

Pioneering Adventure in an Unexplored Realm

Donald Perry, *Life above the Jungle Floor*, 170 pages, index, 52 color photographs. New York: Simon and Schuster, 1986. Hardcover. \$16.95, available at The Bookshop. S.A.

Reviewed by ALEXANDER F. SKUTCH

THIS is a book of pioneering exploration, adventure, and discovery in a neglected realm, the canopy of tropical rain forest high above the ground.

For many years, amateur naturalists and professional biologists in many fields have been diligently exploring the lower levels of tropical forests. Tied to the ground by their inability to climb the great trees, their immediate acquaintance with the woodland has rarely extended higher than 30 feet, which might be compared to visiting the first three floors of a building 15 to 20 stories high.

To learn what the upper levels contain, ornithologists have watched birds through binoculars; botanists have shot down twigs for flowering specimens, sent up trained monkeys to throw them down, employed agile native climbers, or sometimes felled the trees to collect flowers or fruits;

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entomologists have searched the foliage of fallen boughs or trees. Much eluded all these earth-bound naturalists.

IT is probably no exaggeration to say that the canopies of the world's tropical forests remain less thoroughly investigated, and contain more biological secrets, than the depths of the oceans. And to explore the high treetops is more strenuous and hazardous, if less costly, than to investigate the oceans' depths. Those who descend to great depths are in no danger of falling from the snapping of boughs with undetected weaknesses; the carefully sealed capsules that protect them from tremendous pressures also shield them from any troublesome animals that might lurk down there; whereas the climber in treetops exposes his skin to multitudes of annoying, biting, and sometimes highly toxic creatures, from ants, mosquitoes, and spiders to vipers.

Undeterred by these perils, of which he was probably not yet fully aware, but depressed by working as a cellular biologist in basement laboratories of California State University at Northridge, Perry sought a virtually untrodden field of investigation. While still a graduate student who had never seen a tropical forest, and with scarcely any Spanish, he set out for Costa Rica, well equipped with stout nylon ropes and gear for climbing them, such as mountaineers use.

His first ascent was on the Peninsula de Osa, where he found an espavel tree with a trunk over 10 feet in diameter — as large as any he has seen in Costa Rica. After climbing gingerly to a massive lower bough, he found that the top of the great tree had broken off, exposing its hollow center. Entering, he explored this cylindrical "wooden cavern" down to the tree's roots, 40 feet below, passing close to many new, strange, and sometimes potentially dangerous creatures, and gaining fresh insights into the ecology of such an association of tree and animal inquilines.

FROM Osa, Perry shifted his operations to Finca La Selva, field station of the Organization for Tropical Studies in the Sarapiquí lowlands of northeastern Costa Rica. One of his first exploits was to climb a huge almendro tree. Reaching the canopy, he found himself in "a wilderness never seen by mankind. It was devoid of human progress, its cigarette butts, bottle caps, and other ejecta. On the whole planet, from the oceans to the highest peaks, there was no more pristine a setting. No photograph can capture the beauty of this bewildering place: the fleeting impressions and smells, the chasms of cascading leaves, and islands of ornamental plants awash in the airy sea."

In this treetop, Perry hung a lightweight hammock, a difficult and frightening operation. While he rested in it, a storm approached with the sound of a huge waterfall, with boisterous gusts that shook the monolithic trunk, violently whipped stout surrounding branches, and threatened to tear away the hammock. Soon he was lying in water that almost covered him. Thoroughly chilled by the rain, he abandoned his plan to pass the night in the treetop.

Later, Perry built, 111 feet up in a great monkey-pot tree, a four-by-eight-foot observation platform, covered by a canopy, and furnished with a folding canvas cot for sleeping. From this center, he stretched to two giant emergent trees ropes along which, suspended from a pulley, he could travel above the crowns of lower intervening trees. This arrangement facilitated his study of a neglected subject, the pollination of canopy



CLIMBING to the canopy: scientist at La Selva.

trees and the plants that grow upon them. Watching the epiphytic vine *Norantea sessilis* of the marcgravia family, he learned that birds who came to drink the nectar lavishly secreted in spoon-shaped nectaries carry from flower to flower pollen embedded in a thick, transparent glue that sticks to their feet — an apparently hitherto unrecorded method of cross-pollination.

Among Perry's many important treetop discoveries was that the biting Azteca ants that inhabit the hollow trunks and branches of cecropia trees remove moss and seedlings from the bark, thereby preventing weak boughs from becoming overloaded. I had supposed that cecropia trees' freedom from epiphytes that burden neighboring trees was due simply to the smoothness of their bark.

AN interesting passage analyzes the fears of the many scientists, bird-watchers and tourists who climbed to the canopy of Perry's observation tree. A long digression on "Extinction of the Dinosaurs" explains how the evolution of warm-blooded vertebrates was closely linked with that of the flowering plants that offered more nourishing food than was formerly available to vegetarians; but it fails to tell us just how mammals and birds affected their reptilian precursors. The old suggestion that heavy predation on dinosaurs' eggs by increasingly large and numerous mammals was an important factor in the demise of the former is mentioned (in the final chapter) but dismissed for lack of evidence.

What I like least about this book is the use of the word "jungle" in title and text. True jungle, a sort of savanna woodland found in India, is very different from tropical rain forest. William Beebe, apparently capitalizing upon the popularity of Rudyard Kipling's *Jungle Books*, employed the term all too freely, but serious naturalists have rather consistently refrained from calling rain forests "jungles."

This minor criticism should not divert anyone from a fine book that one reads with increasing admiration for the author's courage, stamina, endurance of discomforts and dedication to his science. Whether one seeks biological information or exciting adventure, he will find much in this well-written, beautifully illustrated volume. And he will doubtless close the book saddened by its final despairing forecast of the future of forests recklessly exploited by man's heedlessly increasing multitudes.