The Research Excellence Framework (REF) generally inspires frustration and despair in equal measure. Certainly the broad consensus is that, like its 'RAE' predecessors, it will reflect a thin assessment of academic research according to narrow economic and utilitarian criteria, which are not only inappropriate to arts and humanities disciplines, but fail to acknowledge the intellectual and cultural value of such research. Such concerns are sufficiently widespread and well-rehearsed that little more needs to be said about them here. However, there is one feature of the REF, implicit but surely present, which should be of particular interest to historians of science, science communicators, and members of allied disciplines: namely, its implicit 'technocratic' values and imperatives. There are, I suggest, two specific problems.

The first is that the REF's commitment to quantifiable 'impact' will disvalue the work of historians of science. Consider the September 2009 HEFCE document 'Research Excellence Framework: second consultation on the assessment and funding of research'. Towards the end of its 53 pages, the report discusses that notorious term, 'impact', apparently to reflect economic and industrial concerns, such as increased commercial funding for academic research, movement of personnel between industry and academia, and new saleable products and techniques. However, there is also mention of cultural enrichment, including improved public engagement with science and research.

Appeal to 'cultural enrichment' may promise a ray of light for historians and communicators of science who see their own work as a contribution to public engagement with science - for instance, by detailing the complexities of scientific thought and practice. However, such optimism seems to be ill-fated. HEFCE's suggested 'possible indicators' for measuring 'cultural enrichment' include: 'Increased levels of public engagement with science and research (for example, as measured through surveys); Changes to public attitude to science (for example, as measured through surveys); Enriched appreciation of heritage or culture (for example, as measured through surveys); and 'Audience/participation levels at public dissemination or engagement activities (exhibitions, broadcasts and so on)' (and positive feedback there from). Such remarks suggest that HEFCE's conception of successful public engagement with science and research consists in statistics upon museum attendance and increased audience shares for the BBC Horizon programme, and not of greater understanding and appreciation of the complexities of science as a cognitive, practical, and social activity.

The proposed valuation of academic history of science research according to increased 'public engagement' as measured by quantifiable standards is an impossibly narrow criterion of value. Museums could increase their visitor statistics by redesigning their exhibits to be less intellectually-demanding - 'learning lite'. Such a move would hardly increase public understanding of science, but it would show up on a statistical record of visitor numbers. Similarly, science communicators could employ the cheap publisher's trick of selling outrageous claims. Any resulting books would contain little of intellectual worth, but could well have admirable sales figures. Such examples might seem spurious, but they are all plausible consequences of an REF process which insists on admitting only quantifiable values into its considerations.

The problem that the REF creates relates to the fact that 'understanding' and 'appreciation' simply are not quantifiable in the way that visitor numbers, book sales, audience figures, and so on are. Many of these intellectual values - 'wisdom', 'knowledge', and so on - simply cannot be captured by quantification, statistics, and other metrologies. As such, they are unlikely to find much currency within the REF as HEFCE is currently conceiving of it, despite the fact that these are the values to which historians of science - and, for that matter, all academics - are committed. And, which, one hopes, they are keen to promote to the general public. 'Understanding' may be difficult, perhaps impossible, to measure or quantify, but that does not diminish its value. However, since the REF, insofar as we can tell, cannot acknowledge these non-quantifiable values, this difficulty seems likely to persist. This will interfere with the work of historians and communicators of science because it imposes external procedural and financial constraints upon their activities.

The second problem is that the REF's technocracy may threaten the disciplinary integrity and autonomy of historians of science. One aim of the REF, across its incarnations, has seemingly been to restructure academic research according to its contributions to British economic interests, either directly, through the creation of new businesses and products, or indirectly, by facilitating greater involvement of science and technology across the public sphere. Within this technocratic scheme, historians of science may be pressurized, subtly or not, to propagate on behalf of the sciences and technologies that form the new core of British economic activities, rather than to engage in critical historical studies - exploring science, 'warts and all'. Our function would be to sing praises, rather than impartially assess; to act as zealous heralds, rather than cautious critics. One conceivable future, and a grim one, would see historians of science making an enthusiastic return to Whig historiography, or, more simply, in the mass exodus of historians of science to other departments abroad.

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