

that one longs for greater emphasis on the personality and procedures of the men who made Kew and contribute to its reputation to-day. The Royal Botanic Gardens have served as a training ground for many scientists, explorers and gardeners, but Dr. Turrill is almost reluctant in admitting the contributions of these men. Procedures, ideas and even the architecture developed at Kew were taken by students to distant lands, and one sees the influence of Kew in some aspect of every major herbarium and botanic garden of the world. A single chapter of a scant fourteen pages describes the current scientific research of nearly eighty-five people. Three pages are devoted to "Plant Introductions via Kew", and nearly half of this concerns the story of quinine. One wishes Dr. Turrill had elaborated more the credit which is due to the activities and leadership of Kew, and in basic research and practical horticulture.

The remaining chapters, particularly those on "Economic Botany and the Kew Museums", "The Greenhouses" and Kew at various seasons, charmingly describe a tour of the exhibits, living and preserved, in infinite detail. The book will serve as a guide, supplying, where appropriate, the personal exposition of a tour leader on how trees grow or manufacture food, or how plant products are used, or where particular plants can be found. One familiar with museum and garden exhibition techniques visualizes in Turrill's account both the display and the information on the labels. At the same time, the casual reader may be unaware that chapters of a basic text-book of botany have been paraphrased to present briefly and clearly the reasons for the exhibit.

A chapter on "Wild Life at Kew" exemplifies the detail of the book in relating much information, including the introduction of the American grey squirrel and its destruction, the amount of myxomatosis in the rabbits of Kew during the year 1955, the types of weeds in the lawn or the record-sized fish caught in a Kew pond and its present location. Throughout this and other chapters are the intimate stories one gets in a personally conducted, leisurely tour by a guide who knows and loves the Royal Botanic Gardens, Kew.

Sixteen excellent plates illustrate the men and women responsible for Kew's past, the present buildings, and scenes from the Gardens. Appendixes give details on the climate, the rules and regulations, the physical plant, the composition of the staff and the chronology of the curators and keepers of the Herbarium, Library and museums. A bibliography of sixty-six titles relating to Kew, an index and a grid map, referred to frequently in the text, complete the book.

As one enjoys a garden at many hours of many seasons, so I recommend to past, present and future friends of Kew a leisurely and frequent reading of this book.

RICHARD A. HOWARD

JET PROPULSION

Jets and Rockets

By A. Barker, T. R. F. Nonweiler and R. Smelt. Pp. xiv + 268. (London: Chapman and Hall, Ltd., 1959.) 35s. net.

THE history of this book prior to publication was unusually rich, and Mr. Nonweiler recites it with relish in his candid preface. The book was begun by Mr. Smelt in 1945, and then passed to Mr. Nonweiler after the former 'went West to the States';

finally Mr. Barker brought it up to date and completed it. Although a few authentic touches of antiquity survive, most of the book has been satisfactorily modernized, and the reader need have only occasional qualms on this score.

The book is intended as an introductory text-book on all forms of jet propulsion, rocket, ramjet, turbojet, pulse-jet and various hybrids, and on the whole, it achieves this purpose well. The authors describe clearly the main features of each power plant, and preserve a fair balance; they do not delve very deeply into the specialized problems of each engine, but this cannot be expected in a 250-page book so wide in its scope. The chemistry of rocket combustion and the thermodynamics of the various engines—the theory underlying the calculation of thrust coefficient and fuel consumption—are presented in adequate detail; and the methods of calculating drag and the design of air intakes are also thoroughly discussed. One of the best features of the book is its emphasis on the close links between the internal thermodynamics of an engine and its external aerodynamics. This emphasis is particularly valuable because many text-books on propulsion tend to ignore the external aerodynamics, although minimizing drag can be just as important as maximizing thrust, especially at supersonic speeds.

Unfortunately, the book is marred by lack of attention to detail. Several of the formulae are in error (e.g., equations 5.13 and 5.15), some of the graphs lack units, the spelling is erratic, misprints abound and there are many stylistic lapses. Chapter 15 is in places sadly out of date: it gives the impression that the V2 was the ultimate in rocket missiles and that space vehicles are virtually impossible. Indeed, throughout the book, German war-time engines, now museum-pieces, are too often quoted as examples, thus giving the false impression that the accompanying text is equally obsolete. On one point of detail the book is excellent: there are more than 120 diagrams and photographs, most of them pertinent, clear and informative.

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NUCLEAR FUEL TREATMENT

Chemical Processing of Nuclear Fuels

By Dr. F. S. Martin and Dr. G. L. Miles. Pp. x + 242. (London: Butterworths Scientific Publications; New York: Academic Press, Inc., 1958.) 40s.; 7.50 dollars.

ALTHOUGH this book is intended mainly as an introduction to the problems of chemical processing of nuclear fuel after irradiation in a reactor, its scope extends much further. In Part I, which deals with "Nuclear Considerations", the three main systems uranium-235, uranium-238-plutonium and thorium-uranium-233 are considered separately and the reactions occurring under thermal neutron irradiation shown diagrammatically.

The several highly developed solvent-extraction processes employed in nuclear processing are described and decontamination factors listed. The requirements of a process for purifying the plutonium product of primary separation are also enumerated and the value quoted for the overall recovery of plutonium (99.4 per cent) in one process shows how highly developed this particular technology has become.