BOOK REVIEWS

Science and Society

Science, Man and Society. By Robert B. Fischer. Pp. viii+124. (Saunders: Philadelphia, London and Toronto, March 1971.) £1.25.

The Scientist's Role in Society: a Comparative Study. By Joseph Ben-David. Pp. xi+207. (Prentice-Hall: Englewood Cliffs, New Jersey, June 1971.) \$6.95 cloth; \$2.95 paper.

DR FISCHER observes that traditional science courses are organized around particular parts of the subject matter of science. They do not give insight into the relevancy of science to man and to society, when people have to face serious social and political issues in which science is a major factor.

Various approaches are being tried to remedy this situation. One is for the science faculties to turn the problem over to the faculties of philosophy and history. Dr Fischer dismisses this as "passing the buck", as it usually turns out to be no solution. Courses in science may be replaced with courses about science. He thinks this is liable to leave the student with no clear grasp of any important principle. Nor is he in favour of organizing science teaching around topical themes such as pollution: these are subject to fashion. His book contains the selection which he considers suitable.

He stresses that science is a dynamic, human activity, limited to things accessible to the senses. He warns against non-dynamic words such as "systematic" and "organized". The understanding of concepts is gained from experience, and, as Einstein says, "the whole of science is nothing more than a refinement of everyday thinking".

Dr Fischer quotes briefly sketches of Priestley, Cavendish and Faraday as contrasting scientific types. Then he compares the scientists of today with those of two centuries ago. They have more to learn, and even then are deeply acquainted with only a limited field. The long training uniformizes their knowledge and habits, to fit them for niches in the vast modern scientific activity.

He relates the present crisis in universities to the growth of science. The universities have become a complex of competing subjects and factions, described by Clark Kerr as the "multiversity", in contrast to the ancient "university". Some of the courses, intended to deepen students' general understanding of science, have increased their alienation. The more they know about

science, the less they like it. Man has got to the Moon, but not solved the problems of poverty and crime.

It is essential to emphasize that science is subject to man, who is a thinking, feeling, doing being. It is up to man to decide whether science shall be allowed to have dehumanizing effects.

Dr Fischer has written a wise and useful little book which should be helpful to many students, and their teachers.

What help is provided by Dr Ben-David's sociological monograph? He discusses the development of science especially in Britain, France, Germany and the United States. He says that "social conditions do not generate intellectual ability and moral responsibility, they only provide the conditions for their exercise". Accordingly, he interprets the foundation of modern science in seventeenth century Britain as due to people who found empirical natural science "a cognitive structure consistent with their interests in a changing, pluralistic and future-oriented society". The conceptual development of empirical natural science was, he says, quite independent of social circumstances.

In the society of twentieth century United States, the "enterprising system of universities working within a pluralistic, educational, and economic system has created an unprecedentedly widespread demand for knowledge and research and has turned science into an important economic resource". This system has encouraged scientific creativity for its own sake by creating a very wide foundation for pure research. However, the system is in a state of delicate balance between scientific and scholarly creativity and the demands of the economic and political powers. This balance is more delicate than elsewhere because "the pluralistic entrepreneurial structure and expansive system of science and higher education require a much greater involvement of the universities in the affairs of society. This is the price paid for the greater support of science and scholarship". A large section of American youth now receives university education in science. Consequently, "in spite of the greater decentralization of political and economic life", US universities have become "one of the most suitable centres of political activism".

Dr Ben-David believes that there was a comparative decline in British science in the second half of the eighteenth century. It is true that Newtonian science declined, but he does not see that that

was already no longer in the first line. The industrial revolution posed new problems, symbolized by the steam engine and the concept of energy, which led to modern physics. Science in Britain changed its direction, founding the line of the future. In France Lagrange and Laplace carried Newtonian science to its apogee, but they were completing old science rather than founding new. If the theory of gravitation is the scientific apotheosis of the British mercantile civilization, the theory of energy is that of the industrial revolution. Ben-David does not perceive in these major social movements examples of the prime forces which have created science.

He comments on the intellectual freedom in German universities in the nineteenth century, while they were the media for nationalistic and anti-semitic propaganda. He says: "it is difficult to determine with any certainty the reason that so many of the 'liberal' elements accepted this situation". Then, he remarks that in the early 1930s "the visiting scientists saw the German university in the light of its ideal self: as a seat of the purest learning for its own sake and an unequalled centre of overall excellence".

In fact, as a visitor to Germany at that period, I was painfully struck by the gap between the high Berlin scientific life and the brutalities done to and by the rank-and-file population. The reason why German scientists put up such a poor show against both German imperialism in the nineteenth century and Nazism in the twentieth was that they had a false philosophy. They believed that "science" was a thing in itself, an affair of the "scientific community", an exalted intellectual endeavour, above the vulgarity of common affairs. Dr Ben-David's book illustrates why "passing the buck" to the sociologists also provides no solution of the problem of science, man and society.

J. G. CROWTHER

Objective Sense

Rationality. Edited by Bryan R. Wilson. (Key Concepts in the Social Sciences.) Pp. xviii+275. (Blackwell: Oxford, November 1970.) £2.75.

ALTHOUGH this collection will particularly interest investigators who regard human actions or utterances as a necessary part of their data, those with a general interest in the nature and scope of scientific thought should also find it rewarding. The contributions represent