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Dobyns: *From Fire to Flood: Historic Human Destruction of Sonoran Desert Riverine Oases*

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In the first place we are given only the English texts. Thus no matter how learned anyone might be in the Karok language he will be unable to understand any nuances in the Karok version that may be important in the exegesis. Anyone familiar with the bitter arguments concerning biblical interpretation will recognize the difficulties here. Some of these problems are overcome by Bright's linguistic index.

A second difficulty comes from the plethora of sources. Here we have two anthropologists recording material from 12 separate people. All this will have to be sorted and categorized as a first step in the analysis.

Then the narratives themselves must be sorted. Some are repeats of earlier versions and are interesting for this alone. Some are origin myths of various lengths, others are tales explaining various natural and cultural phenomena, and some are formulas used in curing. Each of these categories may articulate in different ways with ritual or with other aspects of culture. Thus, the use of these and other texts is a formidable task, but there is no doubt that this area badly needs attention.

A word should also be said about the general editing of Grace Buzaljko—both of this volume and the earlier Yurok one. It is quite clear that the manuscripts she was working from were in very imperfect condition and required great skill in getting them in order. Beyond this there are innumerable footnotes by her, explaining the texts and cross referencing them to other relevant works such as the *World Renewal* monograph. Clearly, she has made herself an expert on this subject. The University of California Press is to be congratulated for having such an excellent editor.

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- From Fire to Flood: Historic Human Destruction of Sonoran Desert Riverine Oases*. Henry F. Dobyns. Socorro: Ballena Press Anthropological Papers No. 20. 222 pp., \$11.95.

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Anthropologists have recently delved into the realm of human ecology, ethnobotany, and ethnohistory in an attempt to reconstruct the impacts of pre-Western man on the biotic and physical landscape. In this volume, Dobyns concerns himself with such impacts on the Sonoran Desert of southern Arizona and portions of southern California. In particular, he devotes considerable attention to what he calls the arroyo cutting and desertification of riverine oases in the Sonoran Desert of southern Arizona. This is not a new theme. Studies of geomorphic and vegetation change have been conducted in this region by Hastings and Turner (1965), Cooke and Reeves (1976), and Humphrey (1958). These have shown from photographic and other evidences that grassland and oak parklands on mountain slopes have declined, while mesquite has increased. Many arroyos along desert basins suffered heavy dissection during floods with concomitant deterioration in riparian vegetation. The underlying processes invoked to explain these changes are complicated and controversial. Among them are included overgrazing, cessation of wildfire, dispersal of mesquite seed by domestic stock, and climatic change. Most writers attribute these changes to Anglo-European settlement over the last

100 years. Dobyns takes a revisionist view that such processes extend back into Spanish and aboriginal times. This thesis, however, demands that American Indians had significant control over their environment.

Dobyns' lines of support are two and both have serious problems. The first is a recently translated account of the Spanish Captain Comaduran of a journey in 1830 through Apache country north of Tucson, Arizona. Unfortunately, this is a single report and one is uncomfortable with a sample of one. Moreover, indigenous cultures were in 1830 already greatly disturbed by European activities. Nevertheless, this document is the writer's centerpiece of evidence and the basis for the organization of the book. Dobyns' second line of support is an obscure, functionalist, and circular belief founded upon the idea of consistent relationships between cultural behavior and habitat, i.e., if a landscape is beneficial to Indians, then Indians had impacts on the land to promote such benefits (pp. 12, 13, and 34). The result is a dangerous course in which he constructs *a priori* models as to the operation of the physical environment based on his view of aboriginal perception. Consequently, it never occurs to Dobyns that the physical environment may operate independently of humans, and he greatly underestimates its power.

He begins the volume with a full translation of the Comaduran report. It is an interesting description of a wildfire, a tense encounter with Apaches, agave roasting, and open-range horse grazing. It is followed by commentary on Indian fire drives, historic depopulation and resultant decline of erosion control works and riverine oases, impacts of grazing, and wood exploitation for agave roasting, funeral pyres, and other needs. In each case, a grandiose scenario of the impacts of Indian activities on the Sonoran Desert is reconstructed from Comaduran's observations and other evidences. The fire drives will

suffice as an example. Here, Dobyns concludes that "Indo-American hunting with fire basically determined the distribution of plant species . . . in the Sonoran Desert," based on Comaduran's observation of a single fire. To be sure, Comaduran saw a fire, but under what context? The Spanish captain may have crossed the area after a wet year when flammable herbaceous cover was abundant. Great care must be taken in the evaluation of the unique character of historic accounts. One need only compare, for example, the primal descriptions by Longinos-Martinez (in 1790) and Arrillaga (in 1796), who described inland northwest Baja California after inordinantly wet and dry years, respectively. Dobyns then disputes Hastings and Turner's (1965) downplay of the significance of early Anglo-European reports of fires, relying as evidence upon the "behavioral regularities" of Apaches seen by Comaduran. According to Dobyns, Apaches fled to higher ground when threatened by Europeans. He argues therefore, that Europeans never saw Apaches and their fires. This line of reasoning is absurd in lieu of the fact that the aftermath of combustion is apparent for months, whether Apaches are there or not.

Dobyns then draws an obscure comparison, based on the "uniformitarian view" (p. 33), between wildebeest-gazelle overgrazing toward stimulation of grass quality in the Serengeti Plains of Africa, and the improvement of Sonoran Desert habitat through Indian burning. This analogy deserves no commentary except to point out that the biogeography of the world's biota is simply too unique to be generalized at such a grand scale from existing theory. Finally, he associates fires with sources of ignition exclusively, failing to realize that the "cause" of fire is the vegetation which propagates the combustion reaction. Given enough time, natural ignitions will burn much of the world's vegetation at a relatively high frequency if sufficiently flam-

mable. Plants have been selected against fire for millions of years, and recent impacts of American Indians are trivial, especially in the Sonoran Desert where the biomass is low.

The other chapters are similar. An extrapolation of Indian domestic grazing is developed through a curious numbers game from Comaduran's seeing 2000 horses. Dobyns' contention of Indian control of local geomorphology seems incredible in light of the Corps of Engineers' failure to do so at the present time. Periodic stream cutting may be a purely natural process. Dissection of southern California mountain streams during the 1969 floods, for example, was followed by an equivalent aggradation in 1978 due to minor differences in storm intensity and duration. His analysis of wood exploitation through agave roasting overlooks the fact that there is a minimum of one metric ton/hectare plant productivity in the Sonoran Desert, which doubtless exceeds Indian use, given their low population densities. The latter part of the book focuses on processes traditionally used to explain landscape changes: wood exploitation associated with mining, Anglo-European grazing, and arroyo cutting due to wagon roads or railroads.

The author has no sense of scale nor comprehension of the magnitude of physical processes shaping the Sonoran Desert landscape. His construction of historic or archaeological evidence based on the Comaduran report has the logic of an upside-down pyramid. This one rests on sand.

Worst of all is the polemic flavor of this volume; it reads like a sermon. The author is extremely opinionated and repeatedly castigates other disciplines as being "disnoetic" compared to his own. This unprofessional nature reflects poorly upon the editorial board of the Ballena Press. Hastings and Turner write that the investigation of landscape changes is "a better subject for study than for debate." One only wishes Dobyns

had taken this advice.

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People of the Magic Waters. John R. Brumgardt and Larry L. Bowles. Palm Springs: ETC Publications, 1981, 122 pp., illustrations, \$9.95 (hardbound).

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A reviewer is sometimes constrained to ask why an author chose to write a particular book. Income from royalties is always a satisfactory answer, but *People of the Magic Waters* does not seem to be a strong prospect. Contributing to knowledge or expressing one's ideas is thought legitimate, even meritorious, in academic circles, but I could find nothing new and distinctive in this book. A desire to disseminate information to a moderately or slightly interested public may best characterize the authors, who had or have an association with the Riverside Municipal Museum, the sort of institution that serves a similar public.

The ordering of the presentation of data on the Agua Caliente segment of the Cahuilla