the source of the heat are explained by sea-floor spreading and associated volcanic activity. Major- and minor-element and isotope geochemical data show that the brines are unlike Dead Sea or Red Sea water. The consensus is that the brines contain chemical components from bedded evaporites, shales, and juvenile igneous constituents. A particularly interesting analysis of the brine sediments shows that these deposits are not identical to any known ancient geological occurrences. Presumably, the present conditions represent either a unique set of geological and environmental circumstances or a transient phase that in other, similar, older deposits has always been modified or differentiated by diagenetic processes. The study may leave the reader with some doubts as to the accuracy of present views concerning some of the proposed origins of ancient marine metalliferous deposits. In any event, direct reasoning along uniformitarianistic lines may not be fruitful as a means of using the present to elucidate the past in this instance.

The book is well edited, and the individual papers are up to the standards of the best professional journals, with respect both to syntax and scientific excellence. Readers will find the summary paper at the end particularly useful, and some may prefer to read that first.

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Chemical Control Systems

Progress in Comparative Endocrinology. Proceedings of the Fifth International Symposium, Delhi, India, Nov. 1967. M. R. N. PRASAD, Ed. Academic Press, New York, 1969. xx + 604 pp., illus. $29.50. General and Comparative Endocrinology, Supplement 2, 1969.

In spite of the two-year delay in publication, this volume is a valuable addition to any library, surveying as it does most of the principal currents in modern comparative endocrinology. The book offers an excellent opportunity for teachers, students, and researchers to acquaint themselves with significant developments in the field since the previous symposium, held in Paris in 1964. There is a good balance between reviews of important fields incorporating new work by the authors up to the time of the conference (about a third of the 62 papers) and reports of original research oriented toward more specific problems. This allows readers to grasp quickly the current situation in areas of intense research activity (hypothalamic control mechanisms, comparative steroidogenesis, ionic control and water balance, hormone action at the cellular level, endocrine homologies, and neurosecretory phenomena) and to gain insight into some of the more recently opened avenues of research.

The papers treat a diversity of organisms, but research in fish (17 papers) and mammals (14 papers) is still favored. Nine investigations are concerned primarily with amphibians, five with birds, and only three with reptiles. A total of nine papers are concerned with invertebrates; these cover most of the phyla in which endocrine phenomena are currently receiving attention. Papers dealing with comparative aspects of parathyroid-thyroid action and calcium homeostasis and with islet cell function are noticeably absent. There is a good deal of research activity in both of these areas which ought to be reflected in an assessment of the status of comparative endocrinology. As far as the organization of the book is concerned, the papers within certain sections should have been more logically sequenced.

The location of the conference in Delhi focused attention on research in laboratories on the Indian subcontinent. The papers presented by Indian authors are uniformly of high caliber and cover subjects as diverse as the symposium itself. Contributions on primates are all from Indian authors.

Papers of particular note include the scholarly review of the role of prolactin in osmoregulation in teleost fishes by Ball. This paper and that by Olivereau present an excellent review of the subject. A trio of papers by Tata, Eaton and Frieden, and Weber serve to clarify in a thorough and concise manner current trends in research on thyroid hormone action. A provocative paper on the homologies and early evolution of chordate endocrine systems is given by Olsson, and this couples nicely with Jasinki's treatment of the early phylogeny of the pituitary portal system. The paper by Chan, Rankin, and Chester-Jones on ion regulation and osmoregulation in teleosts is notable for its skillful exposition and presentation of the complexities of the subject. The paper by Idler serves to remind those who are interested in comparative steroidogenesis that interesting variations on the mammalian theme remain to be uncovered in lower vertebrates. The paper by Dupé and Godet deserves special attention, using as it does electrophysiological and biochemical parameters to improve understanding of the role of environmental changes in the induction of the observed abrupt changes in the life cycle of the African lungfish. Also deserving of comment is the interesting paper by Fontaine, with its insight into the evolution of anterior pituitary hormones of basophil origin.

This volume serves to remind one not only of the intrinsic value of comparative studies but also of their importance in furthering our understanding of mammalian systems, which can be complete only when we know the modifications of chemical control mechanisms that have occurred in response to changing conditions throughout animal evolution.

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Secretion

Exocrine Glands. Proceedings of a satellite symposium of the 24th International Congress of Physiological Sciences, Philadelphia. STELLA Y. BOTELHO, FRANK P. BROOKS, and WALTER B. SHELLEY, Eds. University of Pennsylvania Press, Philadelphia, 1969. xxii + 282 pp., illus. $20.

The book focuses attention upon three exocrine-secreting glands, which serve as model systems: salivary glands, pancreas, and sweat glands. The papers are grouped logically under three headings: Secretion of Electrolytes and Water; Secretion of Organic Substances; and Neural, Hormonal and Pharmacological Control of Secretion. In addition to accounts of the organs mentioned above, the first section includes two modest reviews of the structure and function of avian and reptilian salt-excreting glands, and the third has chapters on the secretion of lacrimal glands and of bile.

The plan of the book is good; most of the articles are up to date and contain some new information, and most end in succinct summaries. The discussions following each chapter are better than most and as a rule tend to point up the material presented, but they add little to the substance of the book. Some of them ramble on aimlessly, a common fault with recorded discussions.