

BOOK REVIEWS

Paradigms and Policy

Science Studies: Research in the Social and Historical Dimensions of Science and Technology. Edited by Roy MacLeod and David Edge. Quarterly. Volume 1, Number 1. Pp. 115. (Macmillan: London, January 1971.) £5.00 annually; £1.50 each copy.

"SCIENCE," one might feebly quip, "is too serious a matter to be left to the scientists." The time has come for historians, philosophers, sociologists, economists, and the like to tell us what we are really doing and what we ought to do. The past decade is notable for the ascent into academic consciousness of a new interdisciplinary discipline—the study of science itself. *Science Studies* is to be a vehicle for the publication of scholarly articles on this subject. It is very welcome: may it flourish.

As every sociologist of science now knows, a new journal signifies the budding of a new invisible college. With active groups already established in several universities, we may anticipate rapid growth for the darling child. It is perhaps worth enquiring into its parentage and prospects.

On the distaff side, we observe the ancient scholarly house of History and Philosophy of Science, whose lineage may be traced back at least to Francis Bacon and Bishop Sprat. Here already there is no lack of journals, conferences, paradigms and pundits—not to mention perennial controversies of the kind exemplified by David Bloor's Essay Review of the Kuhn-Popper tourney. No great disrespect is intended if I suggest that this sort of thing is certainly most interesting to those interested in this sort of thing, but that it has not quite lived up to its high ideal of throwing floods of light on the scientific enterprise.

The other proud parent is sociology, whose cloud of pedantic polysyllables has begun to envelop the scientific community. Shrewdly handled, the professional headlamps of social enquiry can illuminate many features of the scholarly life—for example, the "norms" of scientific behaviour, or the means by which controversies are controlled. Unfortunately, conceptual schemes originally devised for the analysis of the role structure of the Navajo Indians are not quite adequate when applied to a tribe of astrophysicists and molecular biologists. Nor does a quick gallop through the conventional literature, as in R. G. A.

Dolby's "Sociology of Knowledge in Natural Science", leave one with a 'Eureka' feeling (sorry—having experienced an *Aha-erlebnis*). J.-J. Salomon on "The *Internationale* of Science" is pleasant, but also unprofound, at the level of high-brow journalism.

Or is the brat a bastard born of practical expediency? Science costs money, and has become a decisive factor in the economic and political domain. Problems of "scientific choice", which used to be settled discreetly in the basement of the *Athenaeum*, now erupt into the public eye. Expertise on cost benefit analysis, technological forecasting, international administration and other useful arts has become essential equipment for the worldly scientist and his political allies. This is the "Real World of Science Policy" in which K. Kreilkamp sets the *Hindsight* project, and the screen on which D. J. de S. Price projects his logistic extrapolations of the exponential growth curve, with typical numeracy. It is also the arena of moral concern and political ideologies described so vividly and appositely by P. G. Werskey in his historical account of "British Scientists and 'Outsider' Politics, 1931-1945".

The genesis of this journal therefore presents splendid opportunities for hybrid intellectual vigour. Let us cross Kuhn with Price and put numbers into the paradigms. Polanyi's idealism and Werskey's realism would protect Mertonian sociology from the fungus of academicism. A few Popperian genes might mask some of the lethal mutations of neo-Marxist social relevance—and so on. Above all, let us have more from active scientists—men and women who know from experience the joys and pitfalls of the search for a philosophy of nature. The editorial board is too heavily loaded with professional "Science Studies" scholars. What about Blackett and Medawar, Zuckerman and Weisskopf, Kothari and Salam, who have made science policy themselves and understand it quite as well as the academic analysts and commentators? "Science Studies," one might retort, "are too serious a matter to be left to the Students of Science."

My real fear is that the infant will be fattened on a pappy diet of "normal" philosophy, history and sociology, spiced with jolly little enumerations of the trees of citations in molecular biology. It should be brought up as a spartan, to digest hard lumps of logic and linguistics, developmental psychology and economic statistics, and to

strive manfully with such invincible opponents as scientific education, technological responsibility and national development. Many clichés of the conventional wisdom are waiting to be challenged, and many heretical concepts are demanding to be adopted. "Science" is a fit topic for the most diverse scholarly techniques, but the mere fact of its "importance" is not enough to justify flabby thought and implausible speculation. I hope, therefore, that the editors will take their duties seriously, and will give this journal a reputation for sharp-minded, diverse and original work on which we may lean with some confidence in the exercise of our communal profession.

JOHN ZIMAN

Costing Education

An Introduction to the Economics of Education. By Mark Blaug. Pp. xviii+363. (Allen Lane, The Penguin Press: London, November 1970.) £3.50.

It is interesting to ask whether or not education and science contribute to economic growth. Put like that, of course, the question is absurd, but it can be broken up into meaningful parts. To these much more specific questions, specific answers can be given, on the basis of extremely detailed studies of the content, structure and relevance of particular bits of education and science to actual situations. Of course, such answers will be based on a general structure of ideas. Natural scientists may suspect, but they probably do not usually know, that the structure of ideas in such disciplines as economics, history, and (say) textual criticism is different from—though allied to—the structure and organization of thoughts to which they are accustomed in their own disciplines, though, of course, it is incorrect to believe that there is a single general corpus of "science" that can be teased out from the individual disciplines of biology, physics and so on. Economics is not a science in the sense in which physics is; and those who assert that it is—the advocates of so-called "positive" economics—are as partisan as (though usually less frank than) those who take a more complex view of what their discipline actually is.

In education—itself a collection of highly disparate activities—economists can seek to analyse what has been spent, and what its consequences in the economic sense have been, and they can