

Bertrand Russell's Theories of Causation

By Erik Götlind. Pp. 164. (Uppsala: Almqvist and Wiksells Boktryckeri AB, 1952.) 16 Swedish kronor.

THIS clearly written manual is a good example of a type of composition the primary purpose of which seems to have been the clarification of the author's own mind on the complex subject of Bertrand Russell's treatment of causation. In fact, students of this theme will be grateful to Dr. Erik Götlind for committing his thoughts to print.

Dr. Götlind begins by remarking that Russell's concepts have changed periodically in consequence of the fundamental upheavals which have occurred in physics during this century. It is this 'functional' relation between the more theoretical aspects of natural science and philosophy which these pages are designed to emphasize. Thus, the plan of the book is to take Russell's major works *seriatim*, and to elucidate his view of causation as events unfold. For example, in 1912, he is still, in the main, anchored to classical mechanics, but seems to be contemplating an abstract form of action at a distance, in which acceleration is dependent upon configuration, at a given instant. By 1914, however, causal connexions can bring events into relation with one another, implying finite temporal extension, a property previously excluded. Again, it is interesting to recall Russell's reluctance to admit (in 1936) Heisenberg's principle; by 1948, much of it had been accepted.

In numerous ways such as these, we gain a valuable insight into the progress over the years of the notion of causal laws. F. I. G. RAWLINS

Selected Values of Physical and Thermodynamic Properties of Hydrocarbons and Related Compounds

Comprising the Tables of the American Petroleum Institute Project 44, Extant as of December 31, 1952. By Prof. Frederick D. Rossini, Prof. Kenneth S. Pitzer, Raymond L. Arnett, Rita M. Braun and Prof. George C. Pimentel. Pp. ix+1050. (Pittsburgh: Carnegie Press, 1953.) 7 dollars.

THIS massive progeny of "A.P.I. Research Project 44", a central agency of the American Petroleum Institute concerned with "collecting, calculating, and compiling data of interest to the petroleum industry, covering physical, thermodynamic, and infra-red, ultraviolet, Raman, and mass spectral properties of hydrocarbons and all related compounds", is, as its title reveals, a bench and office reference work—"tables of data . . . of greatest usefulness to engineers as well as chemists and physicists". It may be added that appeal is both to academic and industrial spheres concerned with petroleum and allied hydrocarbons. Components of this volume were obtainable on loose-leaf data sheets as distributed, once or more each year, when ready (the bound work is issued at five-yearly intervals), and this copy embraces all material on physical and thermodynamic properties up to December 1952.

The scope comprises an introduction containing constants, conversion factors and molecular weights of hydrocarbons. This is followed by tables of physical and thermodynamic properties; specific references for tables of properties; general references; index of properties; index of compounds; and finally publications of the A.P.I. Research Project 44. This is indeed scientific reference on the big scale, and it reflects unbounded credit on the team responsible for its achievement. Even if the reader in Britain is

unaccustomed to, or troubled by, the small, neat but reduced type in which the contents are displayed, he may be consoled by the fact that, had normal type been employed, this thousand-page volume would have been doubled or even trebled in size, with corresponding increase in cost. H. B. MILNER

Annual Report on the Progress of Rubber Technology

Institution of the Rubber Industry. Vol. 17. Pp. xii+174. (Cambridge: Heffer and Sons, Ltd., 1954.) 21s.

THE annual reports on the progress of rubber technology, issued by the Institution of the Rubber Industry, have established a reputation as a comprehensive source of information on current developments in every branch of the industry. The 1953 volume follows familiar lines. There are twenty-four sections, which include, in addition to the more obvious classes of manufactured goods, the problems of the plantation industry, the physics and chemistry of rubber, synthetic rubbers, textile fibres and fabrics used in conjunction with rubber, and the use of rubber in roads. Each of the sections is written by an expert in his field and contains a large amount of information in a highly condensed form.

Those sections which deal with the more scientific aspects of the subject are perhaps the least satisfying. The separate treatment, by different authors, of the chemistry and physics of raw rubber and the chemistry and physics of vulcanized rubber reflects an archaic outlook, and might with advantage give place to sections dealing with the chemistry of rubber and with the physics of rubber. This, however, is a minor criticism of a work which on the whole is well balanced, and which provides an excellent survey of present trends of technical development in the industry. L. R. G. TRELOAR

Wild Flowers of the Ceylon Hills

Some Familiar Plants of the Up-country Districts. By Thomas E. T. Bond. (London: Oxford University Press, 1953.) 17s. 6d. net.

THE purpose of this little book is to enable the non-botanist to identify, with the least possible trouble, the attractive flowering plants of the hill districts of Ceylon. To this end it contains an elementary key to a hundred and twenty species, mainly based on flower colour, supplemented by sketches of the plants themselves. The sketches are extremely important, since the preliminary subdivisions based on flower colour often involve the inspection of several—in one instance, no less than eleven—sketches in order to determine the identity of the plant.

On the line drawings, therefore, will depend the success of the book. These seem to be adequate for the purpose for which they were intended. The scale of the sketch is indicated by "the average size of the flowers (generally their diameter) in inches"; but there is no indication on the drawing whether the length or the diameter is meant, and it would have been better to have shown the reduction by a simple multiplying factor. The coloured frontispiece is poor: the colours are not correct, and there is no indication of size.

The letterpress is excellent, and a great deal of information about the plant illustrated, and often of other species, is given. The book can be recommended with confidence; it will very greatly add to the pleasure of visitors to the Ceylon hills.

N. L. BOR