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.

Perception of the content of any communication is determined by many variables, any of which could conceivably prove critical to the act of perception and hence to communication. The location and classification of all the critical variables involved in perception would thus be required if it is decided to make perception one of the 12 variables. In other words, by including in the 12 variables factors which are multivariant situations, the list of critical variables will have to be extended indefinitely. This is exactly what happens in the book. The subcategories for *perception*, for instance, as given in the book, turn out to be a list of some of the critical variables which may affect the act of perception.

If we ignore for a moment this serious flaw in the classification and accept the 12 variables as presented, we can argue that this list might be shortened. The author's method was to divide each variable into subcategories, but there is no reason why *basic media* and *extending media* should be made separate variables instead of subcategories of *media*. What is discussed under *site* appears to be a fusion (or confusion) of certain characteristics of the audience (which, incidentally, is not one of the variables) and of certain natural and social factors—the weather, geographical and social accessibility, and the like—which are repeated under *restrictions*. *Restrictions* is given such a wide and vague application in the book that it ceases to be a useful concept. Almost anything that inhibits the communication process can be comfortably placed under *restrictions*: its subcategories include meteorological factors, electrical disturbances, natural resources, limitations of a medium, human abilities, linguistic knowledge, social structure, and others. If it is accepted that the subject of communication has two main divisions, namely (i) the process of communication up to the point where the content of the communication is perceived by the audience, and (ii) the effects on the audience of the communication which they preceive, then there is no sense in which *change* could be considered a critical variable. It could not be critical for the communication process of which it is the outcome; neither could it be critical for the effects, because the change, if it occurs, *is* the effect of the communication process. The discussion under *changes* thus turns out to be a mere description of the kind of changes that may occur in the audience.

There are some useful distinctions in the chapters on media. Some attempt is made to view, in the African context, some of the recent work done in the West in the field of communication by such workers as Festinger, Weiss, Rosenberg, and Hovland and Janis.

It is not very certain whether Leonard Doob has succeeded in delineating the boundaries of communication with precision. Despite its methodological shortcomings, the book should provide much stimulus to all who are seeking to understand some of the factors underlying change in contemporary Africa, and it should be a useful handbook for those whose job it is to induce change in Africa.

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Political Non-Science

The New American Political Economy. A synthesis of politics and economics. Marshall E. Dimock. Harper, New York, 1962. xi + 306 pp. $6.

Toward a Reasonable Society. The values of an industrial civilization. C. E. Ayres. University of Texas Press, Austin, 1961. v + 301 pp. $4.75.

These books are of such different quality that it seems almost unfair to consider them in the same review. Marshall Dimock's book is naive to the point of embarrassment. Its style is hortatory. "Let us be bold, let us recognize that America is young and vigorous and imaginative and the earth is good" (page 113). It betrays an ignorance of social systems, and especially of the American social system, so profound that one wonders what the American educational system has been doing all these years to produce an ignorance so monumental. We are told, for instance, "I am one who believes that in fifty years this country will be working as hard to put people back on the farms, as it is now working to move them to the cities" (page 192). Agricultural fundamentalism of this type reveals a massive ignorance of the necessary social and economic consequences of technological change. Dimock likewise believes in civic virture, moral philosophy, and cabinet government. It is astonishing to me that a reputable publishing house should publish a work of this nature, and I recommend it only to those interested in the pathology of rhetoric.

C. E. Ayres's work stands on a totally different level. It is the ripe fruit of a genuine social philosopher. Ayres is the outstanding living representative of the school of institutional economics, which began with Thorstein Veblen, John R. Commons, and Wesley Mitchell in the early years of this century. This is one of the few "schools of thought" that America produced, and it deserves to be taken seriously. In this book it seems to me that Ayres, after some flounderings in earlier works, has finally found himself and has produced a clear and moving statement of his social philosophy. Its rhetoric is that of a passionate common sense, somewhat in the manner of Tom Paine.

Ayres sees human history as a continuous process of expanding knowledge and skill. He attacks conventional economics (to my mind rightly), for its overemphasis on exchange and the institutions of exchange as the organizer of this process, though perhaps Ayres falls into the opposite error of attributing too little to exchange as an organizer. He attacks the cultural and moral relativists who see value as derived only from the ceremonial aspects of culture, and he argues that technological values are universal; a better tool is a better tool in any culture. Ceremonialism and ceremonial values he attributes, on the whole, to misunderstood technology. Magic, in this view, is simply bad science, and the appeal to Higher Powers comes simply from the inability to control the Lower Powers. Ayres is unashamedly glad to be alive in the 20th century, and he thinks that, with all its dangers and difficulties, the world which science and technology is producing is a much better world than anything that has gone before. There is something refreshing about this lively blast from the Texas plains, especially in a world where there is so much unnecessary existentialist hopelessness. Ayres may be wrong, but he is certainly not sick.

For all the enormous difference in quality in these two works, they lie at opposite ends of a single dimension of intellectual activity. Each represents, in a sense, a personal philosophy of society. This type of intellectual activity may be relevant to science, it may indeed be raw material for scientific inquiry, but it does not have that peculiar property of securely based information and carefully tested prediction, which is the identifying mark of the scientific process. Political Non-Science is not