

lowing, with ape fan clubs, newsletters, prime-time television spots and so on. Many of the researchers invested years of time and energy — as well as emotional attachment — in their studies. Indeed, their subjects were sometimes treated not so much as targets of scientific investigation but rather as family members. It is this paradox that lies at the heart of Fouts's story.

At the start of *Next of Kin*, Fouts mentions the ethical problem of raising a human child in a chimpanzee family. But then, as if the ethical concerns evaporate, he swiftly turns to the fascination of raising a chimpanzee in a human family, and his own childhood "experiments" with cross-fostering ducklings to domestic cats. After spending years experimenting with Washoe and several other chimpanzees, though, he suddenly realizes he has done something unethical. Driven only by his intellectual curiosity, he has failed to consider what such experiences would be like for a chimpanzee held captive without maternal nurture, sex, play, social politics and so on. Fouts retreats from science and plunges into alcoholism

He eventually emerges from his depression with a renewed sense of energy, guided by a desire to uncover, and ultimately abolish, what he perceives as an international disaster: highly inappropriate housing facilities for primates. The rest of the book tells of Fouts's fight for the care and well-being of primates in captivity, of his continued struggle with research and of the findings that emerged from his studies.

Sociopolitical saga apart, there are various scientific nuggets dispersed throughout the book. The reader is treated to observations of chimpanzees teaching their young bits of ASL, deceiving Fouts for a Coke, signing about the grief of losing a baby, using mirrors to put on make-up and clothes, and signing among themselves about the day's events. One cannot help but be amazed by all of this. Yet Fouts is out of touch with several areas he discusses, and apparently forgets that his research rests on that of others. For example, we find no mention of Premack's work with chimpanzees. Uniquely for his time, Premack focused on the conceptual abilities of animals rather than their capacity to acquire the formal structure of language; it was in this guise that Premack mocked the imaginary syntax-carrying chicken.

And, as it turns out, this is precisely where work on captive apes and other animals has moved, due in part to the critical blows dealt by linguists, psycholinguists and philosophers to studies of ape semantics and syntax. Tetsuro Matsuzawa is also not mentioned and Sue Savage-Rumbaugh, one of the leaders in this field, receives a one-sentence nod. And yet, like Premack, both have generated fantastic findings about the conceptual abilities of chimpanzees and bonobos.

Next of Kin is also replete with conceptual

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and empirical inaccuracies. Fouts thinks that human language is primarily a cultural phenomenon. Given all the evidence of dedicated linguistic brain areas, universal grammar, highly constrained sequences of language development and so on, one simply cannot ignore the importance of biology. He argues in favour of human languages emerging from a gestural form, a claim soundly rejected by many authors, including Steven Pinker, Derek Bickerton and Philip Lieberman. If gestural languages were dominant, why don't we see any remnants today? Why has no culture ever taken a gestural form of language as its first and dominant form of communication? Why aren't gestural signals dominant to vocal signals in most non-human primates?

Fouts claims that the dominant form of communication for human infants is through facial expressions and hand gestures, rather than vocal signals, because human infants are born with a chimpanzee-like vocal tract that does not become fully adult-like until about two to three years of age, when words are strung together into sentences. None of this is correct. Infants cry from birth and soon after begin to make communicative gurgles, raspberries and laughing sounds. Babbling emerges at just about the age that the larynx descends into

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the throat, forming the adult-like configuration. The visual and auditory modalities are used for communication in early development. When words are strung into sentences, it is not because of a mature vocal tract, but because of a computational mechanism sufficiently developed to allow recombination.

Further, Fouts's view that all primate vocalizations (that is, those produced naturally as part of the species-typical repertoire) are processed by the emotional areas of the brain is also incorrect, as demonstrated by recent neurophysiological studies on rhesus macaques showing involvement of the auditory cortex.

The book is therefore both fascinating and infuriating. Fascinating because it tells of the trials and tribulations of trying to communicate with another species. Infuriating because the distinction between evidence and impression are blurred, and because profound philosophical and psychological problems are often dealt with superficially. In the acknowledgments, Fouts showers "thank-yous, hugs, and pant-hoots ... to the five people who inspired [the] book: Washoe, Loulis, Moja, Tatu, and Dar". People? How interesting. □

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