always relied; Charles Lyell and Louis Agassiz, for their contributions to geology, paleontology, and museums; and Gregor Mendel.

Throughout the book Adams uses well-selected quotations and absorbing background material to sustain the flow of his narrative. It is his intention to tell a story of discovery so as to illuminate the qualities of character which have made men great observers of nature, rather than to write a detailed chronicle of the progress of knowledge of the forms and processes of life. The book seems well suited to acquaint serious young naturalists with the history of systematics and may for some serve as a good introduction to the history of science as a whole. Its greatest appeal to professional readers will be to those who are interested in an appreciation of evolutionary biology couched in historical and biographical terms. It presents more detail than the book with which it might be compared, Donald Culross Peattie's *Green Laurels: The Lives and Achievements of the Great Naturalists* (1936). In contrast to the author of that book, who offers an esthetic appeal to the young reader's instinct for beauty, Adams claims that our disdain for the writings of the great naturalists contributes to the ecologic crisis of the present day, reaching for a moral which fails to fit his narrative. In fact, the biographical scaffolding of the book prevents it from dealing effectively with any ecological themes and excludes many of the most important aspects of the larger subject it purports to treat, such as instinct and behavior, oceanography, microbiology, botany, and morphology. The entire history of biology, even of systematic biology, cannot be presented in the compass of a single volume without turning it into a concise textbook, which Adams has sought to avoid. He has captured much of the fascination of the subject and adopted a means of presentation that will make the principal naturalists of previous centuries far more accessible to readers than previously, by drawing upon a wide array of their own works and recent scholarly writing. Readers may find their way to this other material through appended references in essay form, 10 pages of bibliography, and 18 pages of biographical sketches.

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Russian Work on Cancer

The Virology and Immunology of Cancer. L. A. ZILBER and G. I. ABELEV. Translated from the Russian edition (1962), with revisions by the authors, and edited by Ruth Schachter. Pergamon, New York, 1968. xii + 476 pp., illus. $21.

It was a Russian scientist, Ivanovski, who discovered viruses in 1892, but it was the role of another Russian investigator, the late L. A. Zilber, to become the father of Russian virology much as Thomas M. Rivers became the father of virology in the United States. This book serves as an appropriate memorial to Zilber, for it discusses much of the distinguished work to which he devoted a large part of his career. The volume was written in 1962 by Zilber together with G. I. Abelev, who pioneered in developing and adapting immunological techniques to the study of neoplasia and who discovered that hepatomas synthesize and secrete into the blood stream a specific embryonic alpha-globulin. It represents an effort by these two notable Russian scientists to present the significant experiences of their own laboratories over the course of 15 years of investigation concerned with the viral etiology and the immunology of cancer. In gathering together this material, they further set themselves the task of discussing their own work in relation to the salient developments, in both East and West, of experimental findings, conceptual approaches, and conjectural proposals on the role of viruses in carcinogenesis.

The book has been updated in this English translation, but only to 1964. Although it is therefore not a completely up-to-date text, it is of considerable value and interest as a broad review of the history and background of viral oncology, as well as in introducing, in context, many contributions that are relatively inaccessible to most of us because the original publications were written in Russian. Of note are the authors' conceptual approaches to their fields. For example, as early as 1945 Zilber predicted that viruses may initiate an oncogenic process but may not be required to maintain it.

The first part of the book is devoted to historical accounts of investigations of viral carcinogenesis, dealing chiefly with the virus-induced tumors of animals that had been most thoroughly investigated up to 1964, but also surveying efforts in the quest for viruses in human cancer. The animal viruses considered include the viruses of avian and mouse leucoses, polyoma, Rous sarcoma, mouse mammary tumors, and rabbit papilloma, with emphasis on the RNA-containing avian tumor viruses. This is a field in which Zilber made outstanding contributions, including the discovery that the avian sarcoma virus can cross species lines and produce tumors in mammals, even in primates. The DNA-containing tumor viruses are not discussed in detail, and also missing from the book are the newer concepts on defectiveness of tumor viruses. Special emphasis is given to the mechanisms by which infection with a virus can induce malignant transformation in cells. The chapter on the virogenetic concept of the origin of tumors is of particular note, and attempts are made to explain viral carcinogenesis at the molecular level.

The second section of the book is devoted to a survey of ways in which the methods of immunology and immunochemistry have been brought to bear on oncological problems. It is noteworthy that this section provides a comprehensive review of Abelev's important contributions to the study of tumor antigens. Included in the text and in an appendix are detailed descriptions of his techniques, particularly that of antigen-antibody precipitation in agar.

As an essential basis for dealing with tumor immunology, this section includes a good review chapter presenting the immunogenetics and variability of transplantable tumors, against background information on normal transplantation (histocompatibility) antigens and the genetic factors controlling their expression. Subsequent chapters deal with detection of tumor-specific antigens, and also with methods for studying antigenic structure of tissues. The discussion includes findings on antigenic structure of tumors, on immunological reactions of the organism to the tumor, and on immunological aspects of carcinogenesis. The work surveyed includes studies with experimental animals, studies in vitro, and investigations on human cancer patients.

The more than 60 pages of references at the end include not only publications from the Russian literature, particularly papers originating from Zilber's own institute, but also numerous citations selected from the Western literature.

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