Biological Anthropology

The Chimpanzees of the Mahale Mountains: Sexual and Life History Strategies. *Toshisada Nishida,* ed. Tokyo: University of Tokyo Press (distr. by Columbia University Press, New York), 1990. 344 pp. $69.50 (cloth).

FRANCES J. WHITE
Duke University

At long last, results from 25 years of detailed research on the chimpanzees of Mahale are available to English readers in one readily accessible source. This long-awaited volume contains previously unpublished information and English summaries of data published in Japanese that are difficult for researchers to access.

The detail and complexity of information in some chapters is amazing. Many researchers will be pleased that much of the information is presented in relatively "raw" form in numerous tables. Although the lack of summarizing graphs may slow down the reader, the ready access to data will encourage extensive and detailed comparisons and analyses with data from other sites.

The comparisons between this data and information from the long-term studies at Gombe are especially interesting. There are striking differences as well as many similarities. The age for females at first reproduction at Mahale is 15 years, as compared with 13 years at Gombe. Although female ranging patterns at Mahale are more directly influenced by food availability than are male ranging patterns, the contributors to this volume believe females to be more social than at Gombe. At Mahale, young females leave their natal group prior to mating and mother-adult son inbreeding is avoided. Unlike earlier reports, the more complete Mahale data show few differences from Gombe in the methods the chimpanzees employ to catch larger prey or in the species of prey that are hunted or taken.

This volume contains 16 chapters by 11 contributors. As the emphasis of research at Mahale has been on sociological aspects, little data is presented on behavioral ecology, and ecological information remains scant. The amount of data presented in each chapter is highly variable. For example, the chapter by Nishida, Takasaki, and Takahata on demography and reproductive profiles presents 22 years of detailed information. In contrast, two chapters by Takahata on the social relationships of adult males are based on less than five months of study in 1981. The chapter on sperm competition and mating behavior by Hasegawa and Hiraiwa-Hasegawa contains very interesting data, analyses, and interpretations of successful matings. Interestingly, unlike the situation at Gombe, 80% of conceptions within the M group were from matings in group contexts rather than in consortships or during "possessiveness."

There are interesting discussions of age differences in feeding on ants and on plants, both by Uehara; of alpha-male social skills by Kawanaka; on manifestations of old age by Huffman; and on maternal investment and food sharing by Hiraiwa-Hasegawa. Interestingly, Hiraiwa-Hasegawa found no asymmetry in investment by mothers into male versus female offspring. Hiraiwa-Hasegawa found that the active passing of information from mothers to infants was important to the acquisition of adult feeding patterns.

Unfortunately, no chapters address the impact of provisioning following its inception in 1966, or discuss the effect of the cutback in provisioning in 1975 and drastic reduction in 1981, or the final cessation of artificial feeding in 1987. Also, little mention is made of the important conservation efforts of the Mahale researchers; but then, this is not the focus of the book.

This volume underscores the value and importance of long-term field observations of long-lived primates. We can look forward hopefully to the publication of results of the next 25 years of data collection at Mahale. Overall, this is an extremely valuable book and the access it affords to important data will please many.

"Language" and Intelligence in Monkeys and Apes: Comparative Developmental Perspectives. *Sue Taylor Parker* and *Kathleen Rita Gibson,* eds. New York: Cambridge University Press, 1990. 609 pp. $65.00 (cloth).

B. G. GALEF, JR.
McMaster University

Gibson and Parker's edited volume is an ambitious undertaking. Its goal is to both define and introduce a new field, "comparative developmental evolutionary psychology (CDEP)" (p. 3). The "comparative" in the field's title refers to study of similarities and differences in cognitive capacities and devel-

opmental profiles of primates. "Development" is discussed in Piagetian terms, though unresolved tension arises from the explicitly anti-Piagetian stance of some contributors to a Piagetian volume and field. "Evolutionary" considerations do not play an important role. The "psychology" is cognitivist and, again, Piagetian, and thus lies outside the mainstream of contemporary animal behavior and behavioral primatology. Describing CDEP as comparative, neo-Piagetian developmental-cognitive primatology may differentiate it from other approaches more clearly than does the editors' string of adjectives.

The book is divided into six sections. In the first two chapters of section 1, the editors review intellectual traditions contributing to the new field of CDEP and then discuss definitions of such terms as *development, learning*, and *instinct*, and the importance of definitions as reflections of implicit theories of behavior. In chapter 3, Gibson proposes that differences among species in intelligence reflect differences in the number of neurons, number of connections per neuron, and extent of redundancy in neural processors exhibited by species members. In a stimulating final chapter, Parker uses life-history-strategy theory to explore relationships among brain size, rate of development, and intelligence in primates.

Chapters in section 2 consider the cognitive development of cebus monkeys. Antinucci provides a Piagetian comparison of development of gorilla, macaque, cebus, and human. Fragaszy uses dynamical systems theory (stressing interactions between environment and behavioral organization) to compare sensorimotor development of hand- and mother-reared cebus. Gibson describes a longitudinal study of a cebus achieving various Piagetian stages, while Parker and Poti' describe (in neo-Piagetian terms) studies of cebus monkeys in classic Köhler problem-solving situations.

Part 3 is quite different from preceding sections. Two chapters, one by Visalberghi and Fragaszy, one by Tomassello, are concerned with whether monkeys and chimpanzees can learn by imitation. Both chapters are thoughtful, critical reviews of extensive literatures. Both are excellent; yet, neither is Piagetian in flavor and neither finds convincing evidence of learning by imitation in nonhuman primates. Vauclair discusses application of linguistic concepts to language learning by apes.

Part 4 includes: (1) a chapter by Gomez describing a clever study (discussed in Piagetian terms) of development of an infant gorilla's manipulation of human experimenters as tools in Köhler-type situations; (2) Bard's observations of development of communicative gestures used by infant orangutans to manipulate their mothers' behavior (discussed in Piagetian terms); (3) Russon's Piagetian descriptive study of development of peer interactions in infant chimpanzee; and (4) Blount's study of spatial utilization by and social relationships of captive bonobo.

Part 5 consists of an intriguing chapter by Boysen and Berntson describing their fine investigations of numeric skills of chimpanzees, Matsuzawa's interesting comparison of spontaneous object-sorting strategies of young humans and young chimpanzees, and a review of Pepperberg's eye-opening studies of the linguistic and cognitive achievements of Alex, an African grey parrot.

The final section contains a chapter by Miles on sign learning and use by Chantek, a talented orangutan, and description by Greenfield and Savage-Rumbaugh of their studies of symbol learning and grammatical usage by Kanzi, a bonobo destined for election to the Ape Linguistic Hall of Fame.

The volume will be of interest to those seeking an overview of the relative behavioral development, cognitive achievement, and linguistic abilities of various primates. It remains to be seen whether the Piagetian emphasis of CDEP will prove a strength or straitjacket. There is, however, no question as to the inherent interest of the subject matter of CDEP to both anthropologists and animal behaviorists.

Narratives of Human Evolution. *Misia Landau.* New Haven, CT: Yale University Press, 1991. 218 pp. $22.50 (cloth).

IAN TATTERSALL
American Museum of Natural History

Some years ago, Misia Landau attracted widespread attention with her claim that, however disparate superficially, scenarios of human evolution share the narrative structure of the typical folktale as analyzed by Vladimir Propp back in 1925. Such tales begin with a humble hero (ape?) who leads a tranquil existence (in the trees?) that is eventually disrupted by adverse events of some kind (increasing seasonal aridity?). In his new circumstances (the savanna?) the hero must survive a series of tests (new environment, predators?), which he accomplishes with the aid of a "donor" (natural selection?). These trials constitute a process of self-improvement (evolution?) from which the hero emerges triumphant (sapient?). The vogue enjoyed by this notion culminated at last year's meeting of the