

animal behavior is missing — particularly behavioral ecology and, though it is of no real loss, psychology. However, since the use of these terms in the German literature is restricted, the utility of *Ethological Dictionary* suffers only if one is trying to use it in order to translate into German.

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**GROWING POINTS IN ETHOLOGY.** *Based on a Conference Sponsored by St. John's College and King's College, Cambridge.*

*Edited by P. P. G. Bateson and R. A. Hinde. Cambridge University Press, Cambridge. \$38.50 (cloth); \$11.95 (paper). viii + 548 p.; ill.; index. 1976.*

The eighteen chapters are compiled from a symposium commemorating the twenty-fifth anniversary of the Sub-Department of Animal Behaviour at Madingley. Since no effort was made to recruit "outsiders" to contribute their ideas to the book I was pleasantly surprised that the book lived up to its somewhat audacious title better than expected. Many of the chapters were indeed focused on growing points, most contained stimulating ideas, a few were less focused on the future than the past and seemed out of place.

The papers are organized around the classic questions formulated by Tinbergen: motivation, evolution, ontogeny, and causation; but aside from this, one suspects that "classical" ethology has left little legacy. Concepts are emphasized rather than definitional and methodological dogma. Five papers on human social relationships conclude the volume and should add interest to those concerned with how and what ethology can contribute to this field.

It was distressing that the "root" of ethology, the concept of natural selection, has apparently taken a back seat in a few of the contributions, obviously to the detriment of the growing point. In contrast, selectionist views provide firm foundations to papers ranging from general principles (such as Dawkin's "Hierarchical organisation: a candidate principle for ethology") to those emphasizing specific adaptive systems (such as Bertram's "Kin selection in lions and evolution").

The book is a valuable addition to a professional library. It is too diffuse for classroom use but teachers may find some chapters useful as outside reading for students.

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## HUMAN BIOLOGY

**TEMPERATURE, PART I.** *Arts and Concepts. Benchmark Papers in Human Physiology* 9. *A Benchmark Book Series.*

*Edited by Theodor H. Benzinger. Dowden, Hutchinson & Ross, Stroudsburg (Pennsylvania); distributed by John Wiley & Sons, New York. \$30.00. xiii + 345 p.; ill.; author citation, places and institutions, and subject indexes. 1977.*

**TEMPERATURE, PART II.** *Thermal Homeostasis. Benchmark Papers in Human Physiology* 10. *A Benchmark Book Series.*

*Edited by Theodor H. Benzinger. Dowden, Hutchinson & Ross, Stroudsburg (Pennsylvania); distributed by John Wiley & Sons, New York. \$33.00. xv + 415 p.; ill.; author citation, places and institutions, and subject indexes. 1977.*

With Volume I, Benzinger has reaffirmed his standing as a scholar of physiology in both the classical and scientific senses of the word. He set himself the difficult task of tracing the development of the concepts and knowledge relating temperature and heat to metabolism and life. He has succeeded admirably and in doing so has collected together a comprehensive and eminently readable assortment of the truly classical papers on the physics and physiology of heat and temperature. He relates the unfolding of man's awareness of the nature of heat and its relation to body temperature; from the early observations on fever by Hippocrates to the application by Wunderlich of clinical thermometry as a routine diagnostic tool in medicine.

The book is organized into several groups of related papers and memoirs, each of which, in Benzinger's opinion, contains outstanding and original contributions to knowledge in the area of temperature and thermal physiology. The papers are all reproduced in their original form and many are accompanied by English translations, several of which were made by Benzinger himself. Prefacing each group of papers, Benzinger has placed the material in its historical context, outlined the kernels of originality contained in the papers, and given brief biographical sketches of the authors. In general, Benzinger has produced a comprehensive and balanced selection of the outstanding contributions; the classical works of Hippocrates, Santorio, Galileo, Fahrenheit, Black, Franklin, Kelvin and Claude Bernard are all to be found in this volume. However, I was somewhat surprised by the omission of any reference to the works of Isaac Newton, whose Laws of Cooling form the basis of much of the work on human and animal calorimetry carried out by Benzinger and his contemporaries.

It is unfortunate that the publishers did not see fit to accord Volume I the lithographic treatment the book deserves. Reproduction of many of the original papers appears to have been accomplished by the use of a photocopying machine. Consequently, the

