tions are important in the study of nuclear structure. From the point of view of modern usage, it would also be desirable to have some discussion of the generators of infinitesimal rotations, their commutators, and so forth. They were not treated in the original volume, hence not in this version of the book.

The new chapters will be of interest to all theorists. In particular, the discussion of the corepresentations of a group involving antiunitary operators gives a new insight into the mathematical consequences of invariance under the operation of time inversion. This chapter would benefit from an amplification of the physical meaning of time inversion since the symmetry involved does not yield as easily to intuitive reasoning as do symmetries in configuration space.

On the whole, the chapters from the original bear up remarkably well against the passage of time, and the new chapters add further to the value of the book. The translation seems excellent; none of Wigner's personal touch appears to have been lost in translating.

ROBERT G. SACHS
Department of Physics,
University of Wisconsin

Target for Tomorrow. Space travel of the future. I. M. Levitt. Fleet Publishing Corporation, New York, 1959. 328 pp. Illus. $4.95.

Since the first artificial earth satellite was successfully launched by the U.S.S.R. nearly 2 years ago, there has been a substantial marshalling of engineering and scientific resources in this country for the exploration of space. Undertakings of this nature are costly, so much so that, to the present, only governments have been able to afford them. The support for such enterprises rests, therefore, on the public. There would be cause for considerable satisfaction if the approval of the measures taken to establish the American space program could be considered indicative of the public's understanding of the subject. Unfortunately, the emotional reactions to the early difficulties deny the possibility of any such comforting conclusion. Moreover, the scientific and engineering aspects of space exploration touch on so many of the branches of pure and applied science that it is, perhaps, unreasonable to expect very many, even among the best informed, to comprehend them all.

There is, consequently, a need for sound information at all levels concerning the aims, prospects, and problems of space exploration. Without a well-informed public, capricious reactions might well jeopardize any hope for a constructive program founded on scientific values rather than exhibitionism.

The present work represents an attempt to inform the "educated layman" about the development of rocket propulsion, the creation of artificial satellites, and some of the possibilities and problems in the future evolution of the exploration of space. The wide range of topics discussed includes the characteristics of the earth and its atmosphere, gravitation, celestial mechanics, satellites and space stations and their uses, hazards in space, the problems of supporting human life in space, interplanetary and interstellar travel, and the effects of motion at relativistic velocities. Two appendixes deal, respectively, with some statistical speculations about the hidden side of the moon and with the author's views on educating and training space engineers. Some 36 black-and-white illustrations are provided; about half of these are photographs of a selection of astronomical objects, and the remainder are artists' conceptions of various aspects of space travel.

It is doubtful whether, in its present form, the book is appropriate for the educated layman, although much of the material has been reprinted from the author's newspaper articles. I believe that most readers possessed of sufficient scientific knowledge for ready comprehension of the subject matter may find the work rather awkward and uninspired, while those not so informed may find it difficult to understand many of the technical explanations because of the lack of sufficient clarity and precision. It is unfortunate that the literary style and exposition do not reach the standards of the best popularizers of scientific subjects.

Perhaps the best feature of this book is found in the considerable amount of elementary information about astronomy, celestial mechanics, and astrophysics which it contains. Although for the most part, these subjects are correctly, though not always clearly, explained, it is surprising to find an erroneous description of the behavior of a satellite of the earth in a polar orbit (page 124).

Although a fair account is given of some of the scientific investigations which have been or will be conducted, I was disappointed to find very little discussion of the results obtained so far from satellites and space probes.

If, as the preceding remarks indicate, the book falls short of the goal set for it, the author is nevertheless to be commended for assembling a great variety of information relating to the subject.

J. P. T. PEARMAN
National Academy of Sciences,
Washington, D.C.

Die pränatalen Infektionen des Menschen unter besonderer Berücksichtigung von Pathogenese und Immunologie. Heinz Flamm. Georg Thieme, Stuttgart, Germany, 1959. xii + 136 pp. $4.70.

The dramatic announcement in 1941 by N. McA. Gregg, an Australian ophthalmologist, that he had examined 78 children with congenital cataract (44 of whom also had heart defects), born to mothers who had contracted rubella during the first three months of pregnancy, and the subsequent confirmation and extension of these findings by a special commission aroused great interest among scientists and laymen in the dangers that result from infection to which the human embryo and fetus may be exposed during pregnancy.

The author of the present book undertook the task of giving an account of the current status of clinical and experimental work in this field. Among the virus infections, to which more than half of the space is given, rubella remains the most important cause of congenital malformations, but other infections may account for larger numbers of prematurely terminated pregnancies. The pathological and developmental features of the rubella-produced defects are discussed in considerable detail, with helpful asides on the normal functions which are interfered with. This is followed by similar, but shorter, discussions of other viral infections, and for many of these the available information remains incomplete or inconclusive (for example, cytomegaly). The remaining chapters are devoted to fetal infection caused by bacteria, fungi, and protozoa. I was somewhat shocked to find that lues is

included among the bacterial diseases, while the following chapter on protozoan parasites is given over to a discussion of malaria, trypanosomiasis, and toxoplasmosis. The final chapter presents a brief discussion of immunological problems, and the book closes with a very valuable bibliography of 31 closely printed pages. The author is not historically-minded; there is no mention of Pasteur's epochal studies on silkworm diseases or of the once so fashionable syphilitic origin of congenital malformations, but the book provides a solid basis for future work.

W. LANDAUER
Department of Animal Genetics, University of Connecticut

The Molecular Basis of Evolution. Christen B. Anfinsen. Wiley, New York; Chapman and Hall, London, 1959. xiii + 228 pp. Illus. $7.

In the days of multivolume encyclopedic treatises, it is refreshing to read a short book with high specific activity. The title is more descriptive of the ultimate intellectual aim of much of the work which is described than of the actual contents of the book. However, the reader will find here a concise account of current ideas about the biochemical aspects of genetics. The material is well selected, lucidly presented, and as up-to-date as can be expected. Regrettably, the index is not as detailed as it might be.

The author appears to address himself primarily to biochemists, and as a result the book serves as a most useful introduction to those aspects of genetics which are closely linked to biochemical problems or which are susceptible to biochemical analysis. After reviewing briefly general genetic and evolutionary principles, Anfinsen devotes the remainder of the work to a discussion of the functional, structural, and chemical properties of genetic material, protein structure and biosynthesis, and nucleic acid structure and biosynthesis. Instead of limiting himself to a summary of results, he has taken pains to include a description of the principles and pertinent procedural details of the experiments on which the conclusions are based. Of particular value in this connection are the references to the original papers in which the interested reader can find further information.

While acquainting biochemists with the significance of current work in genetics, Anfinsen also clarifies for geneticists much of the biochemistry with which they must deal. Thus, for instance, methods and results of investigations of protein structure are presented in a more comprehensive and at the same time more concentrated fashion than is usually available to students of genetics. Anfinsen has not hesitated to present and discuss controversial questions; such questions will be stimulating to those who are becoming acquainted with the subject. Graduate students and other readers who wish to acquaint themselves with this rapidly expanding part of biology should be especially grateful to Anfinsen for his presentation. In his preface the author states that "the writing of this book has been stimulated by the excitement and promise of contemporary protein chemistry and genetics," and it is to his credit that this excitement has been translated into print and will in turn be transmitted to his readers.

WOLF VISHNIAC
Department of Microbiology, Yale University, and
Brookhaven National Laboratory

New Books

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Die Aktivierte Essigsäure. Das coenzyme A und seine acylderivate im stoffwechsel der zelle. Karl Decker. Enke, Stuttgart, Germany, 1959. 314 pp. DM. 74.80.

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Plant Pathology. Problems and progress, 1908–1958. C. S. Holton, G. W. Fischer, R. W. Fulton, Helen Hart, S. E. A. McCallan. Published for the American Phytopathological Soc. by the Univ. of Wisconsin Press, Madison, 1959. 577 pp. $8.50.

Symposium on Pulmonary Ventilation. R. P. Harbord and R. Wollmer, Eds. Sherratt, Altrincham, England; Williams & Wilkins, Baltimore, Md., 1959. 109 pp. $4. The symposium was held in Leeds under the auspices of the *British Journal of Anaesthesia.* Speakers at the symposium included R. Woolmer (chairman), P. W. Ramwell, R. P. Harbord, I. Donald, T. C. Gray, P. Hugh-Jones, E. J. Morgan Campbell. Approximately 22 people participated in the symposium.

This World of Living Things. Paul Griswold Howes. Duell, Sloan and Pearce, New York, 1959. 251 pp. $4.50.

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The Young Inventors' Guide. Raymond F. Yates. Harper, New York, 1959. 112 pp. $2.50.