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978-0-521-13634-1 - Puzzles, Problems, and Enigmas: Occasional Pieces on the Human
Aspects of Science

John Ziman

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Puzzles, Problems and Enigmas

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Philosophers have measur'd mountains,
Fathom'd depths of seas, of states, and kings,
Walk'd with a staffe to heav'n, and traced fountains:
But there are two vast, spacious things,
The which to measure it doth more behove:
Yet few there are that sound them; Sinne and Love.

George Herbert

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JOHN ZIMAN, FRS

*Puzzles, Problems and
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OCCASIONAL PIECES ON
THE HUMAN ASPECTS OF SCIENCE

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APOLOGY

It would be idle to pretend that the book reviews, radio talks, public lectures and other pieces reprinted in this volume make a connected discourse. All that they have in common is the broad subject of modern science, seen as a multifarious human activity. This subject is now much discussed in many different circles, but I am not sure that all the notions introduced in these pieces have been totally discredited, or have yet become totally familiar. This is the only motive, beyond the normal vanity of an author, for having them republished.

In my first thoughts about this volume, I had it in mind to select various passages from the original articles, and to link them into an ostensibly integrated work. But when I sat down to the task, I realized that I would then be committing myself to a substantially new book; almost every sentence would have had to be rewritten to fit smoothly into the flow of the argument. Although such a work might be much more satisfactory than what is offered here, I could not feel that the labour would be well applied: better to start afresh upon a narrower and more modest theme than to attempt to fashion whole cloth out of such a patchwork.

The style of thought and exposition that is appropriate to each such 'occasion' is not suited to a larger, more deliberate theme. If these pieces are adequate as essentially journalistic sallies, this is because they were composed individually and read best as separate pieces. Indolence and literary vanity combined to instruct me to leave each piece in its original form, omitting only a few short passages dealing specifically with the books being reviewed. I have not attempted even to embed the various articles into a more comprehensive structure of editorial notes and explanations; they are all written plainly enough to be self-explanatory, and are sufficiently robust to stand up for themselves in open debate.

The advantage of the occasional piece, stimulated by some good or bad book or by the invitation to lecture to some special audience, is that it offers the opportunity to explore some particular aspect of the larger sub-

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ject unhampered by an obligation to make one's findings seem to fit into a consistent overall scheme. It would be difficult, for example, to conceive a unified book that would include such interesting but disjoint topics as the philosophy of theoretical physics, technical problems of the dissemination of scientific information and what James Watson said about Sir Lawrence Bragg in *The Double Helix*. Yet each of these is a significant aspect of the scientific life, worth study in its own right. The best I could do was to sort the various pieces into rough categories, indicating their approximate relevance. This ordering, although not obviously unique, is at least more rational than a chronological sequence by date of original publication.

As might be expected, there is quite a lot of overlap between various pieces. In particular, I found myself advocating, again and again, the idea of science as a cooperative activity, first put forward in 1960 ('Science is Social', Chapter 6) and later set out at length in *Public Knowledge* (1968) and *Reliable Knowledge* (1978), both published by the Cambridge University Press. If the perceptive reader diagnoses mild monomania on this topic he is quite right; for me, at least, this idea is the key to many of the intellectual, psychological and social phenomena about which this book is mainly concerned, and I shall continue to press this point of view until it has been shown to be decisively wrong. Since academic history, philosophy and sociology have been moving in much this direction during the period since that article was written, I am not too fearful now of being put away for not being of sound mind.

Another major theme – the professionalization and 'industrialization' of science in the past half century – was also expressed quite forcibly in 1960 ('Scientists: Gentlemen or Players?', Chapter 15) and has dominated my more 'political' writing ever since. In these essays I have taken for granted the evidence for this historical transformation; a more direct account of the actual process will be found in *The Force of Knowledge* (Cambridge University Press, 1976). Here again, scholarly and lay opinion have flowed in much the same channels, so that what is reprinted here now seems quite tame and conventional by comparison with the views of some of our contemporary intellectual *avant garde*.

Rereading these pieces one by one, I did not find myself in total disagreement with my own opinions of some years before. This is disconcerting; in the intellectual sphere, transformation by reassessment is a higher virtue than consistency. What made me even more uneasy is the tendentiousness of much of the writing; such confident opinions expressed so

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positively, with so little hard evidence, on so many subtle questions. The collection, as a whole, is too journalistic, and lacks scholarly precision.

But this is not, I would submit, entirely my own fault. As suggested at several points in this book, the sociology of science is fragmentary and quite inadequate to its potential scope. On many of the topics here discussed, there is very little hard evidence available. In such circumstances, there is something to be said for raising problems, posing questions, and even positively asserting speculative theories, as a guide or a provocation to real scholarly efforts. My excuse for not having made such efforts myself is that almost all the material in this book was written in my 'spare' time, at home in the evenings or at weekends, on trains or in aircraft, away from the daily (if not specially onerous) duties of a full-time member of the academic staff of a distinguished British university.

I am grateful to various journals and other authorities for permission to republish these articles: all such sources are acknowledged as they occur in the text. Once again, it is a pleasure to thank my secretary, Mrs Lilian Murphy, for typing and retyping so many pages of wild and woolly manuscript, and for keeping tabs on the various articles as they were published. As for the conventional expression of appreciation of my wife and family: I know they really do understand and forgive that horrible itch for scribbling that has taken me down to my study, away from them all, for so many evenings over so many years.

Bristol, April 1980

J M Z