Book Reviews

An Introduction to Algebraic Topology. Andrew H. Wallace. Pergamon Press, New York, 1957. vii + 198 pp. Illus. $6.50.

In this very readable and carefully motivated book on algebraic topology the author has successfully filled a gap in the mathematical literature which has existed for years. He has provided an understandable elementary textbook in algebraic topology, available to the beginning student with no more than the usual basic training in algebra and analysis, and he has done so without reducing the subject to the meaningless game of cutting and pasting and rubber-sheet stretching which usually results from efforts of this kind.

After introducing the usual elementary topological notions in the first three chapters, he starts on the principal guiding theme of the book, a discussion of continuous transformations and homotopy. The fundamental group is discussed first, and then the homology groups are introduced by means of the singular homology theory. The excision theorem is proved, as are also the topological invariance of the homology groups and their invariance under deformations. The final two chapters of the book consist of a treatment of the homology sequence and of methods of calculating homology groups of various spaces by making use of the exactness of the homology sequence. Simplicial complexes are introduced in the last chapter, and the treatment of their homology characteristics is given, not directly in terms of incidence relations but indirectly in terms of exact sequences and singular homology.

The book is liberally supplied with illustrations, which aid in clarifying the intuitive discussion which precedes almost all theorems before their formal proofs are given. Most of the applications to the properties of particular spaces and to investigations of continuous transformations are given in numerous, well-chosen exercises which, as the author states in the preface, form an integral part of the book.

By making fundamental use of the current techniques of algebraic topology the author has brought before the elementary student and the nonspecialist a well-motivated and coherent treatment of subjects heretofore only available in research papers and in piecemeal form. The book is not one into which one can dip at random with any degree of success, but one which must be read from beginning to end for a true appreciation of its contents. As is inevitable in a work of this type, many interesting topics are mentioned only in passing or not at all, but on the whole the author has succeeded remarkably well in giving a connected, lucid, and elementary account of present-day methods in algebraic topology.

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The Reproductive Development of the Female. With especial reference to the period of adolescent sterility. A study in the comparative physiology of the infecundity of the adolescent organism. M. F. Ashley Montagu. Julian Press, New York, ed. 2, 1957. xviii + 234 pp. Illus. $5.

Anthropologists and ethnologists have long wondered why in nonliterate societies girls seldom become pregnant during early postpubertal years, despite their promiscuous sexual relations during this period. Among the scientists who "wondered" was the author of this book, who determined to find an explanation for the phenomenon, which he felt was genuine and not a spurious artifact. Observations of Mirskaia and Crew on the mouse (1930) and of Hartman on the rhesus monkey (1931) provided him, he says, with the necessary evidence to warrant further study. The result was the preparation of an extensive essay on the subject: "Adolescent Sterility" [*Quart. Rev. Biol.* (1939)]. This was expanded into a book with the same title in 1946, in which the author brought together much of the world's literature on the subject.

Since, during the last decade, more data have accumulated in this area, the author has now prepared the new edition under the title *The Reproductive Development of the Female,* condensing the old and adding the new. The ethnological data are presented in the chapter "Adolescent sterility in man," while the material on adolescent sterility in lower animals has been greatly expanded. The "Biology of adolescent sterility" affords a scientific background for the study; it is written in a manner quite satisfactory to the student of the physiology of reproduction. Psychological factors are briefly discussed, and some social implications are pointed out.

The book is written in the author's well-known clear and pleasing style, which makes the reading almost effortless. The basic facts are presented in 55 well-selected tables, and there is a bibliography of over 400 titles, many of which, for the readers' convenience, are given as footnotes in appropriate places.

The author may be said to have completely answered the question he set out to answer: "What, if any, interval of time elapses between the appearance of the first menstruation, the menarche, and the ability to conceive and carry a fetus to term?" While the interval between the menarche and the first conception is subject to very wide variations, it is a matter of some two, three, four or more years. The author is, however, cognizant of the exceptional cases of early motherhood and has, in the bibliography, assembled dozens of references to precocious pregnancies. He has also assembled interesting figures on the age at menarche in different countries, age at first parturition, interval between marriage and first delivery in regions where girls are married soon after the first menstruation, adolescent sterility in the male, and other related topics.

The present study on adolescent sterility has, in my opinion, been so thoroughly executed that another book on this unique subject will not soon be called for.

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Trophoblastic Growths. Aclinical, hormonal and histopathologic study of hydatidiform mole and chorionepithelioma. J. Smalbraak. Elsevier, Amsterdam, 1957. $12.75.

Biologically, hydatidiform mole and chorionepithelioma are of great interest since the production of chorionic gonadotrophin by these tumors makes it possible to follow all their vicissitudes by means of biological assay methods. At the moment this is the only human tumor for which such a test exists. Unfortunately, the value of assays has been obscured by the use of urine rather than blood serum.