

Preface

It is always difficult to know which of those individuals who enjoy great prominence in their own time will go on to become part of the continuing cultural awareness of later generations. As scientists go, having one's name attached to a major discovery generally ensures survival, and those scientists who have been with us continually since the nineteenth century—such as Michael Faraday, Charles Darwin and Lord Kelvin—all have great discoveries to their credit. Yet who today, outside the domain of professional historical and scientific scholarship, knows about Sir John Herschel, William Whewell and William Buckland: men who made no world-changing discoveries, but who in their time commanded the highest international esteem as profound interpreters of science?

It is to this latter group that Mary Somerville (1780–1872) belongs. By the time of her death she basked in a reputation as an *interpreter* of science and of scientific culture (as distinct from a *populariser*) that embraced Europe and America, and her four major books were seen as masterly and original elucidations of the most complex scientific ideas of the age. Furthermore, she came to her conclusions not after a long and elaborate university education—for as a woman, all the normal channels of higher education were closed to her—but rather her achievement rests on the extraordinary tenacity and determination of her own self-education: from the secret girlhood reading of 'banned' mathematical books, which her well-meaning father believed would turn her mad, to her adult grappling with the highest branches of French mathematics.

Yet what was so conducive to Mary Somerville's career was the very openness of British science in the eighteenth and nineteenth centuries. Unlike the countries of mainland Europe, the creative heart of British science—especially in astronomy, the physical sciences and geology—lay not in formal national academies or state-funded universities and research institutes, but in the innovations and social relations of financially independent private scientists. These Grand Amateurs, or private 'lovers' of science, formed a remarkably open-ended community, in which if a person had originality and genius, the absence of a professorship or a university degree was of little consequence.

This world of private scientific gentlemen, with its sociable house-parties, dinners and soirees, could also be accessible to talented women, and a cultured and socially adroit person like Mary Somerville found relatively little difficulty in moving within it, especially as her work was fully supported by her second husband, Dr. William Somerville, F.R.S. This was, after all, the social world of Jane Austen, and later, Anthony Trollope. Imagine *Emma* and *Barchester Towers*, with the addition of science. It is a world which runs through this book.

Following her death in 1872, Mary's reputation as a female intellectual was such that her name was adopted by Oxford's new women's college, Somerville, in 1879. Yet though her name, portraits and papers were perpetuated and curated by the College, and she was revered as a female role-model, the detailed memory of her scientific achievements gradually slid from prominence. But given what has been said above about the nature of scientific fame, this was perhaps understandable; for there was no Somerville's Law or Somerville's Equation to keep her name in contemporary scientific textbooks. And as time passed, her brilliant interpretations of Laplace, physical science and geography slipped into obsolescence. She was clearly aware by her eighties, moreover, that the Newtonian and Laplacian celestial mechanics, which had stood at the very pinnacle of physics in 1830, were no longer at its forefront. The new science of astrophysics had come into being during the early 1860s, and the spectroscope offered a multitude of exciting new ways of expanding our knowledge of the Universe—such as the exploration of the chemical composition of stars and nebulae—beyond the exact calculation of orbital dynamics. In this respect, therefore, Mary Somerville's science had ceased to be in the ascendant, and one suspects that her subsequent historical neglect was related to this fact.

In 1873, the year after her death, her daughter Martha Somerville brought out the published version of her *Personal Recollections*, which was an edited and tidied version of the two manuscript autobiographical drafts that Mary had composed during the 1860s, and which are now preserved in the Bodleian Library, Oxford. In the published *Personal Recollections*, Mary emerges as a rather iconic figure—a role model for younger women to follow, and living proof of what intelligence and determination could achieve. She is always cool-headed, knows how to act whatever the circumstances, is energetic, and deals calmly with whatever life throws at her.

Yet while her daughter had carried out a certain amount of 'smoothing out' of her mother's life, one still finds, when looking at her manuscripts and private papers, that the woman who comes through them is essentially the same Mary Somerville as she whom one encounters in *Personal Recollections*. For she was a tough-minded, cool-headed and courteous individual with a pleasant disposition. She was also a great beauty whose looks survived well into middle age, as well as a woman who believed that 'femininity' counted for more than 'bluestockingism', and who loved dresses, theatre and balls just as much as she loved higher mathematics.

But it was the cruel and contemptuous treatment of the vulnerable and of the underdog that truly aroused her anger. Those men who were cruel to women, or else

believed that women were uneducable, provoked a heated response, along with those who were cruel to animals, or to the wild birds, which she so loved. One of the most scathing passages in her published *Personal Recollections*, for instance, was reserved for the French anatomist Dr. François Magendie, for she ‘detested the man for his wanton cruelties’ practised upon the animals used in his physiological experiments (pp.192–193). On such occasions, one glimpses Mary Somerville’s aroused passion, and can easily imagine what words and turns of phrase might have strayed from her lips. Yet those very traits which might have detracted from her posthumous role-model status in 1873 only make her more full-blooded and appealing to a modern reader.

Although Mary Somerville never lost her power to inspire intellectual young women—especially through the Oxford college which bore her name—it was not until the 1970s that serious research into her life and career began. The first notable scholarly treatise was the late Dr. Elizabeth Patterson’s Oxford doctoral thesis, completed in 1980; and she also produced a 44-page monograph, *Mary Somerville 1780–1872* (Oxford, 1979), which, as part of Somerville College’s centenary celebrations in 1979, surveyed the whole of Mary’s career. Dr. Patterson then turned her doctoral thesis into a masterly book, bearing the title, *Mary Somerville and the Cultivation of Science, 1815–1840* (1983), which examines the formative and most intellectually significant years of Mary’s scientific career before she and her husband and daughters ‘retired’ to Italy.

New insights into Mary’s life were also provided in Dr. Mary Brück’s article ‘Mary Somerville, mathematician and astronomer of underused talents’ (*Journal of the British Astronomical Association*, 106, 4 (1996), 201–206), in which it was argued that due to the circumstances of the age in which she lived, Mary Somerville was never able to achieve her obvious potential as an original research scientist. Then, in 2001 Sarah Parkin completed her ‘Mary Somerville (1780–1872): Her Correspondence and Work in Chemistry’, submitted as a one-year Chemistry Part II thesis for the Oxford University M.Chem. degree, and dealing with Mary Somerville’s interests in photochemistry and spectroscopy.

In the same year, a new critical edition of *Personal Recollections* was published, with a prefixed title borrowed from one of Mary’s obituaries of 1872: *Queen of Science. Personal Recollections of Mary Somerville* (Canongate Classics 102, Edinburgh, 2001). The editor of *Queen of Science* was Professor Dorothy McMillan, of Glasgow University’s English Department, and with this book, Mary Somerville’s *Personal Recollections* became easily available for the first time in well over a century. Its critical and biographical apparatus greatly amplifies Martha Somerville’s edited text of her mother’s autobiography, and its index further provides a merciful accessibility to a text which in its original 1873 printing had only an itemised title-page, in consequence of which it was often infuriatingly difficult to locate specific individuals and events. *Queen of Science* also restores those sections of autobiography in Mary Somerville’s own hand, which Martha removed from her mother’s original drafts, and which presented a less perfect image of the woman—such as her proving to be a very willing pupil when, as a child, being taught to swear by her army officer uncle (p. 9)—than a Victorian female icon-builder may

have desired. These clearly marked sections, reincorporated from the original autobiographical drafts preserved in the Bodleian Library, Oxford, portray Mary as a more rounded and robust individual, though they in no way detract from her genuine likeableness. Perhaps what they show most of all are changing tastes in how different generations like to imagine their heroes and heroines: as carefully crafted icons conforming to type, or else as three-dimensional people, seen ‘warts and all’. Even so, there are remarkably few warts on Mary Somerville. There was no scandal, no impropriety (apart from her beliefs, originally perceived as outrageous, about the capacities and potential of women), and a great deal of good nature and good company.

This book is in no way meant to be a definitive biography of this remarkable scientist. Instead, it is intended to make her life, achievements and scientific context available to a wider world, and hopefully, stimulate more scholars to undertake research into those original documents—including hundreds of letters—preserved in the Somerville Papers in the Bodleian Library, Oxford, and in the archives of the Royal Society.

My own interest in Mary Somerville really began in the early 1990s when I was researching my *Victorian Amateur Astronomer. Independent Astronomical Research in Britain, 1820–1920* (1998), in which her work is discussed. Then, in 1999 I was invited by Somerville College to speak on Mary Somerville at one of its Literary Lunches; and out of the interest generated from that lecture, delivered in June of that year, the present book came to be written. Reading through her letters, travel narratives, and those autobiographical drafts, which comprised her *Personal Recollections*, I became fascinated not only with the achievements and personality of Mary Somerville, but also with the scientific and broader social culture in which she lived and moved. It is my hope that the following pages will convey this fascination to the reader, help to place Mary Somerville into historical context, and to thereby interpret for a twenty-first-century audience the life of one of the greatest interpreters of science of the nineteenth century.



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