length of *Miacis*; on page 123, the upper figure probably represents *Palaeomastodon*; on page 136, there is no evidence of *Diceratherium, Dinohyus,* and *Syndyoceras* being contemporaries of *Merychippus*, mastodonts, *Alticamelus*, and *Cranioceras*; on page 151, a preferable late Pleistocene assemblage would be *Bison antiquus, Camelops hesternus*, and *Cauis dirus*; on page 154, there is no evidence that *Castoroides* cut down trees or had a flat tail.

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Comprehensive Survey

McGraw-Hill Encyclopedia of Russia and the Soviet Union. Michael T. Florinsky, Ed. McGraw-Hill, New York, 1961. xiv + 624 pp. Illus. $23.50.

The primary task of an encyclopedia is not to add to knowledge, but to pull it together, systematize, and make it readily accessible for interested readers. The present volume, a product of the labors of a highly competent staff, offers no new views, facts, or ideas; its main virtue is that it provides the most comprehensive 1-volume English-language survey of the Soviet Union—its natural setting, ethnic composition, historical background, intellectual and literary tradition, and modern institutions. Surveys of Soviet industry, agriculture, economic planning, technology, law, social insurance, and the medical system, as well as of dozens of other topics are necessarily brief, yet they are modern in design and illustration, wide in compass, and rich in significant detail. The suggested readings at the end of each major article are carefully selected, and they are kept to a minimum. The readings will be most useful to persons seeking additional information, and they also provide an impressive index of the comparatively advanced status of Russian and Soviet studies in this country.

The development of scientific thought has been given special emphasis. Three distinct and complementary approaches have been used to ensure a comprehensive survey of science. The *biographical* approach has been employed most extensively and with the greatest consistency. The book contains short sketches of most leading scholars, from Mikhail Lomonosov in the middle of the 18th century to hundreds of present-day Soviet academicians and other members of the scholarly elite. Some sketches are too brief to be meaningful, and some suffer from misplaced emphasis: they put more stress on published works than on scientific ideas. It is a pleasure to see the names of Soviet scientists, such as A. A. Balandin, an eminent chemist, who for ideological or other reasons were ignored in the *Great Soviet Encyclopedia.*

The extensive use of the *disciplinary* approach—the coverage of the status and development of individual sciences—has produced satisfactory results. The volume has particularly good articles on physics, chemistry, mathematics, physiology, biology, genetics, and geology. I would have liked to see special articles on anthropology, ethnography, soil science, and geography —the areas in which both Russian and Soviet scholars have made substantial contributions.

The *institutional* approach, the surveying of associations and agencies dedicated to scientific pursuit, has not been employed adequately. The work and the organization of the Soviet Academy of Sciences has received fairly detailed treatment; however, the Academy's many regional branches as well as the analogous institutions operating on the Union-Republic level have been listed but not described. Most learned societies, some with deep historical roots, have been overlooked. A more thorough utilization of the institutional approach would have enabled the editor and the staff to treat such important topics as the organization of research, academic stratification, political control over scientific work, and the relationship of science to ideology. The institutional loci of decision-making relevant to the establishment of research priorities and budgetary allocations are discussed in Leon Trilling's excellent article, "Technology."

In keeping with the spirit of our scientific age, ample space has been given to special articles covering "atomic energy," "space science," "automation," and "electronics."

A monumental source of pertinent, reliable, and systematic information, this volume adds significantly to our understanding of the Soviet Union and its Russian cultural heritage.

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Pacific Exploration

The Journals of Captain James Cook on His Voyages of Discovery. vol 2, *The Voyage of the Resolution and Adventure, 1772–1775.* J. C. Beaglehole, Ed. Published for the Hakluyt Society. Cambridge University Press, New York, 1961. clxx + 1021 pp. Illus. Maps. $19.50.

"Like his greatest contemporary, George Washington, who won a great war without winning a battle," James Cook was great, not for a moment "but of the whole life," wrote Arnold Wood. Cook, the son of a farm laborer, first shipped with the coastwise collier *Freelove*, and he took his first command at 27. Eight years later he observed the sun's eclipse for the Royal Society. On 13 July 1772, he sailed in H.B.M.S. *Resolution* on his second voyage to probe again Terra Australis, a mirage that rose like mermaids to deceive mariners. This second voyage brought more *re*discoveries (Mendaña's Marquesas, Quiro's New Hebrides, and Captain Roggeveen's Easter Island) than discoveries (New Caledonia, South Georgia, and Norfolk Island). "If I have failed in discovering a continent, it is because it does not exist in a navigable sea, and not for want of looking after."

Beaglehole will stand to Captain Cook as editor-scholar Julian Boyd stands to Jefferson. For the hurried reader, there is the Everyman edition and Grenfell Price's recent sampler (Heritage Press). For the "curious" reader, Beaglehole has charted the research deeps and found details unsounded in the history of Pacific exploration. The anthropologist, systematic botanist, ornithologist, marine biologist, and others will return to pick up facts serried in stratified footnotes. Cook's men witnessed cannibalism on the quarter deck, named islands, described penguins, penis sheaths, and the first Old World passion flower, encountered yaws, and gave away goats, sheep, cats, seeds for planting, nails, nails, and more nails, beads, knives, looking glasses, and, reluctantly, shirts off their backs! They kept their health, far beyond the fortunes of their contemporary seamen, with sauerkraut, carrot marmalade, and fresh greens. "I cannot say," wrote Cook on a particularly sprightly page, "that the women [of Tana] are beauties but I think them handsome enough for the men and too handsome for the use that is made of them."

This second volume of Cook's journals (four volumes are projected) is larger (by 221 pages) and heavier (by 12 ounces) than the first, published in 1955. The same excellence of composition and bookmaking that has marked the Hakluyt Society's publications complements "all the marvelous beauty of their bows."

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Mitosis to Senescence

The Human Species. A biology of man. Anthony Barnett. Penguin Books, Baltimore, Md., ed. 2, 1962. xii + 354 pp. Illus. $1.85.

Human biology is rarely taught in our colleges, and for that reason even educated people have little knowledge of it. Far too often such information as they finally acquire is gained from magazine articles, cereal boxes, and doctors' relatives. One welcomes, therefore, such popular books as *The Human Species*, pausing only to wonder whether the broad picture they present is worth the errors they so often contain.

This particular paperback is a revision, updated to about 1960 in many areas of biology. It has respectable coverage, broader than sperm to worm, beginning with mitosis, selection, and Mendelian inheritance and ending with human nutrition, the biology of senescence, and population control. In between are sandwiched evolution and race, racism and individual differences, some historical anthropology, and land conservation. There are 31 pages of halftones and 67 line drawings in all.

Barnett, who edited an earlier Darwin miscellany, is broadly humanistic and does not assign genetic causes for obvious cultural differences. However, he is given to the "it is thought that" way of citing opinions, without stating whose opinions. And his ethical stand occasionally results in such unprovable statements as "There have been substantial increases in the numbers of people suffering from the hideous and fatal disease of leukaemia, as a result of the testing of hydrogen bombs . . ." (page 41). While this book is reasonably up-to-date in the newer area of chromosomal genetics, there are obsolescences in subjects less in the scientific eye. Barnett's women still ovulate on the 14th day, and his estimates of land productivity are not correct for contemporary practices.

When it comes to fossil man, Glasgow lecturer Barnett develops instant trouble, largely because he has to rely on tertiary and inadequate sources. His Neanderthals still crouch, his Pithecanthropus is a pygmy, and he half-heartedly accepts Weidenreich's "giants," inadvertently transporting Von Koenigswald's drugstore teeth from Hong Kong to Java. In evaluating the fossils, he remains British through and through, loyally admiring Swanscombe but relegating the far more important South African fossil species and genera to a purely colonial position. And while he adopts a contemporary position on the evolutionary nature of many racial differences, he darts back into the last century with a taxonomy composed of "Caucasiforms," "Negritiforms," "Australiforms," and the like. Moreover, he remains Victorian, elaborating the old cephalic index now dead and buried these many years.

With rather few references and none of them specific, *The Human Species* cannot be recommended as a choice for supplementary college reading. This is a pity because it contains a wealth of information and many ideas of considerable interest. Yet it may be advocated for the armchair reader, if only to make him think. Health is purchasable, Barnett points out, and a full belly too. Man can control his numbers and must. Primitives are not "primitive" because of intellectual inferiority, as primitives increasingly prove.

To live as human beings in the future, indeed to live at all, more people need the information *The Human Species* contains.

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Social Sciences

Appraisal from the Field

Communication in Africa, a Search for Boundaries. Leonard W. Doob. Yale University Press, New Haven, Conn., 1961. 406 pp. Illus. $7.50.

The author seeks to "locate and classify" all the variables that have on one occasion or another played a critical role in communication in sub-Saharan ("black") Africa, with the aim of delineating the boundaries of the subject of communication and of providing a conceptual frame of reference that would facilitate the empirical determination of the critical factors in any concrete instance of communication. Africa is the chosen field of study because it is culturally heterogeneous—"perhaps more so than any other area of the world of comparable size and population"; it is so different from the West that it provides cross-cultural perspective. It is the author's view that "any theory in social science worthy of utterance must be tested cross-culturally."

Twelve variables are examined: (i) the communicator; (ii) his goal; (iii) basic media; (iv) extending media; (v) the site; (vi) restrictions; (vii) the communication itself; (viii) the mood; (ix) perception; (x) reactions of the audience; (xi) changes in the audience; and (xii) the feedback—that is, how the communicator perceives the effects of his communication. Each variable receives a separate chapter and is illustrated from ethnographic literature, missionary, government, and journalistic reports, and the author's own observations.

It will be noted that the variables do not all belong to the same universe of discourse: the communicator can, very often, be identified, but perception is an incorporeal *multivariant* situation and, in this sense, has the same status as the communication process itself.