in 1563, accompanied by delightful textual material by Krutch. Each plate occupies an odd-numbered page of the quarto volume. On the facing page Krutch briefly describes the general characteristics of the plant, its history, early uses, and something of its supposed medicinal values (as imputed to it by the early herbalists), and gives his own pithy remarks about the imagined medicinal effectiveness of the plant or some of its parts. Brief quotations from the writings of early Greeks to contemporary authors reveal Krutch's deep and intimate knowledge of the literature in several languages.

All of the text, with the exception of certain leading phrases and technical names, is set in italics, the exceptions in Roman type. The margins are generous, the typography clear and pleasing. An unusual feature occupies the end page. It is a comprehensive list that gives details about the design, production, and physical makeup of the book, including the various kinds of type, papers, and binding utilized and the names of individuals and companies that designed and produced it. One need not guess about the kind of type or the special paper of the text pages, introduction, end pages, or jacket.

The common, generic, and family names of the plant illustrated are given below the plate. The common name constitutes the running head on the text-bearing page that faces the plate. At the end of fascicles 1, 2, 3, 4, 7, 8, 11, and 12, a single sheet of orange-colored Strathmore's Artlaid Melon paper has been inserted. Six of these bear woodcuts of Deer, Viper, Hare, Fowl, Beaver, and Bee rather than illustrations of plants.

An inconsequential discrepancy occurs between pages 17 and 113. On page 17 Krutch writes, *"However, on the Orange plate (page 113) the initials WS occur in the lower left corner. . . ."* Page 113 carries a plate showing a branch of an orange tree bearing leaves, flowers, and fruit, and the initials occur on the wings of a petiole, but the paper is the Beckwith Text White Laid rather than the orange paper.

Krutch has done an excellent job of selecting modern common names and in providing the technical family and generic names for the plants depicted. I noted very few typographical errors. On page 36 *Narthecium californicum* appears as "Narthecium califirnicum," but no other slips of this kind were found. On page 239 the family name (Leguminosae) was omitted, although the generic name (*Glycyrrhiza*) is present. A paragraph dealing with the cattail (p. 106) is puzzling in the implications that reeds and rushes are not flowering plants.

The book is a delightful one. The reader need not peruse it by turning consecutively from page to page, but can dip into it at any pair of facing pages, read the astonishing things some of the early herbalists wrote about the plant, and Krutch's comments, appreciating the while the artistry displayed by the facing woodcut. Both in what he writes and in the selection of quotations, Krutch shows a subtle humor that is as amusing in its way as are the outlandish claims made by medieval writers. Yet many of Krutch's remarks provide reliable information: for example, *"Perhaps the* Cruciferae *(Mustards) have not contributed as much to human welfare as Wheat and Maize, but mankind could not well have spared them. In the eighteenth century it was another member of the family called Scurvy Grass* (Cochlearia) *which mitigated the horror of long sea voyages by acting as an effective antiscorbutic"* (p. 110). In contrast Mattioli wrote, *"Garden Cabbages only slightly cooked are good for the stomach, but if they are cooked too long, and especially if cooked with soda or cooked twice, they contract it. . . . They are good for those afflicted with tremblings and those whose eyesight is troubled. Eaten at the end of a meal they remove all the effects of drinking too much wine. . . . With salt they cause carbuncles to burst and keep in hair which is tending to fall* (p. 10).

The introduction (pp. 19 to 34) provides an historical resumé of the beginnings, growth, and decline of herbals, and contains such subheadings as Where nothing grows in vain; The doctrine of signatures; Herbs and astrology; Herbs and modern drugs; Herbals, botany, and gardening; and Herbs in cookery. A brief but useful bibliography includes comments about each of 15 herbals and earlier books, plus the names of seven recent books that deal with "herbs and related subjects." There is a four-page index.

It is a book that will be enjoyed by many, and might well be used as supplementary reading by students who are taking courses in the history of botany or in economic botany. The cover—conventionalized clover leaves arranged in horizontal and vertical lines, interspersed with a clover involucre, a young grass plant, and clusters of small seeds printed in green, brown, and orange on an old ivory paper, and accented by the soft green of Columbia's Bolton Cloth and gold lettering on the spine—presents a very pleasing design.

I agree with one of the publisher's comments: "Whether your interest is in medicine, botany, gardening, or cookery—or in man's relation to Nature—Joseph Wood Krutch's *Herbal* will charm and entertain you with its skillful blend of thorough scholarship, grace, and wit" (from the dust jacket).

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A Yearbook of Botanical Bibliography

Although *Huntia*, edited by G. H. M. Lawrence, director of the Hunt Botanical Library, is published as a yearbook of botanical and horticultural bibliography, its coverage is much broader. Volume 2 (Hunt Botanical Library, Pittsburgh, Pa., 1965. 130 pp. Paper, $7.50; cloth, $8.50) includes papers on the history of biology as well as material concerned with the biography of biologists. Its emphasis, however, remains bibliophilic; a majority of its contributions treat such subjects as printed botanical illustrations and the problems that arise in book collations. The historical papers include "Charles Darwin and the perennial flax—A controversy and its implications" by Herbert C. Baker, "A bibliographic account of L'Heritier's *Stirpes novae*" by Gunther Buchheim, and "Illustrations from Weinmann's *Phytanthoza iconographia* in Iwasaki's *Honzu zufu*" by Richard C. Rudolph.

The last quarter of the volume is devoted to the Library's departmental studies. Included here is a list of the 1964 acquisitions of botanical illustrations, and a very useful index to the Library's collection of some 2500 portraits. This collection is still growing, and its value is obvious: it is especially rich in scarce portraits of early bot-

anists, and such portraits are very difficult to locate. Any historian of botany who is searching for illustrations should certainly consult the Hunt Botanical Library.

Finally, the volume contains some informative bibliographical notes, which clarify the usage of such technical distinctions as "edition, issue and state" and the difference between "uncut and unopened copies." The contributors are listed and identified, and the index is adequate.

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New Science Yearbooks

The standard encyclopedias—*Americana, Britannica, Collier's*, and *World Book*, for example—publish yearbooks or "annuals" that include feature articles or summaries of recent occurrences, update some of the articles in the parent work, or provide for the first publication of new articles that eventually will be incorporated in a major revision. Reflecting the tremendous popular interest in science and technology and the annual progress in scientific and technical research and development, two new science yearbooks have been inaugurated: **Encyclopedia Science Supplement, 1965** (Grolier Incorporated, New York, 1965. 440 pp., $7.95; to schools and libraries, $5.95) and **The World Book Science Annual, 1965** (Field Enterprises, Chicago, Ill., 1965. 393 pp., $6.95).

Encyclopedia Science Supplement, 1965 is intended to serve those who use *Americana, Encyclopedia International, Grolier Encyclopedia*, and other Grolier sets. The volume contains 54 articles, mostly written by professional specialists. The major headings and the number of articles are as follows: Archeology, four; Biology, seven; Earth Sciences, six; Man and his World, six; Physical Sciences, five; Psychology, six; Space Exploration, eight; Technology, six; and Projects and Experiments, six. Each section or group of articles is preceded by a brief summary of the current developments that are discussed in the individual papers. For example, the preface to the biology section summarizes the classical view of life and tells of the advent of biochemical and biophysical research and the consequent present view of life, emphasizing the insights that have resulted from developments in cellular and molecular biology. In the psychology section the preface and articles indicate the broad and complex nature of psychological studies, the use of computers in psychological research, the relation of physiological disturbances to mental disorders, the role of drugs and hormones in mental disturbances, and the recent trend toward a physiological orientation in dream research which originally was the province only of the psychologist.

The section on space exploration reviews developments in radio astronomy, electronic photography, orbiting observatories, satellites and space probes, and the accomplishments in manned space flight. The coverage in other divisions is equally current and timely. The concluding section, on projects and experiments, is especially worthwhile, for the widespread interest of students in individual science projects and activities demands a constant flow of new and increasingly sophisticated ideas and procedural suggestions. The illustrations, all black-and-white, are of average quality, with some use of brown background tones. The text, which is in good informational and popular science style, will appeal primarily to secondary school students and nonspecialist adults. The index is adequate.

The content of *The World Book Science Annual, 1965* is of the same quality and reading level as the Grolier volume, but because it contains 216 outstanding illustrations in full color it is certain to have much greater popular appeal. The book begins with a series of colored photographs and short notes that describe the world of the scientist. In the introductory essay, "The science explosion," Harlow Shapley tells us that "the outburst of information about the universe and ourselves is the most spectacular phase of this explosion." Next we have a series of "special reports" chosen for their importance and timely interest: "Mission to Mars," by Robert Johnson and Mark Perlberg; "Midway to the moon" by William R. Shelton; "The Soviet space program" by Joseph L. Zygielbaum; "Man in nature" by Paul B. Sears; "The mysteries of plant growth" by John Barbour; "The beleaguered lung" by Edwin Diamond, followed by a "Trans-Vision" that shows the progressive development of lung cancer; "A heart for a heart" (progress in transplantation of organs) by Arthur J. Snider; "Unraveling the code of life" by Isaac Asimov; "The quest for quarks" by Malcolm D. Ferrier; "Beam of the future" (with colored illustrations of the laser) by Arthur L. Schawlow; "Continental engineering" (possibilities for using atomic energy in major construction projects) by Ralph E. Lapp; "Early man in the New World" by Loren C. Eisely; "The frozen frontier" by Richard S. Lewis; and "Best of the fair" by Foster P. Stockwell.

World Book then presents the Science File, a collection of short signed articles arranged in alphabetical order, in which contributors summarize developments in various fields, beginning with "Agricultural technology" and "Anthropology," and ending with "Science legislation," "Veterinary medicine," and "Zoology." The file contains a varied fare—a list of outstanding books for the layman published during the preceding year, an account of the progress in the development of new science curricula, and reports on activities of the National Academy of Sciences, NASA, NIH, and NSF. For dessert there is "Men of science," which features a brief account of Harold Urey's research and teaching (by William R. Shelton), and a list, including descriptions and other material, of the major scientific awards and prizes, as well as biographical notes on the winners. An analytical index concludes the volume.

The two yearbooks complement—rather than duplicate—each other. True, the same basic developments and ideas dominate much of both, but in each the approach, the organization, and the treatment are different. Libraries are likely to need both volumes, but the individual will probably find that the World Book volume has the stronger appeal.

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AAAS

Quantum Theory, 1900 to 1930

In this delightful book, **Thirty Years That Shook Physics** (Doubleday, Garden City, N.Y., 1966. 239 pp., $5.95), George Gamow, who is professor of physics at the University of Colorado, presents the development of quantum theory from 1900 to 1930 in a popular and anecdotal way.

Gamow treats the introduction of the idea of quanta into radiation by Planck