GEORGE F. KNELLER, *Science as a human endeavour*, New York, Columbia University Press, 1978, 8vo, pp. ix, 333, $17.45.

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Though he makes no reference to it, Professor Kneller's theory of the origin of scientific knowledge and its change in time is almost identical to that found in Adam Smith's essay on the history of astronomy published in 1795. It is a theory based on the concept of irreducible psychological attributes. Because of its confusion, raw nature evokes fear in the observer and so the mind strives to bring order to this chaos, whence scientific theories, and in turn the reduction of mental distress. The problem with this explanation, however, is that it assumes the existence of a mythical pre-social man who does not have any ordered vision of nature. But all men everywhere are socialized into a perception of natural order. Fear and wonder, it might be argued, are the fruits of ordered knowledge that indicates which bits of nature are to be avoided and which bits are to be reverenced.

Professor Kneller, however, does not devote a great deal of space to this theory in a book which is in many ways the most useful and lucid review of the various histories and philosophies of science available in the academic supermarket. He clearly explains and assesses most of the major orthodox philosophies of science and illustrates them with a wealth of historical examples. These in general are well thought out though occasionally he provokes a shudder in the reader: "Aristotle's theory of a fixed scale of species of increasing perfection was refuted by Darwin's theory of evolution" (p. 130). He also deals at length with terms that are usually unexplained, such as model and law, and thus provides a volume that should prove a valuable introductory textbook.

But besides displaying these consumer goods the author is also a salesman and beneath the patter of disinterested description he is anxious to sell his own brand of science. It is not difficult to discern what this is, especially when an author usually concerned to be fair dismisses peremptorily Marcuse and Habermas. Science is a rational progressive enterprise "affected less than most pursuits by forces in the social and cultural world in which it is done" (p. 215). Kneller's philosophical descriptions of science turn out, as usual, to be not very helpful to the historian. Take rationality, which "seems to consist in believing or doing things for good reasons" (p. 48). A proposition evidenced by the counter-example of the irrationality of "British physicists who dismissed Faraday's ideas of the electromagnetic field [and who] had minds closed by their Newtonian training. As a result of their indifference Faraday broke down and died early, and the advance of physics was delayed for a generation" (p. 50). There is not much that could be further from a sensitive historical understanding of men's reasons for acting the way they did. Similarly the account of the "Sociocultural background" is couched largely in the language of "influences", an approach which it might be suggested has not been very helpful to historians of science insofar as it has led them to write two histories, the history of a science, and the history of influencing factors. These caveats aside, however, *Science as a human endeavour* is a valuable guide in a bewildering jungle.