A Broader View of Primates

Lemur Biology. IAN TATTERSALL and ROBERT W. SUSSMAN, Eds. Plenum, New York, 1975. xiv, 366 pp., illus. $22.95.

Until recently, the vast majority of books published about primates and their evolution concentrated heavily on the simian primates (monkeys, apes, and man). The prosimian primates (lemurs, lorises, and tarsiers) have been relatively neglected, primarily because they are much less closely related to man and hence of less direct interest to human medicine and physical anthropology. It has become increasingly obvious, however, that more research on prosimians is essential to broaden knowledge of the primates as a group and to provide a perspective lacking in the close focus on simian primates. Indeed, increased attention to the prosimians has brought with it a welcome shift away from the anthropocentric viewpoint that has marred so many primate studies. For example, discussions of the evolution of primate social behavior have been greatly enhanced by new information relating to many of the "solitary" nocturnal prosimian species. It is far more rewarding to attempt to relate social behavior to ecological factors across the entire span of the order Primates than merely to consider features relevant to human societies. With the current upsurge of research on prosimians, there will be little excuse in the future for inadequate comparisons in accounts of the biology and evolution of the primates. Books such as *Lemur Biology*, which brings together some of the best results of modern research on the prosimians, are an extremely valuable addition to the primate literature.

The lemurs of Madagascar include three-quarters of the surviving prosimian species, and research on these primates has an added note of urgency because of the acute threat of extinction, particularly affecting the larger-bodied species. The final chapter of *Lemur Biology*, by Richard and Sussman, deals expertly with the problems of conservation and aptly reflects the comprehensive interest of the editors in the biology of the lemurs. The preceding 17 chapters cover a considerable range of topics: historical and geoclimatic features of Madagascar, Eocene relatives of the lemurs, subfossil lemurs, cranial and postcranial anatomy, dental eruption, chromosomes, thermoregulation, and behavior and ecology. As far as evolutionary aspects are concerned, there is one conspicuous omission in that there is no treatment of recent work on assessment of biochemical evidence. Reliable assessment of evolutionary relationships requires integration of all available information, and the exciting, controversial biochemical developments deserve detailed review. On the credit side, *Lemur Biology* contains a rich section on field studies, including translations of studies of *Phaner furcifer* and *Hapalemur griseus*, hitherto available only in French. The emphasis on quantitative aspects in most of the field studies covered is particularly commendable, especially since it will permit more meaningful comparisons with parallel studies on the simian primates. There is an additional emphasis on conservation, in that a chapter on *Indri indri*—one of the most endangered lemur species—is included in the field studies section. The immediacy of the threat of extinction is underlined by the fact that at least a dozen lemur species died out over the last thousand years or so; they are known only from "subfossils." Most of the literature on these lemur subfossils dates back to about 50 years ago, and it is very useful to have Tattersall's finely illustrated account of their cranial anatomy, supplemented by Saban's equally well illustrated discussion of the ear region in living and subfossil forms.

Lemur Biology, in short, does much to restore the balance of primate publications, and the new information made available should increase the accuracy of hypotheses about evolutionary developments within the order Primates. It is unfortunate that, like its counterparts in the simian field, *Lemur Biology* does not include a discussion of the methods by which available information can be synthesized to produce reliable evolutionary trees. Some of the papers actually encourage the confusion between evolutionary reconstruction and classification that has done so much to hinder the development of objective "tree-building" techniques. Yet the editors of such a book can do no more than bring together a representative cross section of available research results, and this they have done remarkably well.

As an addendum to this review, it should be noted that the research of six of the 21 contributors to *Lemur Biology* directly benefited from the Duke University Primate Facility, which houses one of the finest collections of prosimians in the world. This facility, which has achieved remarkable breeding successes with a number of prosimian species, has recently been threatened with closure. It would be nothing less than a tragedy if the facility should be closed at the very time when the importance of research on prosimians is gaining more widespread recognition.

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Natural Anticancer Agents

The *Catharanthus* Alkaloids. Botany, Chemistry, Pharmacology, and Clinical Use. WILLIAM I. TAYLOR and NORMAN R. FARNSWORTH, Eds. Dekker, New York, 1975. x, 324 pp., illus. $29.50.

In the late 1950's, attempts to investigate the reputed hypoglycemic properties of the periwinkle plant, *Catharanthus roseus* G. Don (Apocynaceae), by groups at the Collip Laboratories, University of Western Ontario, and the Lilly Research Laboratories, Indianapolis, led instead to the momentous isolation and characterization of four dimeric indole alkaloids that exhibit anticancer activity, vincaleukoblastine, leurocristine, leurosine, and leurosidine. The first two are now used extensively in humans.

Vincaleukoblastine and leurocristine occupy a preferred position among the three dozen or so drugs currently used in cancer chemotherapy. It is only fitting, therefore, that a book that draws together the efforts of specialists in this field should appear.

Chapter 1 is a masterly account of the botanical history of the genus *Catharanthus* by William T. Stearn. The phytochemistry and pharmacology of *C. roseus* are covered in chapter 2, by Gordon H. Svoboda and David A. Blake. Although it is lucidly and expertly written, this chapter overlaps in part with chapters 1 and 4. A detailed discussion of the phytochemistry of the host of alkaloids found in the minor *Catharanthus* species is given by M. Tin-Wa and Norman R. Farnsworth in chapter 3. Some of the complex chemistry of the dimeric *Catharanthus* alkaloids is summarized by Donald J. Abraham in chapter 4, and the varied aspects of the biogenesis of these bases is thoroughly discussed by Ronald J. Parry in chapter 5. Interesting work on tissue culture studies with *C. roseus* is described in chapter 6 by David P. Carew. The last two chapters, by William A. Creasey and R. C. DeConti, present incisive descriptions of the biochemistry and the clinical aspects of these dimeric alkaloids.

This book is an overdue delineation of the developments related to the *Catharanthus* alkaloids and is situated at the point of convergence of chemistry, biochemistry, pharmacology, and clinical chemistry. Although there has recently been a decline in the number of scientific papers dealing with this subject, it is likely that this phenomenon will prove to be fleeting.

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