

differentiation of the large-flowered open-pollinated species such as *O. hookeri*, *O. grandiflora* and *O. argillicola* took place by ordinary methods, the chromosomes all remaining as free pairs; secondly, the Pleistocene and especially post-Pleistocene period, during which chromosome linkage took place, followed by the production of a great number of self-pollinating forms with small flowers as the genus spread northwards after the last retreat of the ice. Thus, the method of evolution appears to have changed radically during the evolution of the genus.

The value given to the very numerous taxa, recorded by Prof. Ruggles Gates and others, in any taxonomic scheme can only be judged fairly by one who has made a special study of *Oenothera* and allied genera. Apart from the general true-breeding character of these taxa, it is certain that many differential characters are involved and that some or other of these are shown at all stages of the life-history from the young seedling to the final phases of reproduction. It is none too clear, however, as to how the author determines taxa as species, micro-species, sub-species, varieties, etc. It would have been interesting to have had from him at least working definitions of such categories as he uses within the genus *Oenothera*.

W. B. TURRELL

SCIENCE AND SCEPTICISM

The Way Things Are

By Prof. P. W. Bridgman. Pp. xi+333. (Cambridge, Mass.: Harvard University Press; London: Oxford University Press, 1959.) 45s. net.

IN this remarkable compilation the author gives us his views, frequently unorthodox, on Marxism, death, integrity, psycho-analysis, taxation, freewill, Red Indian languages, martyrdom, sovereignty, faith, military service, McCarthy, the economic status of the teaching profession, and the illogicality of women. Income tax provokes Prof. Bridgman's indignation as much as anything. "To me the thing that is hardest to bear is the obvious inequity of it all. I do not expect my neighbour to give to me of his goods because I need them more than he does—why should society compel me to give of my goods to society because society needs them more than I do, society being only all my neighbours together? Every time I pay my income tax I smart under a sense of unfairness as keen as that of the old militant suffragette, denied the right to vote merely because of her sex. I feel exploited and discriminated against on the basis of superior ability and industry. It is hard to keep away the bitterness."

The thread of the book is difficult to find, to understand and to follow. Bridgman contends that there is an "ineptness" in our thinking in the natural sciences, in psychology, and in politics. This is characterized in three main ways: all observations affect their subject-matter, no system can fully account for itself (Gödel's theorem is mentioned here), and all knowledge is private to the perceiver.

We cannot, laments Bridgman, "get away from ourselves". Even mathematical proof, he says, is a personal matter which cannot be communicated, and so mathematics is even less "objective" than chemistry or physics. If this is so, it is difficult to see how mathematics can be taught. Bridgman's difficulties over subjectivism and solipsism appear to rest on a

confusion between the acquisition of knowledge, which is a personal matter in the sense that a particular individual must make the observation, conduct the experiment or find the proof, and what it is that is found out, which may be as "objective" or "public" as you please. Some of Bridgman's discussions of concepts in the natural sciences, such as "particle" or "probability" are interesting and helpful; but there is an ineradicable crankiness about the book which, in view of the distinction of both the author and the publisher, is as surprising as it is regrettable.

C. K. GRANT

THE UNIVERSITY OF LEICESTER

New University

By Prof. Jack Simmons. Pp. 233+16 plates. (Leicester: The University Press, 1958.) 12s. 6d. net.

PROF. SIMMONS has made an admirable contribution to the growing library of books about the origins of modern universities. His first chapter is a neat and concise account of the widespread movement which has multiplied the undergraduate population in England by nearly fifty in less than 150 years. Against that background he tells with sympathy and candour the story of the University of Leicester.

It was fitting that Leicester should become a university town, for it is ancient, prosperous, trim and clean; and by the beginning of the twentieth century there existed in it strands of educational life waiting to be brought together in a university pattern. But it had rivals not far distant, and it needed "the liberality, the determination and the toughness" of a small group of men to set the pattern and weave the fabric.

The usual stages are recorded: Press correspondence, a local committee, outside advice, and the dramatic acquisition of a building. Then came squalls: the questions of 'federation' with Nottingham, of the local nature of the projected University College, of delay in the appointment of a principal. But on October 4, 1921, the College opened its doors to nine students and a staff of four.

In the following year it "made its formal bow to the public" and began to face the problems of adolescence. It had no smooth path, financial or academic, during the next fifteen years, and there was discontent, both within it and about it. But progress was made, until in 1945 the University Grants Committee recognized it for assistance from the Exchequer.

This was in effect a second start, and by 1950 the University College had more than 700 students with ten professors and an energetic principal. Building extensions and academic developments of considerable enterprise paved the way for independence; and in 1957 the charter of the University was granted.

So the last of the 'old university colleges' attained adulthood, and joined the ancient and distinguished band of institutions which grant their own degrees in full academic independence. Each of the members of this band has its own distinctive flavour. Prof. Simmons has put us all in his debt by his modest and fascinating chronicle of the advances and setbacks, the struggles and the victories of this sturdy new member of the university family.

J. F. WOLFENDEN