

Introduction

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The *British Journal for the History of Science* was founded just over thirty years ago. Since then, the best work in the field – much of it published in these pages – has typically focused on specific episodes and settings. The depth of treatment of technical issues has increased dramatically; the level of sophistication in dealing with the wider historical literature has been transformed. In many ways, locating knowledge in precise contexts of time and place has been the principal accomplishment of historical studies of science since the late 1960s. Science, traditionally the epitome of transcendence, has been brought down to earth.

These new perspectives have created the need to rethink the most basic narrative categories (such as the ‘Scientific Revolution’) that historians of science inherited from the post-war pioneers of the discipline. The striking lessons of recent research need to be applied to longer time spans, a broader range of participants, and wider regional and global perspectives. The five essays in this issue discuss ways of moving towards this goal – and whether it is possible or even desirable. They derive from a one-day meeting at the Science Museum in London on 8 May 1991, sponsored by the British Society for the History of Science, and entitled ‘Getting the Big Picture’. Contributors were invited to be speculative, sketchy, polemical and provocative. Even when the original talks have been revised and expanded, they remain provisional reports. If the essays are (inevitably) programmatic, they are all based on years of practical experience in lecturing and supervising. Their aim, as with the conference itself, is to open up questions and stimulate debate.

At the level of secondary and university education, the lack of up-to-date surveys and general analyses in history of science is widely perceived as scandalous. As several of the contributors note, most of our introductory texts are decades old. Even such standards as the early volumes of the Cambridge History of Science series appeared twenty years ago (i.e. before most of their targeted readership was born) and are badly showing their age. As a result, students and lecturers struggle with books that give a poor sense of the contemporary significance of approaches to knowledge grounded in history. It is not surprising that uninitiated outsiders often find work in history of science myopic, antiquarian or simply irrelevant.

This is true even for histories of individual scientific disciplines, a genre with a distinguished tradition reaching into the eighteenth century. Take the creation of physics during the past two centuries. Here is a historical field which has been transformed since the early 1970s, with a literature of monographs and articles that is sophisticated, subtle and full of significant debates. Yet there is no readable, up-to-date survey that can be

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assigned with confidence – let alone a variety of competing accounts that might allow a wide audience to appreciate the issues from different points of view. Interested readers either have to dive into specialist monographs and articles, which few have the time or the knowledge to do; or they have to depend on books, often written by journalists or practising scientists, that reflect little of the interest found in the specialist literature.

There are important initiatives underway to improve this situation. In terms of discipline-oriented accounts, the in-progress series being edited by Roy Porter, and published by Fontana in Britain and Norton in the United States, is very promising. Earlier this year, the British Society for the History of Science devoted an afternoon meeting to the issues raised by the series. The discussion underlined the difficulty of balancing accessibility with the analytical sophistication of current research. Clearly, it is vital that the foundations of works like these are carefully thought through. Otherwise there is a danger that the important revisions of recent years will simply be slotted into conventional large-scale narratives that drain the analysis of any real edge.

The problem is not only a pedagogical one, for these inherited narratives inevitably structure the choice of topics for doctoral dissertations, monographs and articles. Thus much of the revisionism of the new history of science is aimed at subjects (e.g. Darwin, Newton, Faraday) whose significance continues to be defined by an agenda grounded in criteria of heroic discovery (e.g. natural selection, universal gravitation, field theory). The canon needs to change, but more importantly, so do the questions that historians ask.

Developing new big pictures is thus likely to have consequences not only for teaching, but for renewing the research enterprise itself. Like many academics, however, historians of science tend to assume that any writing on a scale beyond the monographic must be aimed at producing textbooks. At its worst, a textbook is seen to involve little more than summarizing other people's little pictures to provide an uncontroversial big one. Such an activity is common in other areas of history and in the sciences, both of which have huge introductory classes and disciplinary traditions with ready-made narratives. Writing textbooks in these fields pays well, but is viewed with suspicion as an easy option.

But big pictures should not be confused with textbooks. The authors of the essays in this issue, like several of the contributors to the Fontana/Norton series, recognize that recasting the history of science will be far from straightforward. After years of expert demolition by specialists, the established stories in the field – from the origins of science in ancient Greece to the Darwinian and Einsteinian 'revolutions' – are in ruins. Most researchers have grave doubts about the viability of a 'Scientific Revolution' in the seventeenth century, although the concept remains central to the public presentation and image of the discipline. As a result, a construct founded on the primacy of method, genius and heroic discovery continues (albeit awkwardly) to organize a body of specialist literature devoted to criticizing the coherence of such concepts. Designing another kind of account is proving a difficult challenge.

Similarly, several of the following essays point to the central importance of the decades around 1800 for the sciences, both in Europe and in terms of their export to other parts of the world. Unfortunately, the significance of this period is scarcely evident to anyone who approaches the literature for the first time. The fact has to be teased out from a dozen histories of chemistry, geology, physiology, natural history, optics and electricity. For

general accounts of this transformation, we still live in the shadow of Michel Foucault and T. S. Kuhn, whose writings are now three decades old.

Confronting issues on the large scale, over long periods or a wide geographical range, means engaging in debates in social, political, economic, literary and feminist theory. It means tackling complex questions concerning class, gender, religion, nationalism and modernization. It involves drawing not just on the specific findings of art historians, literary historians, environmental historians or students of material culture, but becoming familiar with the practices that are central to these and other disciplines. Above all, 'getting the big picture' demands the breadth of vision and sense of perspective that must underlie any successful historical writing, no matter how focused. Without engagement in larger issues, our small pictures are inevitably impoverished.

Just as Hollywood will never go back to making the wide-screen westerns of the 1950s, there is little likelihood or desirability of returning to the sweeping narratives characteristic of academic writing in the cold war. Essentialist stories of science as the central actor in a drama of triumph or disaster, will be replaced by a focus on questions, debates and contests for authority. The most successful accounts will be those that hold these partial perspectives and situated knowledges (as Sandra Harding has called them) in tension. As John Christie points out in the opening essay, it is a daunting agenda, but not a utopian one.