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English Science, Bacon to Newton

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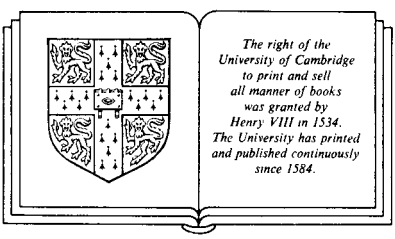

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In Memoriam
Charles B. Schmitt
1933–1986

Preface

When the publisher invited me to prepare a volume on seventeenth-century English science for this series, my first idea was to cover the period from Bacon to Newton, that is, from the 1620s to the 1670s. After working on this idea for some time I came to realize that it would involve reprinting a number of texts in which Bacon's ideas were repeated and re-formulated but without being taken further, either through the classic Baconian recipe for science, a combination of observations and experiment resulting in the formulation of new scientific laws, or by a critique of Bacon's work from a fresh point of view. There was much discussion of the Baconian plan for science in the 1640s and 50s, in the circle around the Puritan educational reformer Samuel Hartlib; in a group connected with Gresham College, London; and in another group associated with John Wilkins at Wadham College, Oxford (groups whose membership overlapped), discussions and movements admirably documented by Charles Webster.[1] But they yielded very little of what Bacon called light and fruit, new experiments and new discoveries. Nor did they contribute very much to the topic that this series aims to illuminate, the nature of English prose.

On further thought, then, it seemed better to shift the centre of interest to the 1660s, one of the most fruitful decades in the history of English science, when the social and political stability created by the Restoration (see Sprat p. 173 below) encouraged the institutionalizing of science – although, of course, there were still scholars who had a large enough private income to work outside institutions. Starting from the 1660s would enable me to cover the foundation of the Royal Society, and to include the work of its three most prolific and gifted members, Hooke, Boyle, and Newton. (Of the other leading lights, Wren published very little, and John Ray issued his major works in Latin.) Since virtually all these natural philosophers ("scientists" is an anachronism, strictly speaking, but almost unavoidable) expressed their intellectual debts to Bacon, and since Sprat made him the Society's inspiration, the frontispiece to his *History* giving his bust the place of honour beside its royal patron, Charles II, it seemed

legitimate to begin my anthology with two excerpts from Bacon himself, one a seminal account of the organization of a scientific research institute, the other a no less important statement of the way in which experiments should be written up. The introduction, accordingly, begins with an account of Bacon's influence on seventeenth-century science. This is history written, as it were, from the Royal Society's own perspective, for Sprat declared that there would have been no better preface to his *History* than "some of [Bacon's] writings".

Focusing on the 1660s had the other advantage of allowing me to include two documents frequently invoked in discussions of the relations between science and language, Sprat's account of the new prose style that the Royal Society had supposedly instituted, and Wilkins's project for abolishing language in favour of an "unambiguous" sign-system. I have not just endorsed received opinion on this issue, for my own analysis of the evidence leads me to question whether Sprat's reform ever took place, and to suggest that his remarks should be understood in more specific contexts involving the incorporation of the Royal Society into the ruling establishment of church and state, and the role of English as an adequate language for science.[2] The prose style of Joseph Glanvill, often described as an instance of these reforms, turns out on closer inspection to be more ambivalent, as the Appendix will show.

For these reasons this anthology begins with Bacon but then moves on to the 1660s and 70s, rather like the Prologue's description of the re-arrangement of history in *Henry V*, "jumping o'er times" in order to "digest" a play. Bacon's influence is seen throughout, not least in the way in which experiments came to be written up. One influential strand in recent history of science has been the recognition that the written-up experiment seldom represents the scientist's experience "raw", with all its false starts and misconceptions, as Kepler's long autobiographical narratives had done. Rather, the archetypal scientific paper arranges its material so as to suggest a frictionless process of formulating a problem, testing it, and producing meaningful results after a reasonable amount of time and effort. Modern scientists have described this as a mythical and misleading process of constructing scientific knowledge by burying failures.[3] Whatever our position on this issue, the work of Bacon, Boyle and Newton was influential in establishing this model for subsequent science. If this anthology had a sub-title it would be "The prose of experiment". That, at any rate, was the tradition I set out to document, fully aware that it is not the whole story of seventeenth-century science. But it was an important part,

and more than any other ties up with our wider interest in the course of English prose.

I should like to thank Terry Moore of C.U.P. for his patience and encouragement; Nancy-Jane Thompson for her skilled copy-editing; and my assistant, Dr Margrit Soland, for invaluable help with preparing the manuscript and correcting proofs. For any remaining errors I am alone responsible.

Just as we were going to press news came of the tragically early death of my friend Charles B. Schmitt, a great loss to the History of Science and Renaissance studies. This book is dedicated to his memory.

Note on the texts

Words denoted by an asterisk will be found in the Glossary at the end of the volume.