
Preface

Because of her father, Augusta Ada Byron, later Countess of Lovelace, was a figure of romance and fascination within her own lifetime. Recently, for more complex reasons but partly because of her connection with a very different sort of man, she has become such a figure once again.

The first man, the poet Byron, so dominated the attention focused on her during her life that the mere consciousness of this connection was enough to shape her existence and even those of her children, who continued to be marked as "Byron's Grandchildren." Byron himself, who had no direct contact with his daughter after she was one month old, began the process of mythologizing their bond by using her to wrap around the third canto of *Childe Harold's Pilgrimage*, the autobiographical epic whose first two installments had established his celebrity. From then on, few biographical notices or memoirs of either father or daughter, published, or unpublished—and including those intended for very unpoetical audiences—were considered complete without the garnish of one or more of these sentimental but rather vacuous verses.

So the process of mystification grew. Disraeli, who knew even less of her than her father did, made her the eponymous heroine of his novel *Venetia*. Later she figured in a number of short biographies, prepared for popular consumption, of Byron's female connections (not including his mother, who had a reputation for being stout and unattractive). Ada was fortunate, nevertheless, in that her treatment as the subject of a full-length biography was reserved for last, even after those of her putative half-sister Medora and her unhallowed half-sister Allegra, who was only five years old when she died. She was even more fortunate to fall to the hands of an excellent Byron scholar, Doris Langley Moore.¹ Mrs. Moore, furthermore, had for the first time full use of the Lovelace Papers, by far the most important primary

source of information about Ada's life, character, and abilities. In spite of, or perhaps because of, her access to this voluminous collection, Mrs. Moore's study was shaped very strongly by the obsession with self-justification that had led Ada's mother, Lady Byron, to create and preserve so many of the papers, and by her own countervailing interest in defending Byron's character and conduct. Because of this focus, and from her candidly owned lack of scientific training, Mrs. Moore accepted without examination the conventional and current assessment of Ada's ability and achievement as a mathematician and interpreter of the designs for the first modern computer.

Charles Babbage, the early-nineteenth-century polymath who first dreamed up the plans for such a computer, which he called an "Analytical Engine," is the man through whom she has been accorded most of her posthumous renown. No less apocryphal, that part of her legend was also initiated and promulgated in his autobiography by the man himself. There Babbage claimed that when Ada announced that she had translated from the French an article by L. F. Menabrea about his proposed machine, he had asked her "why she had not herself written an original paper on a subject with which she was so intimately acquainted." He then persuaded her to add some notes, for which she selected and worked out the mathematics of the illustrative examples, "except indeed that relating to the numbers of Bernouilli [*sic*] which I had offered to do to save Lady Lovelace the trouble. . . . The notes of the Countess of Lovelace extend to about three times the length of the original memoir. Their author has entered fully into almost all the very difficult and abstract questions connected with the subject."²

Succeeding generations of historians and computer specialists have built upon Babbage's generous tribute and its even more generous implications. In the manner of all mythology, elements have accreted to the story that have only tenuous connection with the original. The author of *The Computer Prophets*, for example, tells us that "Ada invented binary arithmetic in order to make Babbage's work more understandable to the public."³ Yet it was not Ada but her granddaughter, Judith, Lady Wentworth, who independently thought up a method of binary arithmetic in order to assist her calculations of the bloodlines of the Arabian horses she bred.

Some of the more romantic flourishes can only have originated in the imagination, such as the contribution of Christopher Evans in *The Making of the Micro*:

She exerted an encouraging and stabilizing influence on him [Babbage]. . . . She set out to study his designs for the analytical engine in depth, filling in any blank spots by pulling them out of his head in conversation. She had money and time on her side . . . but even so it was a few years before she got it all together. When she did, she published everything in a long series of "Notes" entitled "Observations on Mr. Babbage's Analytical Engine" . . . and Babbage himself said she "seems to understand it better than I do, and is far, far better at explaining it." . . . The real significance of her Notes was probably the effect they had on Babbage. He . . . had rarely bumped up against anyone who approved of what he was doing, let alone understood it. What was particularly gratifying to him was that Lady Lovelace had taken the trouble to study his theoretical approach with the eye of a mathematician and had found no flaws in it.⁴

Perfectly sober scientists have written about Ada in a surprisingly fanciful vein. Philip and Emily Morrison, whose collection of Babbage papers, *Charles Babbage and His Calculating Engines*, has been a prime source book on the subject for over twenty years, write in their introduction:

The Countess thoroughly understood and appreciated Babbage's machine, and has provided us with the best contemporary account—an account which even Babbage recognized as clearer than his own. . . . She shared with her husband an interest in horse racing, and with Babbage she tried to develop a system for backing horses; Babbage and the Count [*sic*] apparently stopped in time, but the Countess lost so heavily that she had to pawn her family jewels.⁵

In the course of time Ada's two connections to fame have become intertwined. Before the publication of Moore's biography, Mabothe Moseley's almost perversely inaccurate, distorted, and fabricated biography of Babbage was often used as a source of information about Ada in her Byron mode.⁶ Since then Mrs. Moore has been taken as an authoritative source by Babbage historians. Anthony Hyman, for example, in *Charles Babbage, Pioneer of the Computer*, accepts and repeats Mrs. Moore's assertion that Ada's quarrel with Babbage arose because the latter believed her Notes "too important merely to be appended to a translation of someone else's work,"⁷ rather than, as the correspondence of both makes clear, because he wished to append a defense of his own.

My interest in Ada originally stemmed from her computer connection. Around 1972 a friend who was a computer specialist mentioned her now-famous "Translation and Notes," and assured me that in it

she had produced a sophisticated and polished computer program—the first in the world—and that no comparable, similar, or related work existed, either published or among her papers, leading up to or following this unique achievement. I was at once filled with a craving to see for myself the papers and correspondence, which few people at that time had looked at with the question of the origins of such an achievement in mind. As a psychologist with an interest in thinking and reasoning, and as a former computer programmer, I hoped that a careful examination would shed light not only on this particular mystery of creativity but also on the more general processes of the acquisition of mathematical concepts and the assimilation of technical innovation, which have so often been probed without success by both psychologists and scientists themselves.

As it happened, I was not able to examine the unpublished papers until 1980. Before that, however, a study of both the published translation and the original Menabrea memoir had raised a number of questions in my mind about the conventional assessment of Lady Lovelace's contribution, and had impressed me with the significance of her curiously ignored translation of a printer's error. My eventual perusal of the Babbage Papers in the British Library, the Lovelace Papers and the Somerville Papers, both on deposit at the Bodleian Library of Oxford University, and other letters of Ada's that came to light in scattered locations did indeed answer the first of my purposes, but made the others moot. New mysteries and questions about Ada's life and her involvement in the science of her time continually arose, the solution of one puzzle always leading to another.

I was fascinated, and my study continually widened. To read these documents is to explore a museum of the social, intellectual, and medical history of the early Victorian period, as well as to tread a tantalizingly parallel path along Ada's search for the truths that would free her of her mother's Truth. I had entered a world both self-examining and perplexing, eerily familiar and startlingly strange: Babbage obtains government grants to build his calculating engine and has a scheme to send messages along wires strung from the tops of church steeples; doctors diagnose their women patients as hysterics, and prescribe opium and bleeding as cures; the effects of hypnosis are attributed to suggestibility, and to a cosmic magnetic fluid; Lord Lovelace worries about overpopulation, unemployment, and the dangers of giving working people the vote; Lady Byron discusses the state of the American money market, and questions the wisdom of abolishing slavery; Ada and her husband skate on artificial ice, but must plan their journeys so as not to tire their horses; Ada swears unabashedly,

gamble, and takes a lover, but feels constrained to buy her books and geometry models anonymously.

Nevertheless, a second biography within a decade, of a figure whose achievement turns out not to deserve the recognition accorded it, requires some justification. My study diverges from Mrs. Moore's in a number of ways. The areas she felt unable to explore—the mathematical, the scientific, and the medical—are central to my treatment. For this reason alone, I have been able to clear up a number of puzzles and misinterpretations about Ada's life and activities. To take one example among many: Ada's "curious letters" to Augustus De Morgan, "enquiring, speculating, arguing, filling pages with equations, problems, solutions, algebraic formulae, like a magician's cabalistic symbols,"⁸ turn out to be a correspondence course in calculus, in which he was tutoring her. Another example is my conclusion that Ada's "self-exaltation" and "religious mania" were not caused, as Mrs. Moore suggests, by the opium she ingested; rather, they were the symptoms of a condition for which opium was employed as treatment.

I have been fortunate in the course of my work to have come upon several previously overlooked documents that have helped to resolve certain questions even as they raised others. Stumbling across Woronzow Greig's memoir of Ada's confidences, for example, revealed her vaguely-alluded-to adolescent "misconduct" as an attempted elopement with her tutor. A chance reference, by a mutual acquaintance, to a scholar working on the life of an obscure New Zealand missionary and naturalist started me on a course of detective work that produced a likely candidate for the identity of the tutor; later discoveries, however, have made it necessary to discard my hypothesis, and his identity remains a mystery. Again, close attention to Ada's essays and scribbles revealed not only the unsuspected range of her scientific and literary interests but also the complexity of her relationship to the mysterious John Crosse, about whom it was then necessary to discover a good deal more. But Mr. Crosse vanished, until I chanced to come across a reference to the sea-change his name had suffered.

More important than differences in subject matter, emphasis, and sources, however, are differences in interpretation. Ada's correspondence with her gambling partner, Richard Ford, for example, reveals to me less about the existence of a "mathematical system" for betting on horses than about her role as ringleader, rather than dupe, of her confederates. And again, my conclusions concerning the causes of the failure of Ada's aspirations to a scientific career are very different from the traditional ones that Mrs. Moore accepts.

Important differences in interpretation can arise on a surprisingly concrete level, as well as on the more general one where the reading of the evidence is agreed upon. For example, accepting the tradition that Ada was being blackmailed by “a group of unscrupulous racing men,” Mrs. Moore interprets a letter from Lord Lovelace to Ada concerning her aborted meeting with an “extortioner” as relating to such blackmail and as demonstrating that her husband was aware of it long before the period when other references to her gambling begin to appear—in spite of the fact that this letter stands in unexplained isolation from any similar references. But if the blackmail tradition is rejected in the absence of any other evidence in its favor, it is easier to recall that, while Ada’s survivors may have been blackmailed as a result of her activities, she herself was vulnerable to extortion as a result of her father’s—and then this otherwise inexplicable letter slips into its context.

The most important lesson I learned in the course of my investigations is that there is no substitute for inspection of the original documents. In some cases, examination of the original can reveal what even a photocopy might tend to conceal. It sometimes happens, for example, that letters or other papers are dated not by the writer, or at least not at the time of the writing, but years later, and by the recipient or his heirs, very possibly inaccurately. A difference in the inks used, not revealed in a copy, will often show up on inspection of the original and provide the clue to this practice even when the handwritings are too similar to be distinguished. Thus some puzzling distortions in the course of events can be eliminated. A rarer and more striking instance of the extra information to be gained by handling the original documents occurred in the case of a letter that has been interpreted as a cryptic message from Ada to Babbage, perhaps pertaining to a gambling conspiracy. Inspection reveals that a page has been partially torn away, and a slightly newer blank piece of paper of similar color carefully glued in its place. (This is a frequent practice of the librarians at the British Library in preparing damaged documents for use.) It was the interruption of the text, caused by the missing piece, that made the message seem so strange.

All this is true even if published letters or extracts are accurate copies of the original texts, which is by no means always the case. Every student or scholar sometimes makes mistakes in transcribing, and some make more than others; every book has its share of printer’s errors. Many of these mistakes may be trivial, but in at least one instance a mistaken transcription may have started a new tradition. In a pair of notes apparently written on 18 June 1846, Ada urged

Babbage to introduce her to a certain countess, whose name was reiterated several times in the course of the two letters. Mrs. Moore, thinking, as always, of references to Byron, reads this name as “Countess Italia-Italia” and surmises that it was the Countess Teresa Guiccioli, Byron’s mistress during the last years of his life, whom Ada longed to meet. She hesitates only because there is no evidence that this countess was in England at the time. In his biography of Babbage, Anthony Hyman adopts Mrs. Moore’s suggestion with little of her hesitation. Yet Ada’s handwriting is quite clear, and strikingly distinctive to anyone who has studied any sample of it. What she has clearly written in this case is not “Italia-Italia” but “Halen-Halen.”

Who was the Countess Halen-Halen? I don’t know. There was a Spanish general named Juan van Halen, Count of Pericampos, who led a colorful career in the first half of the nineteenth century, and had a wife alive in 1846, but there is nothing else to indicate that she was the lady in question, and I know of no other likely candidates. Mabothe Mosely, who had preoccupations of her own, read the name as “Countess Harley-Harley” and assumed it was a reference to Countess Harley Telecki, Babbage’s friend in later life. This lady, however, could not have been more than ten years old at the time, and certainly not yet married to Count Telecki.

The second lesson I learned involved the unreliability of all manner of sources when taken in isolation, including first-hand reminiscences and personal memoirs. We tend to forget that our ancestors, like ourselves, could lie, forget, make mistakes, omit, mislead, and be constrained by kindness or politeness to the dead. “*De mortuis nil nisi bonum*,” said Babbage, “appears to savour more of female weakness than of manly reason”;⁹ yet he himself was much influenced by it, especially where Ada was concerned. And the dead have been known deliberately to plant false contemporary documents with an eye on biographers of the future. Lady Byron in particular was a consummate practitioner of this art, but the memoirs of personalities as diverse as Mrs. Crosse, Mrs. Somerville, and Mrs. De Morgan, when checked against the surviving body of contemporary evidence, can all be seen to contain significant errors.

Perhaps the most disconcerting discovery was that standard reference works too, being at best only as good as their sources, can be shot through with false information. A useful check is to look in each for information already known from another source. *British Family Antiquity*, published in 1809, for example, and *Collins’s Peerage of England*, of 1812, both fail to list William King, the future Lord Lovelace, among his father’s children, although he was the eldest. The former lists Lord

King's brother as heir presumptive, while the second notes the birth of William's brother, six years his junior, in 1811, and designates him heir. The author of the first work, moreover, claims to have checked the manuscript of the entry for each family with its head in order to correct any errors it might contain. No wonder Lord Lovelace was convinced his father disliked him!

Nevertheless, standard reference works remain useful for checking, or sometimes bringing into question, information found in other places. For example, various writers, including Woronzow Greig, who conducted his own investigation, at different times and in different places have asserted Byron's descent from the Scottish royalty. According to *The Scots Peerage*, however, of the two princesses who have been named as forebears, one, Princess Jean, daughter of James II, did not exist. The other, Princess Annabella, daughter of James I, was the second wife of the Earl of Huntly, whereas Byron's ancestor, Huntly's third son, was almost certainly the offspring of his third wife, Elizabeth Hay. Thus, the claim of royal descent, for the purpose for which I wished to use it—that of tracing the possible transmission of a hereditary disease—must be treated as uncertain at best, even if this means that no satisfactory conclusion can be reached on this point.

The use and even the reliance on some secondary sources is of course unavoidable. I have tried to use them with caution and have confined their use as much as possible to background material. Of the secondary sources available, I have selected a few to rely on that present views compatible with those I have arrived at in interpreting the primary materials I worked with; and I have avoided discussing vexed questions that might be of great interest but to which I could contribute little.

Many of the letters and other documents used were undated, or only partially dated. For example, the year was often missing. In the frequent cases where the year could be guessed to within a decade or less by means of other evidence and the day of the week as well as the month and day were given, the year could be determined by using a perpetual calendar. Surprisingly few writers have employed this device, with the result that many letters have been interpreted out of sequence. To be sure, the dating method just given is by no means infallible, since even where full dates are given, there is an occasional mismatch between the day of the week and the rest of the date. Consequently, I have tried to check all dates against internal evidence—references to public or private events, the use of names or addresses that changed at known dates. Sometimes, certain phrases or locutions provided clues, when they tended to be used frequently

by the writer at certain periods but subsequently dropped out of use. An example is Ada's frequent reference to herself as a fairy during the mid-1840s.

Just how much to present of the evidence underlying my arguments and interpretations presented a problem. I have tried not to encumber the narrative excessively, at least on most points. Many of the steps in some of the chains of inference by which I have reached conclusions, made assertions, or accepted statements are omitted or relegated to the notes. Nevertheless, I have considered it important to present within the body of the text a general indication, and occasionally a detailed illustration, of the type of detective work upon which my construction of events and character is based.

In all the quoted material, the original spelling has been retained, although the punctuation has occasionally had to be altered slightly in the interests of intelligibility. It has been necessary to make many elisions to eliminate extraneous material that might obscure the point under discussion, or simply try the patience of the reader beyond endurance; many of the writers and correspondents were astonishingly verbose. A few nonessential phrases have been retained simply for flavor, however, and I have tried not to make elisions that in any way would alter the original purport of the quotation.

In organizing the exposition, I have been torn between the advantages of thematic and chronological presentation. While the former suits more closely my intention to center my study on particular issues, the latter conforms more naturally to the expectations of the reader of a biography, and obviates such confusion as might result from the practice of skipping back and forth in time. The major drawback of the chronological form is the expectation that all types of ground will be covered, including much that has been adequately dealt with elsewhere, to which I have nothing new to contribute; with the thematic form, on the other hand, one risks presenting a distorted and out-of-perspective view of the subject's life. I have chosen to compromise, with the result that each chapter overlaps others at least partially in time, while the focus of the narrative is shifted to another important aspect or issue. In the process I have tried to construct a biography that may be read independently of any other work, yet with an emphasis on areas that, while vital to the subject and crucial to the understanding of her life, have received inadequate treatment elsewhere.