aegyptius which he states is "A close relative of *Jaculus* . . .," is indeed—it is the same animal! The usage of *Dipus aegyptius* for the small North African jerboa has long been passé. To the best of my knowledge, the author has created a new name, *"Pachuromys steatomys,"* for the fat-tailed sand rat *Pachuromys duprasi.*

It is true that the slipshod use of scientific names does not detract markedly from the value of the compilation and original research presented in this volume, but their proper use would have enhanced the book.

As a whole this work will be invaluable to persons interested in deserts and desert animals. The book answers, at least in part, some of the questions raised about peculiarities in behavior of desert-adapted animals.

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Symposium on Acarology

Advances in Acarology. vol. 1. John A. Naegele, Ed. Cornell University Press, Ithaca, N.Y., 1963. xii + 480 pp. Illus. $9.75.

This volume is a compilation of the papers presented at the first National Acarological Symposium, which was held at Cornell University in 1962. It is therefore not, as the title might suggest, part of the series of comprehensive surveys of rather selected topics, which are published in other fields. The papers are grouped under six general headings: Bionomics and control of acarine pests; Techniques for the rearing, mounting, and testing of the Acarina; Physiology, biochemistry, and genetics of the Acarina; Disease transmission in the Acarina; Current trends in acarine systematics; and Acarine behavior. These categories bring some arrangement into the great diversity of subjects.

The papers on the distribution, abundance, and control of acarines are concerned with spider mites or eriophyid mites on citrus, cotton, and apple foliage and on woody ornamentals, and with mites in stored products and on poultry, cattle, and sheep. The studies on bionomics deal with predaceous mites that feed on housefly eggs and scale insects, and with the effects of low temperatures on a species of *Tyrophagus*. Many observations and experimental data on nutrition and biology, including new findings, are brought together in a very interesting report on food relationships in free-living Acaridiae and Oribatei.

In the second category, techniques for rearing, mounting, and testing spider mites and oribatids are described. One paper, which deals with a useful technique for studying light response in spider mites and other small arthropods, shows how a permanent record of the pathway followed by an animal can be obtained by photographic means.

Two papers in the section on physiology are concerned with the water balance of mites: The concept of "equilibrium humidities" is developed, and the role of the digestive system in the water balance of a spider mite is treated. Biochemical investigations deal with the demonstration of the different components of the cholinergic system and with various esterases in spider mites, along with some aspects of the carbohydrate metabolism of these mites. Other papers are concerned with problems of resistance to miticides in spider mites in relation to the genetics, selection pressure, and cross resistance.

A comprehensive review of tick-borne diseases and a study of transmission of plant viruses by Eriophyidae are given in the treatment of disease transmission.

The part on systematics contains an interesting paper on the reproductive isolation and taxonomy of some spider mites and another on the reevaluation of the names of some common mites of this family. There is a survey of mites endoparasitic in vertebrates, and the application of numerical taxonomy to acarology is discussed. Phylogenetic considerations on Oribatei and Phytoseiidae and taxonomic characters of Trombiculidae are discussed. These papers, of course, cannot represent the current trends in acarine systematics as a whole.

In the section on acarine behavior a valuable paper, which is based on experimental research, deals with the relations between host-finding behavior and life histories in ectoparasitic Acarina. Studies of reactions to light show that two types of response within populations of *Tetranychus urticae* can be distinguished. These are probably caused by transient physiological factors. One paper is concerned with the relationship between humidity and the behavior of some species of ticks.

Although the papers in this volume represent only a small sample of the current advances in acarology, they nevertheless indicate the diversity of recent work. Thus, this book should interest workers in basic and applied disciplines allied to acarology as well as acarologists.

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Metazoan Evolution

The Lower Metazoa: Comparative Biology and Phylogeny. Ellsworth C. Dougherty, Zoe Norwood Brown, Earl D. Hanson, and Willard D. Hartman, Eds. University of California Press, Berkeley, 1963. xii + 478 pp. Illus. $17.50.

The Evolution of the Metazoa. Jovan Hadži. Pergamon, London; Macmillan, New York, 1963. xii + 499 pp. Illus. $14.

A rather small, quiet, and hardy band of zoologists is studying the more primitive groups and lesser lights of the animal kingdom in an effort to increase our understanding of evolution in general and of the phylogenetic basis of animal classification in particular. Diversity of nationality and language characterizes this group, and its research results have been scattered and sometimes inaccessible, even to its members. These two complementary volumes, the first in English on the subject, should direct attention to these studies.

The Lower Metazoa is a well-produced symposium volume that offers extensive and intensive coverage of its subject. About two-thirds of the 34 chapters deal directly with phylogeny and provide a forum for both sides of several polemics; the debate is often lively. The main arguments concern the type of Protozoa that gave rise to multicellular animals, the most primitive group of the latter, the nature of the process by which this immensely important evolutionary change occurred, and the origin and early evolution of body cavities. The controversies are fundamental but frustrating for, as T. Komai states, "Discussion based on the scanty, outdated information now available to us will contribute very little to the advancement of animal phylogeny."