as practiced in the biotechnology industry. Each chapter has its own reference list, with some items flagged as recommended for further reading, and the book includes a list of abbreviations used and a subject index.

Katherine Livingston

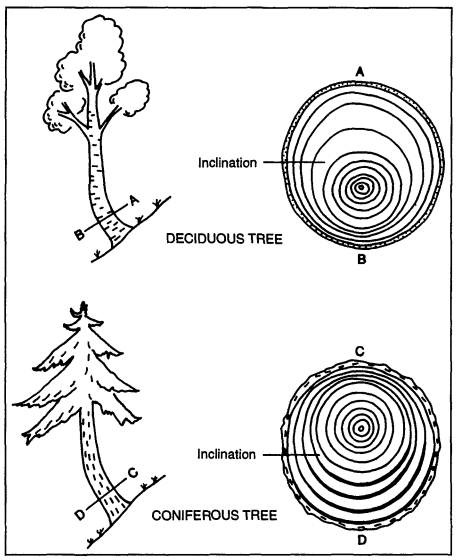
Aotus. The Owl Monkey. JANET F. BAER, RICHARD E. WELLER, and IBULAIMU KAKOMA, Eds. Academic Press, San Diego, CA, 1994. xx, 380 pp., illus. $74.95 or £58.

The South American owl monkey, or douroucouli, is, as described by Susan Ford in the first chapter of this book, "a somewhat small, monogamous, generally quadrupedal platyrrhine lacking a prehensile tail [and] is unique among anthropoids in its nocturnal habits." Though there is a considerable scientific literature on these monkeys stemming from their use in biomedical research, there has heretofore, according to the editors, been no comprehensive overview of the genus. Ford's chapter initiates this effort with a 57-page discussion of the taxonomy and distribution of *Aotus*; its members, once thought to be of a single species, occur in forest habitats at various altitudes throughout tropical South America; division into as many as nine species has recently been proposed, but after reviewing various kinds of evidence Ford finds support for no more than seven. In a chapter on fieldwork and conservation Rolando Aquino and Filomeno Encarnación review population densities, procedures for "harvesting" the animals, population structure, and selection of sleeping sites and report on the conservation status of the various species, which face threats due to deforestation, subsistence hunting, and trade. Patricia Wright gives an overview of *Aotus* behavior and ecology with particular attention to adaptations to a nocturnal life-style, and Allen Dixon reports on reproductive biology, from testicular and ovarian function to parenting behavior. Maintenance of the animals in captivity is the subject of the next two chapters, with Janet Baer giving an overview of husbandry and medical management, Carlos Málaga describing procedures for hand-rearing, and Richard Weller reviewing infectious and noninfectious diseases to which the monkeys are subject; the last of these chapters is complemented by a later one by Manuel Tantaleán and Alfonso Gozalo on parasitic infections. Laboratory studies using *Aotus* as a model are the focus of the remaining chapters in the book. In recent decades owl monkeys have been used in efforts to develop therapies for human malaria and in studies of viral oncogenesis, and these studies are described by William E. Collins and Norval King respectively. The relatively large eye and pupil of *Aotus* have made it a convenient model in ophthalmologic research, and Thomas Ogden summarizes what has been learned and concludes by recommending that, given its scarcity, further use of *Aotus* in this sphere be limited to cases where there is no alternative model. Thanks to their less fissured cortex neurobiology is another area in which owl monkeys have been extensively used, and studies on functional cortical organization generally and on the visual cortex in particular are summarized by Jon Kaas and by John Allman *et al.* The volume also includes a foreword by Primo Arambulo III of the Pan American Health Organization and a subject index.

Katherine Livingston

Dating in Exposed and Surface Contexts. CHARLOTTE BECK, Ed. University of New Mexico Press, Albuquerque, 1994. ix, 239 pp., illus. $45.

A problem common to the fields of archeology and geomorphology is that contamination of materials of interest due to exposure often makes the application of standard chronometric methods inappropriate—a problem compounded, as Beck notes in her introduction to this work, by the need not just to date particular materials but to establish chronologies over a broad landscape or to approach events of interest by way of their association with other events. It has thus been necessary for researchers in those fields to adapt existing methods or devise new ones. The purpose of this book is "to present a number of [the resulting] methods in systematic detail, while demonstrating their successful use in the dating of the surface artifact record and exposed features of the natural landscape." Beck's introductory exposition of the general issues is followed by nine more specific papers, each with an abstract and its own reference list. The first two contributions are primarily geological. In one P. L. K. Knuepfer describes the use of rock weathering rinds (zones of oxidation or hydration parallel to clast surfaces) to estimate ages of coarse-grained surfaces, and in the next D. McCarroll describes the use of the Schmidt hammer, a hand-held instrument designed to measure the surface hardness of concrete, for assessing rock surface weathering in a variety of terrains. More specifically of archeological concern is an account by Beck and G. T. Jones, reporting on data from Butte Valley, Nevada, of the application of obsidian hydration dating to sort out temporally mixed assemblages of artifacts. Efforts are being made to utilize rock varnish, an often biogenic coating that accretes in dry environments, to the dating of horizontally distributed materials, and these are described by Ronald Dorn. R. C. Dunnell and J. K. Feathers present an argument, drawing on their work in the central Mississippi Valley, for an expanded role for thermoluminescence dating in archeology, especially in surficial contexts. The use of cosmogenic nuclides, which now can be measured in smaller concentrations owing to the development of accelerator mass spectrometry, is the subject of two papers, an overview by M. D. Kurz and E. J. Brook and a discussion of the use of chlorine-36 by M. G. Zreda and F. M. Phillips. Biological evidence pertaining to age is the subject of the two final papers. J. A. Matthews, reporting especially on work in Norway, reviews lichenometric dating, a method based on lichen growth rates and primarily used in arctic or alpine environments, where lichen growth is relatively undisturbed by competition from other vegetation, for dating moraine ridges on recently deglaciated terrain, and O. Heikkinin gives an account of the use of dendrochronology for dating land surfaces. A brief index is included at the end of the volume.



"The inclination of trees can be dated from the tree rings, which become eccentric after tilting. The eccentricity of inclined coniferous trees is the opposite of that of deciduous ones." [From Heikkinin's paper in *Dating in Exposed and Surface Contexts*]

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