But one might well ask just how the *Life*-Time, Inc., organizational arrangement actually functioned, or how it could operate at all. I have made some inquiries and, from the information given me by authoritative sources, I can say that the responsibilities and tasks are allocated in what would appear to be a sensible and logical manner. Furthermore, the famous consulting editors are not just "window dressing"; they are consulted about the substance, structure, and conclusions of the books in this series, and they review closely the manuscripts of books which are in their particular area of competency. The consulting editors also suggest specialists in fields covered by the series. In the case of *Machines*, Frederick G. Kilgour served as "general consultant," and the accuracy and quality of the historical text attest to the high caliber of Kilgour's scholarship.

Given the reputation of the consulting editors and of the "general consultant" for this specific volume, and the fact that all were actually consulted, how are we to account for the variation in quality between the text and the picture essays? The essays, it appears, are not the product of the scholarly consultants nor even of the author-popularizer; they are produced by the Book Division Staff of Time, Inc., and we know that some 30 people comprised the staff for this particular book. Yet there would seem to be nothing wrong with having some 30 people, including some 14 researchers, work together to produce an accurate picture essay, particularly when highly knowledgeable scholars oversee their work. Yet it is precisely at this point that the communications chain seems to have broken down. The scholarly scientists had less contact with the aspects related to the illustrations than with those concerned with the text portions, and the final versions of the picture essays appear to have been composed without the consultants having an opportunity to give them a final check. Perhaps this accounts for the departure of the picture essays from the high standards of the text chapters.

The fact that the text is well written and historically accurate does not mean it is without fault. I am troubled by the fact that the underlying philosophy of the machine expressed in this volume seems more akin to the Panglossian attitude toward science and technology of weekly news and picture magazines than to the scientific skepticism of careful scholars. The reader is told that the assembly line "has a built-in tendency toward further mechanization. . . . This tendency is strangely organic—to many people frighteningly so . . . and it hatches new developments of its own, brews fresh situations, raises disturbing issues." But lest this uncertain future trouble the reader too much, he is immediately assured that "we move toward it [the supramachine of the future] incontestably, swiftly, as if on bright, soaring, machine-milled wings" (p. 84).

In the final chapter, "The promise and problems of automation," the reader is given a similar fright when machines are invested with a life and will of their own: "Yet, even as they serve us, they obey inner laws of selection and mutation, born of some kind of self-correcting sense of organization" (p. 167) and "The machines themselves seem to be groping more and more toward self-sufficiency, impelled by the same blind will with which a vine climbs toward the sun" (p. 168). Again, however, the reader is reassured that all is for the best in an automated world; although the new automatic devices "confront us with mountains to climb, . . . in the struggle up the slopes, we shall earn a better understanding of ourselves, a deeper communion with each other and each other's needs. And from the summit, new lands will beckon, brighter by far than those we have known."

To the *"Life-Time* mentality," apparently, the "problems" of automation mentioned in the title of the last chapter are simply technical problems—namely, improving the automated devices themselves. Two sentences suffice for the human and social problems posed by automation, specific mention being made only of retraining, relocating, and restoring work to those displaced by automation. Are these the only "problems of automation," and are they so trivial that they can be adequately covered in no more than a few phrases?

In view of the growing interest in science on the part of laymen and students, many scientists are concerned about their responsibility in providing nontechnical books for nonscientists and students. It is therefore encouraging to find publisher, scientist, and science writer working toward this end—the production of accurate and interesting, well-written and well-illustrated, popular accounts of science and technology, accounts that will reach a wide audience without sacrificing accuracy and intellectual dignity. Is it too much to hope that modes of collaboration can be found which will more often result in the realization of these mutual aims?

Geography Textbook

The Monsoon Lands of Asia. R. R. Rawson. Aldine, Chicago, 1963. 256 pp. Illus. $6.

As a result of the wide range of its subject matter, this volume varies from heavily factual to highly interpretive. The book is interspersed with well-chosen recent photographs, and the many simplified maps add clarity.

Material poverty is a common feature throughout Monsoon Asia. Food consumption is low, population is predominantly rural, and holdings are small; some farmers own their land, many are tenants, while others are laborers with no land of their own. Although there has been no appreciable increase in farm land or in agricultural output, population continues to increase. A small accumulation of capital is common but, on a per capita basis, it is small in comparison with that in many other parts of the world. For many years large-scale mechanized industry has been concentrated largely in India, Japan, and China, and although home industries generally supplement agriculture, they also provide certain goods for the export trade.

In this book scant attention is given to population pressure and economic progress, although more than half of the world's population is concentrated in Monsoon Asia. Rawson does state, however, that "Change is apparent everywhere," and he cites developments of perhaps greater significance in the future—for example, disputes between India and Pakistan over water, the role of Chinese in Southeast Asia, and the Mekong Valley plan.

Rawson concludes that, although educated Asians "recognize the urgent need for economic progress, they do not necessarily wish to achieve the high degree of material prosperity found in western countries. Asian people have their own values." Nevertheless, both regional and international

agencies are stressing improvements in resource development, health, and education; these and other improvements will inevitably result in a modification of concepts and values.

The book would have been strengthened by inclusion of a more functional index and by a wider selection of references from the rich literature pertaining to the monsoon lands of Asia.

FRANCES M. EARLE
Department of Geography,
University of Washington, Seattle

Scientific Adventure

The Year of the Gorilla. George B. Schaller. University of Chicago Press, Chicago, Ill., 1964. xii + 260 pp. Illus. $5.95.

Many readers of *Science* are already familiar with Schaller's *The Mountain Gorilla: Ecology and Behavior* [University of Chicago Press, 1963; reviewed in *Science* **140**, 1081 (1963)], the most thorough monograph on a nonhuman primate species ever published. The earlier monograph was, in the author's words, "a compendium of facts, discussing the apes as subjects to be studied, not as acquaintances whose activities my wife and I discussed at the end of each day; I had no space to reveal the enjoyment I derived from roaming across grassy plains and uninhabited forests and climbing mist-shrouded mountains."

In *The Year of the Gorilla* Schaller has added this personal narrative. It is the story of the mountain gorilla expedition, from its inception at the University of Wisconsin and the initial survey of gorilla habitats with John T. Emlen, through the author's subsequent year-long study of gorilla behavior, to the hectic days of Congolese independence which terminated the study. It includes a summary of the daily life of the gorillas, vivid descriptions of the forests, encounters with natives and European settlers, and the joys of housekeeping in a windblown cabin at 10,000 feet. There are no new facts about the mountain gorilla except a brief epilogue, added after a revisit to the study area in August 1963, 3 years after the original study. Schaller had no difficulty recognizing individuals from the previous study, and he noted a decrease in size in group 7 from 21 gorillas to 17 and in group 8 from 21 to 10.

The book's awesome and beautiful setting, in the Virunga Volcanoes, south of the legendary Mountains of the Moon, is a land inhabited by pygmoid Batwa and tall Watutsi herdsmen; the periphery of this area has often been described, but few Europeans have explored the interior of its dense forests or climbed the peaks of its still active volcanoes. This book recalls an earlier style, when Africa was new and explorers felt compelled to describe everything they encountered. Schaller includes geology, the tribal histories, life in African villages, and the flora and fauna of the region, but it is his genius to have preserved the descriptive candor of 19th-century observers without succumbing to local mythology and hearsay. His probing eyes seem to miss nothing, and his descriptions have the ring of 20th-century, scientific accuracy. A sensitive and articulate observer, he is at his best when he is describing the forest itself, the timeless, paleozoic atmosphere of riotous foliage, tree ferns, and scurrying roaches. Whether the author is tracking gorillas, slipping past elephant herds on narrow jungle paths, avoiding poachers' deadfalls, or routing Watutsi invaders, this is an exciting book. Although Schaller feels that this is "not an adventure book," few readers will be able to agree.

IRVEN DEVORE
Department of Anthropology,
Harvard University

Science Study Series

Waves and Beaches. The dynamics of the ocean surface. Willard Bascom. Doubleday, Garden City, N.Y., 1964. xii + 268 pp. Illus. Paper, $1.45.

Willard Bascom's *Waves and Beaches* is a welcome addition to the fine Science Study Series of books for "students and the general public."

The series aims to present, in an interesting way, the most "stirring" and fundamental topics of science and to tell the "fascinating" stories of great discoverers or discoveries.

Conveying accurately what Warren Weaver has called the "interest, importance, beauty, and excitement of science" requires judgment and skill, or it can degenerate into popularization. Bascom combines the two prerequisites: A deep and close knowledge of the sea and its borders and a clear and lively style. The result is a book that completely lives up to the advanced billing of the series.

Willard Bascom's eminence in oceanography guarantees the scientific accuracy of the book. He is president of Ocean Science and Engineering, Inc., and he was executive secretary of the Maritime Research Advisory Committee of the National Academy of Science and director of the Mohole project. His book, *A Hole in the Bottom of the Sea*, is an account of the Mohole project through the preliminary drilling off the coast of Southern California.

In the process of giving the reader a good deal of basic knowledge about the interaction of the sea and coast, Bascom tells some marvelous stories about tsunamis, storms, and the awesome power of waves. There is an account of how the U.S.S. *Ramapo* measured 112-foot waves in the Pacific and horrifying pictures of a longshoreman a few seconds before his death in the seismic wave that struck Hilo, Hawaii, on 1 April 1946.

Bascom discusses some of the lure of the sea. Oil does calm sea waves, especially if it is fish oil; there is no such thing as an undertow that pull swimmers under the surface. ("There are currents flowing in the surf zone and there are other water motions which may cause trouble for swimmers, but they hardly fit the description.") Groins occasionally do stop the erosion of beaches. (See the case of the Minnie Hunter at Cape Henlopen in 1883.)

One of the hopes of the editors of the Science Study Series is that the reader will be encouraged to make his own investigations of natural phenomena. Bascom's book certainly provides the motivation.

In an epilogue, Bascom says that many of the pleasantest hours of his life have been spent in watching waves and examining beaches—walking and meditating, photographing, digging, and surveying.

> There is satisfaction in being aware enough of the waves and beaches to detect the special softness of a new layer of sand underfoot, that means the berm is building or to observe a slight change in the appearance of the breakers and think, "There must be a new storm in the Gulf of Alaska."