Book Reviews

Solid analytic geometry. Adrian Albert. New York: McGraw-Hill, 1949. Pp. ix + 162. $3.00.

The first five chapters of this textbook present the usual material on lines, planes, spheres, and the other quadric surfaces, concluding with an invariantive classification of quadrics. The concepts and terminology of vector algebra are introduced immediately and are used effectively throughout. The sixth chapter is devoted to the theory of matrices, which in the seventh chaper is applied to rotations in space and to the principal axis transformation. The last two chapters are considered by the author to be supplementary to a basic course. Chapter 8 is on spherical coordinates and gnomonic charts, useful material which is frequently neglected. Chapter 9 is an introduction to analytic projective geometry in the plane and in space, carried far enough to include a proof by means of matrices of the invariance of the cross ratio.

The treatment throughout is designed to tie analytic geometry to the modern theory of vectors and matrices, and the methods employed are for the most part those which can be generalized directly to the Euclidean geometry of n dimensions. The book contains much excellent material illustrating the applications of the theory of vectors and matrices to solid Euclidean geometry and many short and elegant proofs are developed in this technique. The only criticism which occurs to the reviewer is that the viewpoint is predominantly algebraic rather than geometric, and that there is a minimum of emphasis on developing the student's space intuitions.

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Lehrbuch der Embryologie. Walter Brandt. Basle, Switzerland: S. Karger, 1949. Pp. xii + 648. (Illustrated.) 56 Swiss francs.

This is a textbook of human embryology for medical students. In general, it follows the standard pattern: a rather extensive chapter on general embryology is followed by chapters on organogenesis. The text is written clearly and concisely, and the important chapters on human placentation, fetal circulation, and hormonal control of the sexual cycles, in which fields much recent work has been done, are up to date. The illustrations, partly in color, are adequate for the most part but do not do justice to the chapters on the nervous system and the sense organs. For instance, illustrations of the histogenesis of the central nervous system and of the structural differentiation of the eye and ear and their auxiliary structures are entirely missing. Moreover, illustrations of such important processes as fertilization and gametogenesis (which latter is represented by a poor diagram) would have been desirable.

An innovation of the book is the inclusion of a considerable amount of experimental embryological material. This reviewer is wholeheartedly in favor of a more analytical and dynamic approach to embryology than is offered by most texts. It is, therefore, regrettable that these parts do not live up to expectation. The promise of the author, in the foreword, to incorporate the newest results in developmental physiology is not kept in the text which, apart from very few exceptions, considers the literature only up to 1934. As a result, the presentation of the subject and the viewpoints are outdated and inadequate in many respects. For instance, our conceptions of embryonic induction and of axis determination in limb primordia have undergone considerable changes in the last fifteen years. The old ghosts of mosaic- and regulation-eggs are revived, and the descriptions of gastrulation in Amphibia and in higher forms, and of the fundamental processes of the segregation of organ primordia from the germ layers, are incorrect. In the part on organogenesis, the experimental data on the determination of an organ are presented in advance of the description of its embryonic development; the didactic wisdom of this procedure is questionable. A serious shortcoming of the book is the lack of a bibliography, in spite of numerous bibliographic references in the text. It is of great importance that the attention of the premedical and medical students be directed to sources.

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Die Optik in der Feinmesstechnik. (Optics in precision measurements practice.) Kurt Räntsch. Munich, Germany: Carl Hanser, 1949. Pp. 317. (Illustrated.) Cardboard: 27 DM; clothbound: 30 DM.

Here is a valuable contribution to that division of optical engineering which deals with the use of optical instruments for precision measurements. The first third of the book treats in a very thorough manner those principles of geometrical and physical optics which are necessary to provide a background for the intelligent use of precision optical measuring equipment. The paraxial imaging properties of lenses and mirrors are developed systematically. Considerable attention is devoted to apertures and pupils, and to the transmission of flux through a system. The short section on physical optics covers pertinent topics such as interference and diffraction, resolving power, and light losses by reflection. Possibly some readers would have welcomed a brief mention of polarized light, and of optical interference films for antireflection and beam-dividing purposes. There is a convenient eight-page collection of all mathematical formulas at the end of the book for quick reference.

The remaining two-thirds of the book takes up optical instruments. It is replete with good photographs of an