

intones that this “horribly memorable suicide” overhangs the entire memoir. But to Wollaston, it’s a blithe yarn building to a punchline. Once the body is removed, the farmer frantically scrubs down the cabin, then prepares to retire for the night—and, in the farmer’s words, “there was one of his dommed eyes, right in the very middle of my bed.”

Where Raban sees villainy and victimization, Wollaston sees self-reliance and good-heartedness. Whatever the explanation for the two authors’ divergent viewpoints—the rosy glow of Wollaston’s childhood memories, the generational outlook of someone who came of age in the 1920s (as opposed to Raban’s 1960s)—the chipper, anecdotal

*Homesteading* is a worthy complement and counterpoint to *Bad Land*. “We are all of us pioneers in our time,” Wollaston writes, “wearing the clothes that are most suitable or available, making the best of the present situation and learning to cope with new conditions.”

Along with Wollaston’s recollections, *Homesteading* offers a handful of family photographs. More numerous and evocative photos can be found in the biography of another prominent figure in *Bad Land*, Donna M. Lucey’s *Photographing Montana, 1894–1928: The Life and Work of Evelyn Cameron*, back in print from Knopf.

—Stephen Bates

## Science & Technology

### *THE PLATYPUS AND THE MERMAID AND OTHER FIGMENTS OF THE CLASSIFYING IMAGINATION.*

By Harriet Ritvo. Harvard Univ. Press. 304 pages. \$29.95

In 1735, when Carl von Linné (a.k.a. Linnaeus) published his *Systema Naturae*—in which he coined the term *Homo sapiens*—he described some 300 animal species. A century and a half later, with naval expeditions routinely carting new zoological specimens back from overseas, British taxonomists struggled to identify more than a thousand new genera each year, a number that a contemporary commentator deemed “simply appalling.” Classifying these legions of creatures became a principal occupation of Great Britain’s naturalists.

Not every new discovery slid easily into existing categories. In 1770 the crew of Captain James Cook’s *Endeavour* reported coming across an Australian animal “as large as a grey hound, of a mouse colour and very swift,” which “jumped like a Hare” on two legs, “making vast bounds.” And what to make of the amphibious, egg-laying mammal with webbed feet that seemed to have “the beak of a Duck engrafted on the head of

a quadruped”? The British met the challenges: by 1804, the kangaroo (the name was borrowed from an Aboriginal language) had been declared “a most elegant animal,” fit to be included in the royal menagerie; and by 1851, stuffed platypuses were appearing alongside rabbits and squirrels in British museum displays.

In *The Platypus and the Mermaid*, Ritvo, a historian at the Massachusetts Institute of Technology, is less interested in kangaroos and platypuses than in the principles undergirding Victorian taxonomy. She contends that “the classification of animals, like that of any group of significant objects, is apt to tell as much about the classifiers as about the classified.” The fact that British naturalists earnestly placed *Homo Europaeus Britannici* at the pinnacle of their taxonomic system speaks volumes, of course.

But, as Ritvo demonstrates at length, naturalists were not alone in their solemn categorizing. Farmers, hunters, butchers, and breeders all developed distinct systems of their own for organizing the natural world. Hunters, for example, “classified game according to the kind and degree of amusement it offered.” This anthropocentrism and general penchant for classification help



explain the Victorian fascination with whatever deviated from neat definitions and distinctions, including “monstrous” human anomalies (missing limbs, Siamese twins, dwarfs), hybrids (mules, children of mixed races), and imaginary creatures (mermaids, sea monsters).

Ritvo draws a staggering amount of anecdotal detail into *The Platypus and the Mermaid*, enough to convince any reader of the Victorian era’s compulsion for classification. It’s a virtuoso display, but the book doesn’t offer much of an argument. Ritvo’s goal is simply and topically “to represent the range of these taxonomic practices.” One can, of course, draw one’s own conclusions from this taxonomy of the taxonomists, but further ruminations from the author, who has led readers to anticipate learning “as much about the classifiers as about the classified,” would have been welcome.

—Toby Lester

**THE SYMBOLIC SPECIES:  
*The Co-evolution of Language  
and the Brain.***

By Terrence W. Deacon.  
Norton. 527 pp. \$29.95

Long ago, my English professor sneered that biological “reductionism thinks that it explains weeping as ‘paroxysmal lachrymosis.’” But he had it backward. It is *holism* to “explain” weeping as paroxysmal lachrymosis, or, for that matter, laughter as an explosive release of tension. Reductionism, by contrast, traces both weeping and laughter to origins deep in the brain, those origins to the movements of cations (positively charged ions) across the membranes of neurons, and those ion flows to an evolutionary divergence of primate brains from their common roots. Today, such reductionist explanations are becoming more and more numerous. Nowhere is the growth of knowledge about behavior, “animal” and human, better exemplified yet more obscure than in the study of language.

Humans are unique in having language—the capability of manipulating symbols for our apprehension of, response to, and communications about the external world and our internal milieu. No other animal is a symbolic species. The linguist Noam Chomsky was right in insisting upon something special in the human brain, something preformed, that enables children to learn

language. But even Chomsky and his followers in effect denied the relevance of evolution, and therefore that of biology, to the provenance of the “language organ.”

How does the human brain differ from the brains of animals without language, and how did it get that way? An answer begins to appear in half a dozen different disciplines: linguistics, neurology, physical anthropology, developmental biology, molecular genetics, evolution. Few people can manage them all; even fewer can make the findings accessible. Deacon, a Boston University researcher in neuroscience and evolutionary anthropology, does both without ever losing clear sight of the whole. *The Symbolic Species* brings the language organ securely within the purview of the life sciences.

The language-competent brain does differ from those of other species, but not in absolute size. A recently understood subtlety of embryo development determines not only a brain’s gross size but also its size relative to the rest of the body and the relative sizes of the constituent parts of the brain. The relative sizes of the brain’s parts in turn determine, in a remarkable Darwinian process of selective cell death, how densely each part is connected to the others. As Deacon shows, the new language-biology suggests that symbol manipulation ultimately results from the manner in which nerves disseminate throughout the embryonic brain and its periphery. The capacity for language must have offered early humans a selective advantage in their environment, for only in our species did the brain develop in this fashion. Development of our language organ thus cannot be understood apart from evolution.

Deacon attempts what seems impossible: a book rich in scientific insights, in a demanding multidiscipline, that nevertheless reaches and informs nonspecialists. To a large extent he succeeds. Authoritative insights are there in profusion, and so assembled, they are a revelation. General readers will miss implications buried in technicalities and glosses, but that is a small price to pay for a mind-expanding tour of the emerging science of language. *The Symbolic Species* is a must-read for scientists and lay readers alike who want to know where we stand in the quest to define—rigorously and in physical reality—the psychobiological distinction we name “humanity.”

—Paul R. Gross