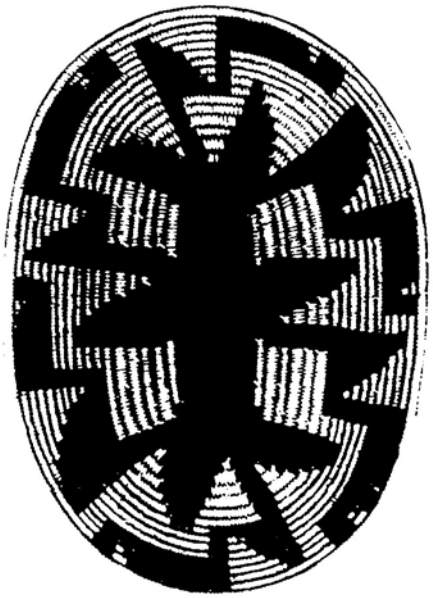

Journal of California and Great Basin Anthropology | Vol. 31, No. 2 (2011) | pp. 211–216

REVIEWS

Cultural Contact and Linguistic Relativity among the Indians of Northwestern California

Sean O'Neill
Norman: University of Oklahoma Press, 2008
xix + 354 pp., 24 illustrations, $50.00 (cloth)

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The traditional culture of northwestern California has long been recognized as unique within native North America. Aboriginal groups were sedentary hunter-gatherers who shared a common material culture and way of life, with similar religious views and ceremonials. Despite these parallels, northwestern California is also one of the most linguistically diverse places on the planet, with only a handful of areas such as Papua New Guinea and the Caucasus Mountain region in Eurasia rivaling the cacophony of languages spoken here.

The great linguist Edward Sapir was among the first to highlight this apparent paradox in his book *Language* (1921), in which he pointed out that despite striking cultural similarities between the Hupa, Karuk, and Yurok, their languages were completely alien to one another and belonged to three major linguistic stocks widely distributed over the North American continent: Athabascan, Hokan, and Algonquian. Sapir's theoretical stand was revolutionary at a time when language was commonly viewed as an outgrowth of a society's "national character." Several decades later Harry Hoijer, a student of Sapir's, addressed "the principle of linguistic relativity" in his famous 1953 article entitled "The Sapir-Whorf Hypothesis." Simply put, the basic premise is that the structure of a particular language affects how its speakers see the world. Areas such as northwestern California were viewed as providing a prime testing ground for the principle, since culture could be held as the constant and language as the variable in the comparative analyses Hoijer promoted. Since then, the Sapir-Whorf hypothesis has been hotly debated by generations of scholars and studied by countless students of anthropology.

Despite scientific interest, surprisingly little scholarly research has addressed the question of linguistic relativity in northwestern California. Sean O'Neill addresses this gap in his book *Cultural Contact and Linguistic Relativity among the Indians of Northwestern California*, in which he explores theoretical issues of language contact (how languages change when groups come into contact) and linguistic relativity (how language affects human cognition). His data are drawn from a broad comparative analysis of traditional Hupa, Karuk, and Yurok language and culture, distilled from his 2001 UC Davis Ph.D. dissertation research, which focused on how space and time are expressed in these three speech communities.

The book includes eleven chapters divided into five parts. Part I, "Language, Culture, and the Principle of Linguistic Relativity," introduces the concept of linguistic relativity and the intellectual roots of the idea. The middle three parts are data-rich comparative treatments of a variety of conceptual linguistic and cultural categories.

Part II, "The Spatial World," addresses spatial concepts in language and culture. Here we learn that the Hupa, Karuk, and Yurok share a common cosmological vision of the universe and a geographical orientation to the world, based not on the cardinal directions but on the upriver/downriver direction of rivers and surrounding mountains. However, the specifics of how the universe is conceptualized (in folklore and mythology) and how geographical and directional categories are expressed (in everyday speech and grammatical systems) are often radically different between each speech community.

Part III, "The Realm of Time," demonstrates that while concepts of time (near and distant future, the concept of ancient time) are generally very similar, some temporal categories "are restricted to a particular tradition, such as the complex aspectual system of the Hupa language and the distal future of Yurok language. In the end, each language imposes a different system of categories onto the realm of time, encompassing both everyday activities and those distant historical events reported in narrative and preserved in storytelling" (p. 175).

Part IV, "Classification and Cultural Meaning," considers taxonomy and vocabulary in everyday speech and narrative. O'Neill explains that specialized classificatory systems are especially elaborate in northwestern California, and while Hupa, Karuk, and Yurok all have similar categories for words based on their shape or animacy (e.g. round, long or straight and rope-like objects, filled containers), how these categories are divided is strikingly unique to each language. O'Neill adroitly weaves language and culture in the second chapter of this section (Chapter 9), which is a fascinating treatment of the deeper cultural meaning of words. The reader truly comes to understand what Sapir (1921) meant when he likened single Algonquian words to "tiny imagist poems," where even common nouns may evoke profound images from mythology and folklore.

In the final section, "From Language Contact to Linguistic Diversity," O'Neill reexamines the data, concluding that—despite centuries of contact—the Hupa, Karuk, and Yurok people speak languages that remain structurally quite unique in terms of their vocabularies, grammars, and phonologies. As for the principle of linguistic relativity, the study suggests that it "is inherent to the human condition, emerging from ongoing intellectual differences among neighboring speech communities" (p. 307).

O'Neill posits that although many aspects of Hupa, Karuk, and Yurok culture became more similar after a thousand or so years of contact, their languages, in fact, grew increasingly distinct. This stands in stark contrast to the oft-cited case of Kupwar village in India, where contact and multilingualism has led to linguistic convergence (Gumperz and Wilson 1971). O'Neill's explanation was succinctly described by Aram Yengoyan: "Propinquity breeds inversion" (p. 285). In other words, when groups come into close contact they will often, consciously and unconsciously, increasingly emphasize differences in certain aspects of their identity, including language.

Why convergence at Kupwar but inversion in northwestern California? This question is addressed in the second to last chapter, where O'Neill explores the evolutionary concepts of variation and drift as they apply to languages and their development through time. The discussion of linguistic ecology explores what social and environmental conditions might contribute to linguistic diversity when groups come into contact over long periods of time. In northwestern California, people often spoke several languages fluently. There were many multilingual speakers, but how did the languages remain distinct? Explanations remain complex but key factors appear to be resource abundance and the autonomous nature of socio-political groups, circumstances that certainly apply to northwestern California. I found this chapter to be the most provocative in the book, but found myself wanting more—I am an archaeologist after all, and we *do* tend to like explanations—but I was left with a lot to consider.

Here are a few general comments about the book. The nuances of linguistic categories and grammar are elegantly explained throughout the text so that the non-specialist may follow technical points with relative ease. O'Neill demonstrates his impressive understanding of northwestern California mythology and worldview, illustrating his points with copious examples, many garnered from creation stories and myths, so that the reader picks up many fascinating details about both language and culture.

The 24 figures include a map of northwestern California ethnographic groups and illustrations of the linguistic models and classificatory systems discussed in the text. The figures are helpful in that they boil concepts down to a visual level. However, a few well-chosen photographs and illustrations, perhaps of early ethnolinguists and consultants, major dances, village life, etc., would have enormously enhanced the text, particularly for readers not familiar with the area.

Although O'Neill's points are well argued and explained in the text, a summary table or series of tables comparing major characteristics of each language would have been enormously helpful. Which group has the overwhelming focus on directional markers (Karuk)? Which group includes spherical objects as "round objects" (Hupa) and which includes disk-shaped objects (Yurok)? Tabulating the data would have provided a handy reference for readers as they returned to these points several times in the text, and (perhaps more importantly) would have succinctly illustrated one of the author's major points—that these languages are, at their core, fundamentally different from one another.

Cultural Contact and Linguistic Relativity among the Indians of Northwestern California is an impressive work that takes on one of the most debated issues in linguistic theory and complements it with a nuanced view

of local culture. This book will interest both Californianist anthropologists and scholars interested in linguistic relativity among world-wide languages. I would also encourage any archaeologist working in northwestern California to read this book. Historical linguistics has been enormously influential in terms of developmental models addressing the prehistory of the region, and though O'Neill does not address archaeology *per se*, his lucid explanations of how linguists have established the ancestry of Athabascan, Hokan, and Algonquian languages through comparative studies are extremely useful. If nothing else, the reader will be left with a deep appreciation for the complicated and unique nature of the Hupa, Karuk, and Yurok languages, "as profoundly different as any three unrelated tongues spoken on earth—say, Hebrew, Hindi, and Korean, for instance" (p. 26). I for one was left with even greater respect for native northwestern California speakers and scholars, many of whom were and are multilingual, and for the native communities that are working hard to revitalize their languages.

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Once & Future Giants: What Ice Age Extinctions Tell Us About the Fate of Earth's Largest Animals

Sharon Levy
New York: Oxford University Press, 2011. xvi, 255 p. : ill., map, 24.95 (paper)

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If one can imagine stepping into a prehistoric world occupied by giant animals (such as mammoths, mastodons, camels, Shasta ground sloths, giant short-faced bears, Brea lions, and saber-tooth cats, known collectively as megafauna), and then can further imagine the introduction of the relatives of some of these species into the modern day wilderness, this well-written book by Sharon Levy will be a joy to read. Levy, an excellent science writer, succinctly reviews two of the main hypotheses for the extinction of some of these beasts near or at the end of the last Ice Age (Late Pleistocene), and then addresses the issue of rewilding, which is the introduction of comparable taxa, when possible, into selected environments in order to re-establish ecosystems that are reinvigorated, have greater biodiversity, and more closely reflect the trophic levels prior to megafaunal extinctions.

Many forces, some external and others internal, that could trigger extinctions are evident in Earth's history. Proposed explanations for Late Pleistocene extinctions have included climate change and its effect on the environment, the ecological shock of human arrival, nutrient shortages, disease, and even the possibility of a meteor strike, among many others. Levy chooses to place the emphasis in her review of extinction causes on the two main hypotheses—climate change and anthropogenic causes—with the focus on the latter. Both causes have been argued for many decades; however, there is little reason to believe that only one of these hypotheses accounts for all of the species disappearances worldwide. As a result of Levy's anthropogenic focus, much of the discussion is on the extinction of megafauna in Australia and North America. The natural history of wooly and Columbian mammoths in North America and

selected giant marsupials in Australia is far better known than that of many of the other extinct taxa such as shrub ox, Brea lion, or glyptodonts. The only detailed evidence of human predation involves mammoths, a fact that has provided empirical support for Paul S. Martin's "overkill hypothesis" (2005). Thus the arguments for extinction are circumscribed by the data selected.

From the isotopic and fossil record it is known that the transition from the Last Glacial Maximum (LGM), 18 to 21,000 years ago, to the Holocene, ca. 10,000 years ago, was marked by abrupt shifts in climate. The most significant climate reversal was a cold period, termed the Younger Dryas, which began about 12.9 ka. B.P. and lasted for about 800 to 1,000 years. However, the fossil evidence of the Younger Dryas reversal is not global, and its expression in the environment may be enhanced in some regions while diminished in others. With little exception, megafaunal extinctions in North America appear to have taken place prior to or about 12.9 ka. ago, after the fauna had survived hundreds of thousands of years of climatic variation. Was there something about the Younger Dryas climatic reversal that was different enough from earlier such shifts to have caused the extinctions?

Up until a few years ago, extinction was also thought to co-occur with the first arrival of humans in the New World, termed by some as the Clovis First or blitzkrieg hypothesis. We now know that part of that hypothesis is no longer supported, as findings—such as the detailed dating of the Manis mastodon and an associated mastodon rib with a mastodon bone projectile point impaled in it (Waters et al. 2011)—have demonstrated that humans were in North America at least 800 years prior to the period ascribed to the makers of Clovis projectile points. Did the Clovis projectile point makers provide the *coup de grace* to mammoths that were just hanging on?

After summarizing the ongoing debate over Pleistocene extinctions, in the second section of her book (termed "Wild Dreams") Levy covers the issues, many of them controversial, involved in rewilding in a very thoughtful manner. Here she discusses the planned introduction of extirpated species (such as the wolf into Yellowstone National Park, the condor into Arizona, and the unplanned reintroduction of the horse into North America), and summarizes the ideas of the proponents of Pleistocene rewilding. The reintroduction of species to their former ranges has in many cases had profound and unpredicted effects upon their ecosystems. One example she presents is the role of African elephants in the opening up of new grasslands by their browsing on the taller trees in woodlands from which they had been previously excluded. The effect, in many instances, has been dramatic, with a landscape of decimated woodlands being replaced by grasslands.

Did mammoths have a similar effect on the ecosystems and, in particular, on the vegetation of North America? It is here, in the arena of Pleistocene rewilding, that Levy connects to the extinct megafauna discussed in the earlier chapters of her book. Proposed by Paul S. Martin, the idea of "Pleistocene rewilding has generated enthusiasm, scorn, and a great deal of media hubbub over the idea of lions and elephants loose in the American West" (p.166). Martin has suggested introducing species similar to extant taxa to fill the ecological niches left open by Pleistocene extinctions. Others have even suggested (since researchers now have nearly complete mammoth and ground sloth genomes) that these extinct species be cloned and reintroduced into the wild when possible. But if it was climate or some other effect, and not anthropogenic factors, that originally led to the extinction of these beasts, would we be bringing back species that are no longer compatible with today's world? There is plenty of evidence to indicate that many Pleistocene environments have no modern analogs.

While we may never have answers to many of the issues addressed in Levy's book, they are of importance to archeologists who want to have an understanding of human interactions with the environment, as well as an appreciation of the complexities of ecosystems and the changes they can undergo. Finally, Levy's book should be read as an example of how to write clearly about such wide-ranging, complex issues.

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2011 Pre-Clovis Mastodon Hunting 13,800 Years Ago at the Manis Site, Washington. *Science* 334: 351–353.

Hunter-Gatherer Foraging: Five Simple Models

Robert L. Bettinger
Clinton Corners, New York: Eliot Werner Publications, Inc., 2009, 111 pp., 20 figures, 42 tables, 8 appendices, $29.50 (paper).

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Foraging models drawn from behavioral ecology have been directly applied to archaeological and ethnological problems for more than 25 years now. Any contemporary hunter-gatherer researcher or serious student is well aware of at least some of these models–e.g., diet breadth, patch choice, and linear programming, to name a few. Fewer people, however, are well acquainted with the math that underlies these applications and gives them much of their elegance. While we all employ many of the catch-phrases that have emerged from foraging theory—terms such as handling time, high (or low) cost resources, return rates and the like—many anthropologists have only an intuitive understanding of how these models work. It is just that problem that Bettinger hopes to remedy with this concise book. Writing in the Preface about his motivations for assembling the volume, he observes by analogy that "reading the recipe is not the same as cooking the dish," and goes on to say that one cannot truly understand how a foraging model works without engaging the math in relationship to a specific problem. And that is precisely what Bettinger does in this volume.

In keeping with the book's title, Bettinger tackles five "simple" foraging models, several of which he was originally involved in developing. Chapter 1 deals with the diet breadth model, by now familiar to nearly everyone, and lays it out via a straightforward consideration of three different resources and the question of which should be targeted by a prospective forager. He not only presents the mathematical solution clearly, but discusses some of the attendant issues, like the relative importance of energetic search and handling costs. Chapter 2 takes up linear programming and how to model foraging decisions with known constraints. As before, the examples used to illustrate the model are clear and precise, exploring solutions that are meant to both maximize and minimize different currency requirements.

Most readers will be less familiar with the models that follow. Chapter 3 deals with how to examine the differences between front- and back-loaded resources, those that require a heavy investment when collected and prepared for storage, versus those that accrue significant handling costs prior to consumption. These turn out to be important distinctions, and have implications for the emergence of caching and storing behaviors among foraging populations everywhere. In Chapter 4, Bettinger considers a model that measures the effects of technological investment; i.e., how the effort put into making a tool should be dependent upon its success in procuring resources. Such relationships help explain changes in extractive technologies generally, and offer insights into how some solutions can catch fire almost overnight. A derivative application shows how these same variables can be used to assess field transport, and when it makes sense to partially process a resource at the point of acquisition before transporting it home. In the last section, Chapter 5, Bettinger considers a separate field-processing model that makes fewer demands on known information. The utility of a processed load is higher, but it also requires more investment, and the trick is to determine the point at which travel costs (distance) predict such treatment. The math in these chapters is a bit more involved than in earlier sections, but Bettinger patiently walks the reader through the steps and provides plenty of examples of how the relationships operate.

There are two other issues that the book does not address–they are outside its intent–but which models of this kind invariably raise. The first has to do with how reliable the information that is plugged into these applications really is: how do we really know how long it took prehistoric hunter-gatherers to process a particular resource, or the time needed to reduce a cobble into a bifacial preform, or how to gauge the relative investments in different kinds of stone tools? Do we really believe that a weekend seed-gatherer or a once-a-year deer hunter is going to be as efficient at the task as someone who performed such activities on a regular, traditional basis? It probably does not matter in many cases, but where our estimates are way off or the models are

especially sensitive to slight quantitative changes, it could well bias the outputs a great deal. Researchers are, of course, endeavoring to refine these baseline data through experimentation and by conducting robust ethnographic research on extant foraging populations.

The other issue is more problematic. How can we most effectively apply these elegant models to actual archaeological contexts, where the record is heavily compromised and the linkage between behavioral predications and material consequences is often far from clear? Just what does it take to corroborate a model's predictions involving empirical zooarchaeological data or the technomorphological attributes of a stone tool sample? Far too often, it seems, the fit between our models and the real-world data is weak at best, but researchers still assume a reasonable concurrence and claim to have explained the phenomenon under scrutiny. Just because a mathematical model tells us that something should or could work in a certain way does not mean that it did. Otherwise, why do archaeology at all? Models of this sort provide an important guide to problems but are not ends in themselves.

But having said that, this is a fine volume that does just what it aims to do. The style is informal, often humorous, and it will clearly work well in a classroom with advanced undergraduate or graduate students. The flow and clarity of the discussions almost makes one forget that this is math that one is trying to master. Bettinger provides numerous additional exercises at the close of each chapter (with the correct answers), and includes eight appendices that further explicate the mathematics of particular model formulations. The volume is comparatively inexpensive for an academic book, and anyone with a serious interest in hunter-gatherers, prehistoric subsistence, and resource provisioning will want to own a copy. I, for one, look forward to the day when someone with Bettinger's theoretical insights will write a similar treatment on how to better link these simple models to an intransigent archaeological record.