

SPLENDID ISOLATION:
The Curious History of
South American Mammals
 by George Gaylord Simpson
 Yale, 1980
 255 pp. \$17.50

The animals that interest Simpson, a University of Arizona paleontologist, would win few beauty contests: the capybara, a rodent four-and-a-half feet long, weighing 110 pounds; saber-toothed marsupials; sloths the size of rhinoceros with the ability to walk erect. These odd, highly specialized creatures (represented in this polished technical account by precise line drawings) flourished as recently as 7 million years ago in South America. Their ancestors began evolving 63 million years ago—no one knows exactly how or why—when South America was still unconnected to northern regions. Within the short span of 15 to 20 million years, the continent became home to at least 20 mammalian families and hundreds of genera. In relative isolation and freedom from competition, fragile mutant strains—nature's genetic "experiments"—survived. Then, 7 or 8 million years ago, came the "Great American Interchange" when animals were able to travel between North and South America via the newly formed Isthmus of Panama. Rabbits, squirrels, dogs, bears, raccoons, skunks, and deer went south; porcupines and armadillos went north. Small humpless camels from North America evolved into llamas and alpacas in South America. Some mammals (guinea pigs, howler monkeys) that had developed in the period of insularity survived; but many of the stranger ones, less adaptable and fewer in number, became extinct.

THE TREE
 by John Fowles and
 Frank Horvat
 Little, Brown, 1980
 unpagged \$24.95

Modern man distrusts disorder. We see forests and yearn for orchards; we see wild flowers and picture formal gardens, observes Fowles, a British novelist, in this elegant essay on nature, science, and art. Worse, with an acrobatic, wish-fulfilling turn of mind, we have begun to *believe* that scientific evidence corresponds to natural fact. Our tendency to label, classify, and analyze—our insistence, since the Victorian age, that our relationship with nature be "purposive, industrious, always seeking greater knowledge"—casts nature as a "kind of opponent." Fowles would

have us see nature through scientific and artistic bifocals, through technical knowledge *and* our imaginations. "If I cherish trees beyond all personal need and liking of them it is because of . . . their natural correspondence to the greener and more mysterious processes of the mind"—a mind that not only records the created but creates. In the end, Fowles concedes, nature often defies artistic expression, which itself has sometimes compartmentalized reality (for example, in classical art, which emphasizes simplicity, harmony, and form). Yet, his is a splendid attempt, and Horvat's 56 color photographs collect the beauty of nature's disorder.

IVAN PAVLOV
by Jeffrey A. Gray
Viking, 1980
153 pp. \$12.95

In 1904, Russia's Ivan Pavlov won a Nobel Prize for the discovery that the nervous system controls the secretion of digestive juices in the stomach and pancreas. Five years later, he demonstrated the "conditioned reflex" in a now famous experiment in which a dinner bell stimulated salivation in laboratory dogs. Pavlov (1849–1937) took the puzzling tangle of behavior, mind, and brain out of the philosophers' hands and brought it into the laboratory, says Gray, an Oxford experimental psychologist, in this survey of the experimenter's ideas. Yet, at a time when scientists increasingly called for specialization, the Russian physiologist studied his subjects whole. (Rather than anesthetize his dogs to investigate blood pressure, for example, he trained them to lie perfectly still so he could connect an artery to a pressure gauge.) Followers of Pavlov, notably in the Soviet Union, have long stressed the broad applicability of his findings in animal psychology. Indeed, Pavlov-style conditioning has proved highly effective in treating human phobias. But Pavlov's works were not translated into English on a large scale until the late 1920s. In the West, Gray maintains, many scientists drew sharp distinctions between animal-behavior research and human-personality study, allowing "Freudian and other strange ideas to flourish profusely."