Barely Known Species

The New World Primates. Adaptive Radiation and the Evolution of Social Behavior, Languages, and Intelligence. MARTIN MOYNIHAN. Princeton University Press, Princeton, N.J., 1976. x, 264 pp., illus. $12.50.

The classic study of a New World primate (*Alouatta palliata* Gray) by C. R. Carpenter in 1932 inaugurated the modern era of primatology. Since that auspicious beginning New World primates have been neglected while students of primate behavior have concentrated on Old World species. Part of the reason for focusing on Old World primates, particularly terrestrial species, has been the greater ease with which they can be observed. In addition, their closer relation to man has spurred interest in these species as potential models for protohominid behavior. This reliance on primarily terrestrial primates for evolutionary perspectives is surprising, since much of the evolution of the order occurred in an arboreal milieu.

The appearance of *The New World Primates* signals a broadening of primate research to include New World habitats, motivated partly by a desire to understand the role that the selection pressures of an arboreal environment have played in primate evolution.

This book is the first to deal with all New World primates in a comparative manner. Unfortunately, as was the case in the early stages of studies of Old World primates, the data available are meager at best. Moynihan is aware of this and uses many qualifying words such as "probably," "maybe," and "possibly" throughout the book. He writes that the book "is not meant to be a comprehensive or balanced summary of the whole of the biology or even the ethology of New World primates: rather it is a series of descriptions and discussions of special topics that seem . . . to be significant, suggestive, or amusing" (p. x).

In the first half of the book Moynihan briefly describes the neotropical environment and then summarizes the natural history data on New World primates. It is this part of the book that reveals how impoverished the available data on neotropical primates are, both in kind and in quantity.

The remainder of the book, except for two final chapters that seem to be an afterthought, is devoted to supporting Moynihan's hypotheses concerning social organization and communication by applying the data elucidated earlier. Moynihan appears to be at variance with other students of primate social behavior when he suggests that ceboid social organization may be independent of ecological constraints (p. 117). Several other proffered hypotheses that may stimulate debate are: that increased sexual activity is a means of controlling intraspecific aggression where predator pressure has selected for increased aggression (pp. 118–123); that primate species with large territories and rapid locomotion are more likely to associate in mixed-species groups (p. 142); that large body size and gregariousness favor increased intelligence (pp. 211–219); and that the principal selection pressure for increased verbalization was tool use (p. 183).

The New World Primates does not fill the void that exists in regard to neotropical primates, nor does it claim to. But it is a harbinger of things to come. It has some of the faults of a pioneering effort in that the data available are insufficient to substantiate or refute many of the theories it presents. Yet in assembling what is available the author of such a book challenges as well as informs the reader. Enterprising graduate students should find *The New World Primates* to be a stimulus in formulating research problems.

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A Biological Method

Organ Culture in Biomedical Research. Festschrift for Dame Honor Fell, FRS. Papers from a meeting, Norwich, England, Apr. 1975. MICHAEL BALLS and MARJORIE A. MONNICKENDAM, Eds. Cambridge University Press, New York, 1976. x, 570 pp., illus. $58. British Society for Cell Biology Symposium 1.

Organ culture is defined as "the maintenance or growth of tissues, organ primordia or the whole or parts of an organ *in vitro* in such a way that may allow differentiation and preservation of the architecture and/or function." Although it has been used for some 50 years, it is less familiar to most biologists than its counterpart, cell culture, in which cells are dissociated from one another and grown in suspension or monolayer in growth-promoting media. In recent years some dissociated cells that develop or retain certain differentiated functions such as hormone synthesis have come into use, but there are still many specialized functions and responses of cells that cannot be made to occur unless the tissues of an organ are maintained in their normal relationships to one another.

Readers of this book, particularly those in biomedical fields, will appreciate the clarity of the opening chapter on the development of organ culture written by its pioneer, Dame Honor Fell. She once told me that she knew exactly what she wanted to be from the age of four, and the scientific community rejoices that she succeeded and that she is continuing her outstanding research beyond her 75th birthday. In her chapter she points out the advantages of organ culture over experimentation in vivo for the detailed analysis of the biological process as well as the necessity of doing experiments in vivo. The need to move from the one to the other is a recurring theme in the book.

Gisèle M. Hodges provides discussion of the very varied methodology of the present era and of the factors that restrict or modify tissue behavior in vitro. The following 26 chapters, by 50 authors, illustrate how organ cultures have been adapted to problems in morphogenesis, metabolism, endocrinology, oncology, pharmacology, toxicology, virology and radiobiology. Even the periodontologist and the orthopedic surgeon will each find a chapter of special interest. There should be sufficient evidence here to convince the skeptic that organ culture has made and will continue to make a major contribution to basic developmental and cell biology and to the study of disease mechanisms, as well as a minor contribution to diagnosis and treatment.

The editors aimed to provide "information and inspiration for those using or beginning to use organ culture methods in their research." For such readers the volume supplies a useful survey of recent results and work in progress, together with some mature viewpoints, from a number of British laboratories and some European and North American ones. The work reviewed is, with a few exceptions, evaluated, and the chapters are well illustrated with light or electron micrographs. The choice of adult amphibian tissues by Monnickendam, Balls, and associates for metabolic and pharmacological studies in order to avoid the problems of maintaining adult mammalian tissues will be of particular interest to North American investigators. The in vivo/in vitro testing method of Reynolds for use in the study of bone resorption and the circumfusion system developed by Murrell for pancreas merit consideration for other organ systems. This book deserves a place on the shelf beside Willmer's three-volume *Cells and Tis-*

sues in Culture as a source of information and, on the whole, sound advice.

In a concluding chapter Leonard Franks writes that the symposium papers "perhaps . . . illustrate that, as with electron microscopy, the technique has come of age. Possibly this is the last Symposium which should be concerned with the method, and organ culture should be regarded now as a standard method which can be applied to almost any biological problem." If "coming of age" implies realistic assessment of potential, achievement of some objectives, and recognition and acceptance of some inherent limitations, then this book indeed demonstrates that organ culture has achieved its majority and stands on the threshold of a vigorous adult life.

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