properties of Premarin," is a review of much evidence that is old and some that is new.

As with many multiauthored texts there is little cohesion within the book. A short chapter recounting the historical development of knowledge concerning the facets of steroid conjugation covered in the text would have been helpful.

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Organ of Speech

On the Phylogeny and the Ontogeny of the Human Larynx. A Morphological and Functional Study. J. WIND. Wolters-Noordhoff, Groningen, The Netherlands, 1970. xii, 158 pp., illus. $15.60.

There is perhaps no better way to appreciate the paucity of detailed morphological and functional information available than to write a book on an individual organ such as the larynx. Fortunately the author of this book is aware of the limitations of both ontogenetic and phylogenetic knowledge. He understands that "many complicated and unsolved problems" remain and that to "suggest probabilities" is all that can be attempted.

The monograph was presented originally as a Ph.D. thesis by the author, who is a laryngological surgeon in the Netherlands. After a preliminary review of evolution and paleontology, he presents the comparative morphology of the larynx, partly on the basis of his own studies, and then proceeds to the phylogeny and ontogeny of the human larynx. The organ is considered concisely in its protective, respiratory, and valvular roles.

Because "[rational] language is the most diagnostic single trait of man," speech is discussed at some length, and the numerous factors that, in the author's opinion, may have contributed to its origin are included, although the author readily admits that "no satisfactory explanation of speech emergence has yet been given."

Ontogeny occupies a relatively small portion of the book. This is due partly to the author's predilection for phylogenetic speculation but also to the neglect of the human larynx in developmental studies (the latest important investigation is half a century old). Observations based on a closely graded series of embryos are not available in the human or, a fortiori, in most other species. The author's personal contribution here is based largely on reconstructions of one fetal and two embryonic larynges in the human. Long overdue emphasis on the patent weaknesses of "Haeckelian recapitulation" occurs throughout the work.

It would not be unreasonable to maintain that it is premature to write a book on the ontogeny and even more so on the phylogeny of the larynx. However, if a brief statement of present-day viewpoints, in many instances quite speculative in character, is desired, then the volume under discussion provides an attractive introduction to the subject.

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Genomes and Cells

Control Mechanisms in the Expression of Cellular Phenotypes. Proceedings of a symposium, Buffalo, N.Y. HELEN A. PADYKULA, Ed. Academic Press, New York, 1971. x, 286 pp., illus. $16. Symposia of the International Society for Cell Biology, vol. 9.

As Morgan Harris states in the foreword, this symposium was designed to bring together investigators from a variety of disciplines each of whom is approaching from his own special direction the common problem of phenotypic expression at the cellular level. The manner in which the genome is expressed in a cell and how that expression is influenced by the preexisting organization of the cell and by alterations in its environment are broad problems of fundamental concern to the cell biologist. The 13 articles in this volume are restricted to eukaryotic cells and, with one or two exceptions, to cells in culture. The symposium includes articles on the inheritance of cortical organization in ciliates (Sonneborn), gene expression in allophenic mice (Mintz), phenotypic expression and its loss in cells from the chicken embryo (Holtzer; Whittaker), the phenotypic capabilities of plant cells and tissues in culture (Hildebrandt; Halperin; Braun and Meins), the stability of cell function in mammalian cell lines (Augusti-Tocco, Sato, Claude, and Potter; Yagi), and biochemical genetics and the regulation of enzyme levels in mammalian cells in culture (Krooth; Puck; Siniscalco; Ruddle). Conceptually similar approaches in a number of organisms are conspicuous by their absence; work on the algae, the slime molds, and the developmental genetics of insects, particularly *Drosophila*, is not represented.

There is no obvious organizational theme running through the volume. Papers are clustered to some extent—for example, the plant cell papers are grouped together, as are those on cell fusion and on chicken embryo cells—but few of the authors make any serious attempt at unification. Halperin deserves special note in this regard since, in his paper on embryos from somatic plant cells, he very successfully draws on a number of concepts from embryology and suggests relevant correlations with some observations from the ciliated protozoa. It is unfortunate that open discussions that followed the presentations are not included in the volume, for the reader is left unable to judge whether the symposium was successful in promoting an exchange of ideas among investigators of diverse interests.

Most of the articles are substantial contributions in their own right, however, and those by Halperin, Siniscalco, and Ruddle are outstanding. Halperin describes his studies on the developmental potentials of somatic plant cells in the broad framework of developmental biology and considers very systematically the conditions under which such potentials can be expressed. The article by Siniscalco on hybridization of diploid human cell lines is superb not only in its lucid description of results to date, but also in its careful delineation of promising future approaches to the study of human biochemical genetics. Ruddle's paper on mouse-human hybrid lines is an excellent description of an approach likely to be of enormous significance to gene linkage studies in man. Both of these articles on cell fusion, and Puck's article as well, are focused on genetic studies, not on the control of phenotypic expression. Nonetheless, it is clear that the general approach is as adaptable to studies of phenotypic expression as it is to genetics.

On the whole, this book is a collection of stimulating, timely, and well-written articles.

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