

to intellectual communication among people of different experiences impoverishes us all, not least the narrow specialist himself. It is therefore particularly refreshing and valuable to have two books written by thoroughly professional economists in a way that makes them readable with enjoyment and profit by the layman. Their quality is a result, first, of professional competence itself, and, second, of the authors' ability to write about highly technical matters with great clarity. Both authors challenge in an exciting way some of the sacred cows that bedevil so much modern economic analysis and policy considerations.

Professor Myint's book is the paperback edition of his immensely valuable text-book first published in 1964. It has now run into its third edition and deservedly so. The author blends theory with great experience from field work in many parts of the world. He also makes full use of his knowledge of economic history, with the result that no casual catch phrase is safe in his hands. Concepts like "take-off", "vicious circle", "big push", "balanced growth", even "poverty" itself, do not look quite the same after his rigorous probing. And he brilliantly exposes the essential problems of choice that are so frequently conveniently overlooked in development policies. With a book so good it is all the more regrettable that opportunity was not taken in the third edition to up-date the few sections that required it. The reading list, for example, has had only one book added to it since the 1964 edition: surely Sir Arthur Lewis's *Development Planning* deserved a mention. Similarly, much has happened in the field of trade theory and policy since the 1964 UNCTAD Conference which deserved more than the short footnote allowed to it. Also there have been a lot of statistics on international aid since 1960.

Professor Macbean's study is much more specialized than that of Professor Myint. His challenge is to the widely held view that the less developed countries suffer from export instability with consequent serious effects on their domestic economies. He probes with great subtlety into the precise meaning of terms that are loosely bandied about; and his research into the experiences of Uganda, Tanganyika, Puerto Rico, Chile and Pakistan has led him to the conclusion that the importance of short term export instability for less developed countries has been exaggerated. Professor Macbean does not overstate his case: he raises important doubts. The policy implications of this are far reaching, particularly with the imminent gathering of trade experts at the forthcoming UNCTAD Conference to be held in New Delhi early in 1968. His book should be studied by all who are directly or indirectly concerned with this.

TOM SOPER

## SCIENCE FOR ALL

### The New Intelligent Man's Guide to Science

By Isaac Asimov. Pp. xvi+864. (London: Thomas Nelson and Sons, Ltd., 1967.) 63s. net.

For the layman, even if he is intelligent, scientific writing often has much in common with Monument Valley, Arizona. All too frequently it is an arid wilderness of apparently insurmountable pinnacles of technical jargon, and only in the regions between these has he any chance of getting to grips with the subject. Every so often, however, a leveller comes along who can bring these pinnacles crashing down and reveal their substance for what it is worth. Such levellers are, alas, all too few and far between. One such person is Professor Isaac Asimov, who has the even greater attribute of being able to sort out the pieces once they have been laid bare.

Asimov's latest venture is an extensive and drastic revision of his *Intelligent Man's Guide to Science*. By 1965 he had become embarrassed by the shortcomings of his first edition. He set out not simply to add a few paragraphs here and there, but to add whole new sections on topics such as quasars, exploding galaxies, rocket research, the no longer "inert" noble gases, the internal structure of protons and neutrons, solar and fuel cells, masers and lasers, the genetic code, and the structure of the protein molecule. He has succeeded in more than this, however, and has managed to harmonize scientific knowledge at mid-1965 and to bring all the results which accrued during the period 1960-65 into proper perspective with earlier knowledge and vice versa. The whole is a new and very successful work. Even though by profession he is a biochemist, there is a good balance between the physical sciences which he presents and the biological sciences.

What strikes one first about this book is the lucidity and simplicity of Asimov's writing and his great enthusiasm for science. He has the enviable knack of being able to explain succinctly even the most complex structure, reaction or relationship in plain language without being patronizing about it. His descriptions of masers, lasers and interferon, to mention but a few, are outstanding examples of his skill with words.

The information explosion continues to mushroom outwards and is no doubt already embarrassing Asimov again. Alone no one will ever be likely to cope with the full flood tide of scientific research. So long, however, as we have people like Asimov to describe crisply the advances in advances we shall at least know what is floating on it—and possibly even what is sinking.

R. J. FIFIELD

## Physical Science

### ATOMS FOR STUDENTS

#### Fundamental Atomic Physics

By D. H. Tomlin. (The Student's Physics.) Pp. ix + 658. (London and Glasgow: Blackie and Son, Ltd., 1966.) Cloth 85s. net; paperback 45s.

THE volumes in *The Student's Physics* series have a reputation for workmanlike thoroughness, and the present book will clearly maintain this reputation. It is divided into three parts. The first part concerns the more elementary experimental development of atomic physics, while the second—which is to be read concurrently—deals with classical theoretical physics as a background

to the wave mechanics, which are covered in the third part and occupy almost half the book. As regards content, the first and third parts follow mainly orthodox lines, while the second part deals with classical mechanics, wave motion including electromagnetism, statistical mechanics and the special theory of relativity. The main purpose of putting these topics between the same covers as a treatise on atomic physics should be to show how the new grew out of the old. Unfortunately, this occurs on far too few occasions, and as the treatment is too brief to be complete, it would have been better to omit the second part altogether.

The first problem that arises in the study of atomic physics and wave mechanics is that the concepts are new