dryland agricultural systems, birth rank ordering, and sibling rivalry (the latter two being pervasive in Polynesian societies).

I feel that it is important to quote Mayr (1997:119) at length on the distinction between proximate and ultimate causation:

Proximate causations impinge on the phenotype, that is on morphology and behavior; ultimate causations help explain the genotype and its history. Proximate causations are largely mechanical; ultimate causations are probabilistic. Proximate causations occur here and now at a particular moment, at a particular stage in the life cycle of an individual, during the lifetime of an individual; ultimate causations have been active over long periods, more specifically in the evolutionary past of species. Proximate causations involve the decoding of an existing genetic or somatic program; ultimate causations are responsible for the origin of new genetic programs and their changes.

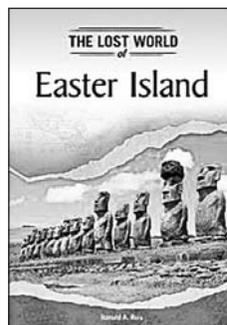
Following Mayr's definitions, it seems that Kirch's stated ultimate causative factors should be considered proximate causes. By definition, ultimate causation calls upon a (Darwinian) evolutionary explanation. The actions of individuals would also fall in this category, as Kirch states, but ultimate causation must explain why a particular behavior (e.g., increased social complexity, aggressive territorial expansion, etc.) is selectively advantageous. It is clear that the large dryland field systems on Hawai'i Island and eastern Maui required a significantly greater amount of labor investment than the wetland systems of the western islands, and that the per capita agricultural return for sweet potato was still less than wetland taro cultivation (and apparently diminishing through time). On top of these factors, the inherent risk and uncertainty for rain-fed agriculture was higher. But why did this lead to an increase in the scale of social organization? And why was aggressive behavior from leeward chiefs, so well attested in the oral traditions, advantageous. Why not cooperation? Certainly the costs of being aggressive and losing would have been of consequence (losing territory and resources or losing one's life), so why is there evidence for this behavior among the Hawai'i Island and eastern Maui *ali'i*, in particular, by late prehistory?

Setting aside what I feel are still-lingering questions, *How Chiefs Became Kings* is an incredibly important addition to the Hawai'i and Pacific anthropology/archaeology canon, as well as the larger literature on complex societies. As an archaeologist, I am excited at the prospect of the assessment of future archaeological data against Kirch's explanation. Assuredly there will be critiques of Kirch's work (see Dye 2011, for example), and that should be fostered as part of the scientific process. From that perspective, this book will be a contributing catalyst for future research that will further our understanding of Hawai'i's past, and perhaps the processes of prehistory in general.

References

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Reis, Ronald A. *The Lost World of Easter Island.*



New York: Chelsea House/Infobase Learning, 2011. 116 pp., color and black/white photos, maps, index. ISBN: 978-1-60413-972-2 (hardcover). US\$35. Available from www.amazon.com.

Review by Georgia Lee,
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This book is written for “young adults” aged 11 and up. Reis devotes the first chapter to Polynesian Wayfinders, a nice introduction about Polynesian sailing and wayfinding. The following chapters describe Easter Island and its geology and resources, social organization, and ceremonial sites. A discussion of the collapse and the impact of Western cultures follows, and the book ends with “The Lost Century”, and “Research and Renewal”. A Chronology, Timeline, Glossary, and Bibliography are included.