

"This is still true. Technology and the very instruments devised for our well-being accelerate the destruction of our habitat. The bulldozer turns savagely upon its masters. Without harmonious contact between men and buildings, between men and landscape, people are adrift. In an era of remote decisions made on maps and carried out by mammoth firms, the forces of conservation, though they grow, marshal too slowly. In a context of irreparable loss, the achievements of the Trust and other preservation societies are pitifully inadequate. Determined and costly government action alone can save more than a fragment of the setting which the founders of the Trust, and those who furthered its work, have seen as essential to civilised life."

Of course "Government Action" gave us the 1947 Town and Country Planning Act which was largely concerned with our environment, and there has been further recent legislation aimed at promoting a greater and more intelligent respect for our habitat—whilst the many amenity bodies such as the Council for the Preservation of Rural England and that for Wales are all staunch allies of the Trust.

But indeed it is as yet nothing like enough and, as the author laments, with no money to spare for public relations or publicity there is still widespread ignorance about just what the Trust is and does and is legally required or permitted to do.

As a first step towards general enlightenment I can think of none better than the widest possible readership for this admirably organized, comprehensive and persuasively written book with illustrations worthy of its elegant text.

I greatly hope that in due course it may appear as a paperback, literally *pro bono publico*.

CLOUGH WILLIAMS-ELLIS

ASPECTS OF GALILEO'S WORK

Galilée

Aspects de sa Vie et de Son Oeuvre. (Centre International de Synthèse: Section d'Histoire des Sciences.) Pp. viii + 382. (Paris: Presses Universitaires de France, 1968.) 24 francs.

THE quatercentenary of Galileo's birth was celebrated by historians of science either by conferences or by the collection of contributed papers; the delays of publication (and of scholars' revisions) being what they are, the results are just beginning to appear in book form. The French are among the most prompt, as this volume demonstrates; they had also in some measure forestalled the delays of book production by devoting two issues (vol. 17, No. 4, 1964, and vol. 18, No. 2, 1965) of the *Révue d'Histoire des Sciences* to Galileo. This journal is, of course, the official organ of the very active history of science section of the Centre International de Synthèse, which also organized a "Journée Galilée" in June 1965, when six papers were read. The book under review in fact combines these two activities of the Centre, being composed of the papers read on the Journée Galilée and the articles published in the *Révue* in 1964 and 1965, with the addition of one published in 1966.

As the sub-title indicates, there is no clear thread or topic to the book as a whole. Moreover, some of the papers—René Taton's able account of Galileo's life (supplemented by a chronological table of Galileo's life and work) and Père Russo's translation of the "Letter to the Grand Duchess Christina", especially—are of importance only for French audiences, because English readers are well served in these respects. Several of the papers—Vasco Ronchi on Galileo's astronomy, M. D. Grmek and D. Nedelkovich on Galileo's scientific personality—are clearly written to be listened to, rather than to be read. There are good, thoughtful papers by Père Dubarle, Emile Namer and Maurice Clavelin on Galileo's approach

to science; Clavelin's paper on Galileo's denial of the equivalence of hypotheses is particularly well presented. Excellent though these papers are, it seems a pity that in the revision for publication in this volume the authors did not attempt to correlate their discussions.

The remaining papers are either translations or discussions of particular aspects of Galileo's work. There is a competent study of Galileo's work in mechanics by Père Dubarle and a meticulous and scholarly analysis by Père Costabel, "La roue d'Aristote et les critiques françaises à l'argument de Galilée". Namer has surveyed Galileo's astronomical work; Bernard Dame has presented a detailed study of Galileo's work on and controversies about Sun spots from 1610 to 1613; and Serge Moscovici has written about Galileo's theory of the tides in relation to its development by Giovanni Battista Baliani. This is based in part on Baliani's correspondence with Galileo and discusses Baliani's criticisms of Galileo, his own theory, and comments on this theory, particularly by John Wallis who knew of it through Riccioli's summary.

This is not a work for the layman, but there is much to interest those who already have some first hand knowledge of Galileo's work.

MARIE BOAS HALL

CYBERNETICS AND FORECASTING

Cybernetics and Forecasting Techniques

By A. G. Ivakhnenko and V. G. Lapa. Translated by Scripta Technica, Inc. Translation edited by Robert N. McDonough. (Modern Analytic and Computational Methods in Science and Mathematics.) Pp. xxvii + 168. (New York: American Elsevier Publishing Co.; Amsterdam and London: Elsevier Publishing Co., 1967.) 130s.

THIS is an intriguing and exasperating book. The field of knowledge encompassed by the term cybernetics is embarrassingly wide and there is some danger that in England this book's title will appeal primarily to the statistician and the operations research worker whereas in fact its background is strictly that of the communications and control systems engineer.

I happen to be a statistician and digital computer man by background, and I began reading this book therefore with lively interest to see what headway a communications engineering approach might make with forecasting and classification problems, which we would naturally tend to solve using such familiar statistical tools as regression analysis and canonical analysis. My interest, however, began to flag because of the inadequacy of the presentation of the subject, which largely accounts for my exasperation. In order to check my impression I looked therefore for a book on communications engineering. In so doing I lighted on a beautifully clear exposition of the fundamental topics described in the first three chapters of this book—a book by another Russian, *An Introduction to Statistical Dynamics of Automatic Control Systems*, by V. V. Solodovnikov.

In both books, the authors start from the assumption that their readers are engineers who are unacquainted with any statistical theory, but whereas Solodovnikov develops this theory in a clear, comprehensive manner which is both lucid and rigorous, Ivakhnenko and Lapa leave a great deal to the reader's imagination. There are numerous examples of new terms being introduced with inadequate explanation and sometimes none at all. Thus whereas Solodovnikov takes three carefully argued pages to define the concept of a stationary random process which is fundamental to both books, Ivakhnenko and Lapa consider that one short paragraph will do. On page 35 we meet "wide sense Gaussian" without explanation, and similarly we have "noise whitener" on page 58, "Wiener Hopf integral equation" (page 72), and "Hilbert spaces" and "projection operators" (page 70).

The diagrams are numerous but poorly reproduced,