**Ethnobiological Classification: Principles of Categorization of Plants and Animals in Traditional Societies.** Brent Berlin. Princeton, New Jersey: Princeton University Press, 1992. Pp. xvii, 335. $45.00 (hardcover). ISBN 0-691-09469-1.

Brent Berlin and his many associates have long played a noticeable role in forging an interdisciplinary field of inquiry called ethnobiology. From his work on folk classification of living things and the concept of rank to his findings with regard to patterns in the names for plants and animals across many languages of

the world, Berlin has at once been one of the most innovative, controversial, and versatile scholars working in ethnobiology. He has trained several of its practitioners, has long been very active in the Society of Ethnobiology as well as related associations, and has set the tone and even invented the metalanguage for most of the major debates that have marked ethnobiology since the early 1970s. And especially with regard to ethnobotany, no substantially complete, recent studies of particular systems have been yet published that do not, in one way or another, refer to the work of Brent Berlin.

But not for these reasons should every serious student of ethnobiology read his latest contribution. This engaging book does not simply rehash earlier positions. Although it incorporates a major summation of Berlin's proposed ethnobiological principles, which were first published in 1973, it modifies some of these significantly, clarifies others, and offers new ones. The present book also suggests new directions for research. It is immediately the most significant book-length work on theory and method for the study of traditional systems of ethnobiological classification and nomenclature yet in print. And it is guaranteed to excite controversy.

The argument is framed in terms of a paradigmatic tension between the "two faces of ethnobiology" (p. 5), viz., the "utilitarianists" and the "intellectualists." Berlin credits Lévi-Strauss with the original distinction. Simply stated, utilitarianists believe, as did Malinowski, that names and classifications of living things reflect mainly material concerns. Intellectualists, at the other extreme, hold that such names and classifications spring from autonomous mental processes inherent to the human species.

One may surmise that the debate in ethnobiology between utilitarianists and intellectualists, as Berlin has phrased it, is homologous with the century-old tension in anthropology itself between cultural and linguistic relativity, on the one hand, and rationalism and evolutionism, on the other. As in some of his earlier work, especially that with Paul Kay on color taxonomy, Berlin explicitly dissociates him self from relativity here (pp. 11–13). Berlin on ethnobiology, as with Noam Chomsky on theoretical linguistics, unapologetically expounds a rationalist point of view. His main concern in this book is in demonstrating astonishing similarities among human systems of ethnobiological classification and nomenclature, similarities which stem presumably from the fact that "biological reality allows for few [interpretive] options" (p. 26) and from the biologically determined capacity of the human species to apprehend, name, and classify fundamental discontinuities in nature. In other words, constructing a comparative ethnobiology, which is one of the deliberate objectives of this book, entails recognizing in the first instance that certain perceptual properties are pan-human. The quest here is to isolate and define the natural, unconscious mechanisms that lie beneath the superficial diversity seen in folk systems of biological classification and nomenclature.

Berlin formulates twelve classificatory and nomenclatural "principles" that, *mutatis mutandis*, should apply to the gamut of traditional ethnobiological systems (pp. 21–35). He argues cogently and with ample substantiation for the universality of taxonomic hierarchy (expressed in terms of "ranks"—pp. 135–139) as well as for the salience of generic taxa (pp. 52–101) in the world's non-literate biological classifications. He offers a persuasive defense, moreover, for having previously recognized

that many taxa of kingdom-level (unique-beginner) rank are covert (unnamed) [pp. 190–195].

His argument for covert taxa of intermediate "rank" (taxa between the ranks of life form and folk generic—pp. 141–144), however, seems less compelling. First, such taxa are not nearly universal as with covert unique beginners in non-literate languages. Second, the evidence Berlin presents for covert taxa of intermediate "rank" is much weaker than that which he has given for covert taxa of kingdom-level rank. Covert taxa of kingdom-level rank are understood to be real, in part, because a portion of the lexicon refers only to them. For example, among the Tzeltal, Huambisa, and Aguaruna, certain words for plant parts, life processes, and entire organisms are not extended to other arenas of life (p. 191), even though no word semantically equivalent to the botanist's "vascular plants" occurs in these languages. In other words, however they may be covert, it is difficult to deny the linguistic and cognitive evidence that unique beginners encompass fairly distinct semantic domains.

But the terms used to delimit covert intermediate taxa tend to be based on the idiom of human kinship and/or social organization—these are extremely polysemous (pp. 144–148). For example, regarding certain generic taxa, folk systems of ethnobiological classification often indicate that they are "relatives," "brothers," or "'go together,' as members of the same family" (p. 145). Considering the fluidity of family membership in many human societies (especially in lowland South America), one could make the counterargument that if such covert intermediate taxa exist as "ranks" in ethnobiology, they may be often unstable in terms of their constituent members. Nature may be fairly fixed in external appearance, but human societies are profoundly flexible.

In addition, the substantive criteria for defining covert taxa of intermediate "rank" may be inconsistent in any given language. For example, with regard to the 50 covert intermediate plant taxa Berlin documents for the Huambisa (Table 4.3), whereas most are based on "general similarities in stem habit or gross morphology" (p. 152), fully one-fourth "appear to be formed on the basis of functional, special purpose considerations" (p. 152), such as a perceived value as fuel (p. 159). Berlin is clearly trying to establish an analogy here between "covert intermediate taxa" and the biological family, itself often an artifact of taxonomic artistry and not a given in nature (unlike, for example, the biological species). In short, whereas psychological reality for covert kingdoms in ethnobiological systems is convincing, other covert groupings may still best be considered to be extrataxonomic "complexes," in the sense of Eugene Hunn (cited on p. 142), rather than taxa at the level of an established rank. In either case, controversy over this point seems likely to continue.

The most remarkable original findings surface in Chapter 6, which is subtitled "The Nonarbitrariness of Ethnobiological Nomenclature." Berlin contends that generic names for birds and fish in Huambisa exemplify sound symbolism. It is striking, indeed, that a statistically significant majority of bird names incorporates the high front vowel ([i] as in English sweet), whereas a statistically significant minority of fish names does so. In addition, the high front vowel tends to occur in the first syllable of bird names, whereas it does so only in a very small minority of fish names. Other statistically significant phonetic differences in Huambisa bird

and fish names are equally intriguing (pp. 235–240). Berlin convincingly argues that the high acoustic frequency of [i] occurs in bird names because the sound is subconsciously associated with "quick and rapid motion (i.e., 'birdness')" [p. 249]. Fish names, on the other hand, tend to incorporate sounds of low acoustic frequency that indicate "smooth, slow, continuous flow (i.e., 'fishness')" [p. 249]. In other words, the given forms of nature elicit predictable linguo-cognitive responses in humans. Although linguistic relativists will probably deny that the Huambisa evidence and a few other examples cited by Berlin suffice to claim, as does Berlin, that sound symbolism may be universally present in ethnozoological lexicons, these findings are certain to stimulate further research by others.

The final chapter gives a comprehensive review of the differences thusfar noted in the structure and size of ethnobiological lexicons associated with foraging peoples on the one hand vs. horticulturalists on the other. With the notable exception of the Seri, it now seems clear that languages associated with foraging peoples tend to exhibit very few folk specific names, no varietal names, and a small total number of generic names for plants and animals, all of which stands in striking contrast to many languages associated with horticultural peoples. Although recent materialist explanations for these differences have been advanced (most notably by Cecil Brown), Berlin is careful in noting that such differences may stem from the different habitats usually exploited by foragers vs. horticulturalists. Until a comparative ethnobiological study is conducted of foragers and horticulturalists who exploit the same habitat, according to Berlin, one would be premature to conclude that the observed differences in ethnobiological vocabularies and classifications derive from type of subsistence alone. This represents one more challenge for future researchers that this book lays down.

As for design, although the book lacks photographs, the line drawings are extremely helpful. In addition, many useful tables are logically interwoven with the text: they bolster rather than distract from the discussion. Even though the book may seem daunting at first to ethnobiologists without a background in linguistics, Berlin nicely defines the technical concepts in plain English, using illustrative examples.

In conclusion, this book constitutes an extremely instructive and insightful review of theory, method, and data in ethnobiology by one of its genuine masters. Despite the criticisms noted above, *Ethnobiological Classification* is well conceived, clearly written, and thoroughly documented. I was enriched by reading it. The book will become an indispensable tool for professionals. It will be well assigned as required reading in graduate and upper division undergraduate courses on language and culture, cognitive anthropology, anthropology theory, and, of course, ethnobiology. Ethnobiology's debt to Brent Berlin shows no signs of waning. Nor should it.

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