

THE INTERNATIONAL PUBLICATION HISTORY OF *CONVERSATIONS ON CHEMISTRY*: THE CORRESPONDENCE OF JANE AND ALEXANDER MARCET DURING ITS WRITING

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Abstract

Conversations on Chemistry was one of many books on physical and biological sciences which appeared in Britain from the beginning of the nineteenth century. There was a considerable market for public lecture courses, and writers and publishers encouraged this with books, often intended for self-study. *Conversations on Chemistry* was one of the most successful books of this type, going through sixteen editions over about fifty years, and being widely copied, adapted and translated, often for audiences very different from that to which it was originally directed. An account of the genesis of this book based upon the notebooks of the author's husband, Alexander Marcet, has been published, but here we provide further information and insights, based upon the unpublished extensive correspondence of Jane, both with her husband and with her acquaintances, and on the original publisher's archive.

Introduction

Jane Marcet's two-volume *Conversations on Chemistry*, published first in 1806 (1) was one of the most influential chemistry books ever written. An analysis of how its content changed through its publication life has recently been published (2). However, the book poses a question which few have formally asked: what were the qualifications of a female author in Britain at the begin-

ning of the nineteenth century to write such an attractive, informed and authoritative account of contemporary chemistry? She was not a chemist, and never claimed to be, and even those who might have identified Jane Marcet (née Haldimand) as the author would have realized that in 1806 she was a woman in her early thirties who had hitherto betrayed no interest in the science. She was from a wealthy family with social connections of the highest order, yet she wrote a book on a subject of which she apparently knew nothing, and she wrote it for the benefit of other women, for whom she had previously displayed little concern. Jane Marcet was an unlikely pioneer in the popularization of chemistry, and of sciences, for people in general, let alone for women.

Several articles and books have been written about Jane Marcet. She was highly respectable and very conventional and was in no way a pioneer for female equality with men. A biography (3) and biographical accounts (4) are available, and recently an account of *Conversations* itself has been published (5). However, the original book, like several others of the period, was written primarily for self-study. Chemistry as understood today was not widely taught in Britain in schoolrooms or universities until years later than 1806 (6).

The initial twelve editions did not name the author, merely stating that it was written by "a lady." This was not unusual, as many women such as Charlotte Bronte also discovered, because British "ladies" did not write

books, except perhaps those containing advice on household management. Jane Marcet's name appeared first on the thirteenth edition of 1837. The excerpts cited below from the Preface common to these "anonymous" editions explains why she wrote the book. The format, a series of conversations or dialogues between a teacher/tutor, Mrs. B, and two girls, Emily and Caroline, was unoriginal and at the time no longer in great favor. British society of the time might have found a male teacher more realistic, so that the teacher in the book being a woman was also a novelty. Mrs. Marcet's own drawings were also used to prepare the engravings which appeared in the first edition.

In venturing to offer to the public, and more particularly to the female sex, an Introduction to Chemistry, the Author, herself a woman, conceives that some explanation may be required; and she feels it the more necessary to apologise for the present undertaking, as her knowledge of the subject is but recent, and she can have no real claims to the title of chemist.

On attending, for the first time, experimental lectures [at the Royal Institution], the Author found it almost impossible to derive any clear satisfactory information from the rapid demonstrations which are usually, and perhaps necessarily, crowded into popular courses of this kind. But frequent opportunities having afterwards occurred of conversing with a friend on the subject of chemistry, and of repeating a variety of experiments, she became better acquainted with the principles of that science, and began to feel highly interested in its pursuit. It was then that she perceived, in attending the excellent lectures delivered at the Royal Institution, by Sir Humphry Davy, the great advantage which her previous knowledge, slight as it was, gave her over others who had not enjoyed the same means of instruction.

As, however, there are but few women who have access to this mode of instruction, and as the Author was not acquainted with any book that could prove a substitute for it, she thought that it might be useful for beginners, as well as satisfactory to herself, to trace the steps by which she had acquired her little stock of chemical knowledge, and to record in the form of dialogue those ideas which she had first derived from conversation ...

In writing these pages, the Author was more than once checked in her progress by the apprehension that such an attempt might be considered by some, either as unsuited to the ordinary pursuits of her sex, or ill-justified by her own imperfect knowledge of the subject. But, on the one hand, she felt encouraged by the establishment of those public institutions, open to both sexes, for the dissemination of philosophical knowledge, which clearly proves that the general opinion no longer excludes women from an acquaintance with science.

These excerpts betray no false modesty, yet Jane Marcet conveyed to an early nineteenth century British public the essence of the "French chemistry" which became the basis of the modern science. The "friend" referred to in the preface was certainly her husband, Alexander, and her admiration for Davy was genuine. She was one amongst those, many of whom were ladies, who flocked to his lectures at the Royal Institution in Albemarle Street, London.

The account of her life written by Harriet Martineau (7) shows that Jane was very intelligent and highly regarded, even when writing on subjects about which she had little first-hand knowledge. She evidently impressed many people, including Charles Dickens who noted her self-control and wisdom (8). The principal stimulus to write about chemistry was almost certainly her marriage in 1799, which clearly widened her horizons to include a group of intellectuals who were excited about the burgeoning sciences of chemistry, biology, geology, and economics. In addition, many ladies of her social standing were certainly interested in the new sciences, as the Royal Institution lectures showed. Jane Marcet became a key figure in the popularization of scientific developments in Britain and Europe in the first half of the eighteenth century. Nevertheless, it is surprising that in a list (9) of "important family dates" which she provided for her family, Alexanders's death in 1822 is not mentioned, though she did mention deaths of several others, including that of her great uncle Sir Frederick Haldimand, once British commander in North America, of her grandfather Haldimand, of her brother Frederick, of her father Anthony Francis, and of her son Frederick in 1817.

The Publishing History of *Conversations on Chemistry*

The archive of the publishing company principally used by Jane Marcet, Longman, Orme, Brown, Green & Longmans (the precise selection of partners in the company varied from time to time), currently housed at the University of Reading (UoR), throws a light both upon many aspects of British publication methods at the beginning of the nineteenth century and upon Mrs. Marcet's contribution to the production of her own books. The first edition (Table 1) was printed in 2 volumes of 1000 copies each in December 1805, though the cover date is 1806. The contract between the publishers and the Author is not in the UoR archive. In any case, it would have been with her husband rather than with Jane herself. The printing production costs amounted to £243/14/9 (£243.72) and

this included £44/13/9 (£44.67) for advertising. Of the 1000 copies, 972 were eventually sold at £0/8/10 (£0.42) each, generating an income of £429/6/0 (£429.30). One copy was sent for review, one copy was sent elsewhere, but 26 copies in all were sent to Dr. Marcet, Jane's husband then of some six years standing. Longman's yield from the production amounted to £184/7/11 (£184.40). The amount forwarded to the author was half of this, £92/3/11 (£92.20). In all the negotiations, Dr. Marcet represented his wife, and it is unlikely that she received any money directly.

Table 1. The publication dates and print runs of the various editions of *Conversations on Chemistry*, data abstracted with permission from the Longmans Archive at the University of Reading, Berkshire, UK.

Year	Edition or Impression	Print Run
1806	First edition	1000
1807	Second edition	1000
1809	Third edition	1500
Not recorded	Fourth edition	Not recorded
1813	Fifth edition	1500
1817	Sixth edition	1500
1819	Seventh edition	1500
1822	Eighth edition	1500
1824	Ninth edition	1000
1825	Tenth edition	2000
1828	Eleventh edition	2000
1832	Twelfth edition	1500
1837	Thirteenth edition	1000
1841	Fourteenth edition	1000
1846	Fifteenth edition	1000
1852	Sixteenth edition	1000

The second edition, also 1000 copies, was produced in December 1807, and the publisher's sales of the succeeding editions provided a steady income until 1856, though they ceased to be profitable after 1851. By that time Mrs. Marcet had an established reputation as an author of much more than *Conversations on Chemistry*. She died in 1858, and her son Francis (Frank) then received any royalties from the sale of her books. When Francis died in 1883 his will specified that the royalties should then go to his own son, William. Jane's authorship of *Conversations on Chemistry* was publicly known long before the thirteenth edition of 1837 (10) which was the first to bear her name.

It is evident that even in the early 1800s publishers were sending copies for review and advertising was listed as a considerable part of the production costs. Complimentary copies were also distributed; for example, a copy of the second edition was sent to a Mrs. Lowry, probably Delvalle Lowry, a female mineralogist of considerable reputation, who published a book, *Conversations on Mineralogy*, openly modelled on Jane's books both in style and presentation, as acknowledged in its Preface (11). Copies of the third edition of *Conversations on Chemistry* were sent to a Mr. Edgeworth (whether Lovell Edgeworth or his son is not clear) and also to Dr. Smithson Tennant, who had had considerable input. Overall, despite its widespread reputation, a total of fewer than 24,000 copies of all editions were printed in Britain (2).

Jane's books were also widely read in the United States of America (12, 13). *Conversations on Chemistry* ran through twenty-three editions there, with a further twelve editions of an "imitative text" derived from it. It has been estimated that 160,000 copies were sold in the United States before 1853 (13), many more than were sold by the British (legal) publishers. The imitative texts and perhaps the direct copies were presumably written without Mrs. Marcet's or the British publishers' permission, since copyright laws were either more flexible than today, or non-existent. One consequence of her initial anonymity was that her books were often ascribed to others, which must have aided her US imitators, who had no scruples about appending their names to the title page (12). The US editions also carried additions that detailed US chemistry developments, such as artificial mineral waters and the "pneumatic cistern at Yale College." By 1818, a version of the fourth British edition seems to have been edited by an "American gentleman," possibly J. L. Comstock. A further development was to add questions for the aspiring student, which echoes books for home study produced about that time both in Britain and the United States. By 1831, one Thomas P. Jones was producing *New Conversations on Chemistry*, written "On the foundations of Mrs. Marcet's *Conversations on Chemistry*." The British editions did not bear Jane's name until six years later. Jones's version itself ran through several editions until 1850 (12). A detailed account of the US history of various manifestations of *Conversations on Chemistry*, copied or ascribed misleadingly to new (male) authors, was published as early as 1927 (13).

French and German translations were also numerous. The French versions seem to have called the tutor Mrs. Bryan rather than Mrs. B, and a Mrs. Bryan was indeed a contemporary of Jane and a teacher and

popularizer of science. Confusingly, the catalogue of the Bibliothèque Nationale in Paris actually lists just a single work ascribed to Mrs. Bryan, *Conversations on Chemistry*, though this is clearly Jane Marcet's work. In 1809 the first French language edition was published in Geneva (14), though those who undertook the translation were members of Jane Marcet's Swiss family. It was followed by several other versions, some of which were straight copies, others adaptations. For example, a close translation, *Les Entretiens sur la Chimie d'après les Méthodes de MM. Thénard et Davy*, appeared in 1826, but without the name of an author, though with a picture of Thénard as the frontispiece. It is highly unlikely that either Thénard or Davy had anything to do with it. In this version, Emily became Gustave, Caroline remained Caroline, and Mrs. B became Mme. de Beaumont. It may be only a coincidence that Mrs. Marcet's son Frank married Amélie Beaumont in 1827. A German translation by Runge, *Unterhaltung über die Chemie*, appeared in 1839, but it was clearly attributed to "Mistress Marcet," and her thirteenth English edition of 1837. The German translation did not have the great success of the French and English versions.

It is not easy now to assess the public reception accorded to *Conversations on Chemistry*. Contemporary reviews are difficult to find. However, the Swiss journal *Bibliothèque Britannique*, which specialized in publicizing developments in science and technology in Great Britain, contained a long and complimentary review of the first edition (15). This was written by Charles Gaspard de la Rive, who was a friend and admirer of Jane, and of her husband. This gives some idea of the general response to its publication, at least in Switzerland.

The Genesis of *Conversations on Chemistry*

For Jane, marriage to Alexander in 1799 introduced her to a new set of acquaintances and a new set of interests, especially in science and in political economy, and Alexander was to prove the catalyst to her writing. Jane met people concerned with science, such as Beddoes, Smithson Tennant, Davy, Faraday, Berzelius, and the Somervilles, husband and wife; politicians such as Lord Lansdowne and Sir Samuel Romilly; and various foreign philosophers associated with the Genevan diaspora, including Prévost and de la Rive. She also met the economists Harriet Martineau, Ricardo, Malthus, and Say, and writers and educationalists including Maria Edgeworth, Maria's father, Richard Lovell Edgeworth, and Sydney Smith.

As the study of Alexander's notebooks by Dreifuss and Sigrist (16) has shown, Alexander was a key figure in helping Jane to write *Conversations on Chemistry*. The notebooks detail how the idea of Jane's book was developed by both of them over a period of some years. The text of *Conversations* should be regarded as a joint effort, though Jane certainly wrote much of it independently. Dreifuss and Sigrist (16) quote Alexander's reflections upon the part he played in the genesis of *Conversations*. He wrote that if he were asked what he had done towards the book, he would not easily be able to answer. He stated that his wife had the original idea for the book, and the text was all her own. He had provided the original material and finally checked the text. What we do not learn from Alexander's notes is what Jane felt about all this.

Much of the extensive correspondence between Jane and Alexander is now held in the archive Papiers de la famille Marcet in the Bibliothèque de Genève. The letters throw additional light on Jane's individual contribution. Items copied, with permission, from this archive are denoted by the letters BGE in this text and references. The correspondence covers the period from about 1799 until Alexander's death in 1822. This archive includes letters generally written when the already married couple were apart for extended periods, as happened first in 1801.

The letters confirm that Alexander encouraged Jane to write her book, and that he asked several of his colleagues and friends from his own student days in Edinburgh, especially John Yelloly, and Peter Mark Roget (the inventor of the Thesaurus), and also Smithson Tennant, to check the manuscripts for him. Jane continued to ask Roget for help in revisions after Alexander died. In addition, Jane maintained strong contacts with her Geneva family and acquaintances in Geneva, such as the de la Rives and the Prévosts. They evidently helped her in her endeavors after Alexander died, for example, in biological sciences, in which he had been, in any case, unqualified.

The origins of *Conversations on Chemistry* date to 1801 though the first edition is dated 1806. Once Jane and Alexander were married, she clearly decided to study chemistry with Alexander, who was writing lectures which were to be delivered to medical students at Guy's Hospital, London. He had studied the "French chemistry" of Lavoisier *et al.*, which he learned in Edinburgh from Joseph Black. The letters show that Jane continued her work in chemistry even when they were apart. Not all the letters are concerned with chemistry, and those quoted below are only a small part of the extensive collection.

In a letter of 1 October 1801 (17) mainly concerned with politics Jane wrote

... I had not the spirits to set to work at Chemistry
... I have had a very bad night, I woke very chilly,
& could not get to sleep for a length of time, being
worried with chemistry, which I could not drive from
my thoughts;

Alexander's next letter to Jane in Hastings and dated only as Saturday morning (18) was concerned with the political matters, but is notable for containing the earliest mention in the correspondence of what was to become *Conversations on Chemistry*.

I have begun to read your *Dialogues* & I don't find it at all as ennuyant as you modestly supposed. Yet I admire more how prettily how you think in chemistry than how correctly you write. If you were to begin a new education I would have you learn how to finish, yet upon the whole I feel very proud of your performance, —not to say jealous, and every day more I envy your quickness of comprehension . . .

As early as 1803 Alexander was trying to publish an account of the attractions of his original home city, Geneva, for a British traveler, and Charles Aikin, publisher of *The Gentleman's Magazine*, had essentially accepted a contribution from him. Charles Aikin was also active in the Medical Society of London. A letter from Aikin to Alexander dated 16 May 1803 (19) shows that Alexander was also seeking a publisher for Jane's work, but presumably as articles in a magazine rather than as a book. After discussing Alexander's contribution Aikin then adds the following, almost as a postscript.

I am ashamed to have kept the other manuscript so long, but the truth is that after having read it over three or four times & taken the liberty of making a few remarks, I had intended to ask the authors permission to shew it to a lady a near relative of mine whom Mrs. M. knows to have devoted much of her time to the subject of education & who had often expressed a wish of seeing a plan of this kind well executed.

The business of education would be a delightful thing if pupils had half of the acuteness & ingenuity of the fair Emily & Caroline. I should not so much consider this work as Philosophy made easy, but (what is a much better thing) Philosophy made attractive, & very highly so by the spirit & elegance of the dialogue & the happiness of many of the illustrations. It is trifling & frivolous work to pare down science to the level of children's capacity, the plan adopted here is preferable, that of raising the mind of young persons to understand what real Science is, & putting their powers of comprehension a little on the stretch, but not on the rack. As this is an unfinished work I

hope I may be permitted to see the conclusion when the author finds leisure to compleat [sic] it, of which allow me to say to you I am happy there is no immediate prospect, as other cares, other objects will intrude.

Jane and Alexander's first son, Frank, was born in 1803, and Jane's pregnancy was probably the "other cares, other objects" to which Aikin was referring. The lady to whom Aikin refers was certainly his aunt, Anna Laetitia Barbauld, a distinguished linguist, poet and educationalist. This letter is the earliest mention of Emily and Caroline, which raises the question of whether the young participants in the *Conversations* were based upon real girls, or were simply products of Jane's imagination. Other research shows that amongst the acquaintances of the Marcets in London society was the scientific amateur Sir John Sebright (20). Two of his daughters called Emily and Caroline became active chemists so it is possible that they were the prototypes of the *Conversations* characters. The title of *Conversations* had yet to be decided upon in 1803, and there is no mention in any correspondence of this time of Mrs. B.

Jane had already fixed upon the dialogue form for her book and Alexander was also enlisting the help of his chemistry friends, including Yelloly, Roget, and even Tennant. John Yelloly wrote from Abbeygate Street, London, to Alexander at St. Mary Axe, London, on the evening of Tuesday 9 December 1803 (21), just after the Marcets' first child, Frank, had been born, when Jane might again have been thinking of her book. He wrote as follows.

My dear Sir

I now send you half a dozen of Mrs. M.'s books [presumably notebooks], which I have examined carefully, and in which I have noted such alterations as seemed to me in any degree likely to improve her work. You will have no difficulty, from the references which I have made, of understanding precisely the alterations which I have taken the liberty to suggest — It may be proper, however, to remark, that wherever a pencil line is under a word or words, such are to be omitted, and also the sentences between the brackets [] are to be omitted — But you must notice that there are some of Mrs. Marcet's lines under words which are intended to be in Italics, and that care must be taken not to confound them — her lines are however in Ink.

It is extremely difficult, in a work of this kind, to accommodate the language to the females to whom it is intended, and to avoid on the one hand, the familiarity which derogates from the dignity of Science, and the abstruseness which has a tendency to make it forbidding — Upon the whole I think it is better

to elevate the minds of the Young Ladies, than to depress them too low ... At the same time, however, whatever philosophical or technical expression has a corresponding familiar one, it is in general better to avoid it.

In alterations which I have noted I have only done as suggestions for your consideration & that of Mrs. M.: I do not wish you to imagine, that they are always matters in which strict propriety is concerned. Mere opinion has so much to do with the fabrication of sentences that I should wonder extremely if there were not frequent differences in sentiment between persons equally well able to judge. —This circumstance, with a portion of fastidiousness which I sometimes carry too far, will account for many of the remarks which I have made, and which I by no means wish to be followed, unless Mrs. M. & you are perfectly convinced of their propriety. I am very happy, my good friend, in having the opportunity of showing you that I take a particular interest in every thing in which you are concerned. At the same time, however I cannot help expressing a wish that I were better qualified to assist you in this little business. Without at all meaning to go into any complimentary strain, (which however could have few better opportunities of indulging itself) I must observe to you, that I am very much pleased with the work, and that Mrs. M. possesses in high degree the valuable tho' rare faculty of making an abstruse and obscure subject familiar.

I shall proceed in the business with as much expedition as I can, tho' I fear that will not be very quick.

I remain My Dear Doctor

Yours faithfully

J. Yelloly

Even if Jane recommenced her studies after the birth of her son Frank in 1803, the manuscript of *Conversations* was apparently not completed until 1805. She wrote (22) to Alexander on 2 July, 1805 with a specific query about chemistry.

I cannot understand the nature of Mr. Hatchet's experiments, if the nitric acid poured on the carbone is evaporated, the carbone alone must remain? I do not think the process alone sufficiently simple or elementary for my pupils, but I suppose the acid must be partially decomposed, & that the combination of some of its nitrogen & oxygen with the carbone composes [word illegible], but the essential point is whether this will facilitate the operation in the arts.

At this present time it is not obvious precisely what the last sentence means.

John Yelloly was the person who found a publisher for *Conversations*, as another letter in the Duke Univer-

sity archive (23) reveals. This single letter has also been described by Crellin (24), and the exchange was also described in Alexander's notebooks (16).

My Dear Sir

I have the satisfaction to acquaint you that the report of the gentleman to whom Messrs Longman & C^o submitted the Mss. is so satisfactory that they will with pleasure print it upon the terms mentioned, viz. to take the responsibility and divide the profits—they will print it in one 8^{vo} or 2 quodecimo volumes as you and Mrs. Marcet may determine. When you have made up your minds let me know, as it may then go to the press.

Yours ever

JY

Thursday

In fact the first edition was printed in December 1805, though the publication year is normally reported as 1806, with the second edition a year later, in 1807. There is little in the surviving correspondence to indicate how much more work was done on *Conversations on Chemistry* after 1806, but in 1808 a French Swiss edition apparently bearing Jane's name had appeared, and by 1809 a third edition and a fourth child (Sophia) were being prepared for general release.

Several letters give an insight into the revisions which Jane undertook. On 31 July 1809 Smithson Tennant wrote (25) to Alexander in London in the following terms:

I sent you the other day the 2nd vol. with a few observations. I am doubtful whether I went thro' the whole of the 1st vol., for tho' I supposed that I had done it, yet on looking over the 2nd vol. I recollect there appeared to be some chapters which I must have omitted. If that is the case, & you think I can be of any use pray send me them & I will return them ...

In 1809 Alexander, who was an experienced fever doctor, moved temporarily to Gosport to help in the treatment of the victims of Walcheren fever, but while still in Gosport he tells Jane in a letter of 26 September 1809 (26) that he was still checking Jane's text and posting it to Longmans.

Jane's next letter (27), also dated 26 September 1809, and marked by Alexander as N^o 2, shows that she was continuing her chemistry writing in his absence:

In reading over Nitric acid I recollect that I've somewhere in my writing table in town [London] some memos of Jane's the errors w^h were to be rectified in this edition respecting the various [word obscured] of this acid & its oxyds; I cannot now recollect which

these errors were, nor can I get at the paper; if you should recollect them, pray alter them; the printer is very impatient for more copy, so send some as soon as you can. I have sent a note to Mr. Larkin about the proofing.

Alexander clearly found these demands a strain, because on, 29 September 1809 he wrote (28) that

I send more copy by this day's post to Longman. Don't depend upon me for much correcting — my mind is much engaged elsewhere — But I shall do what I can & you and must do the rest.

However, Jane clearly wanted his input, because on the same day, September 29, before she could have received his latest letter, Jane wrote again (29).

This must be a letter of business my dear, so I begin by referring to the numbered crosses which you will meet with on reading the inclosed manuscript. In the two former editions nothing whatever is said of the Boracic or Fluoric acids, except being in the list of acids, this therefore is all new; the greatest part is Mr. Tennant, which I have a little attempted to improve; the rest is mine taken from the notes I made of Davy's lectures or from your lectures.

X1 I refer to the word lakes in Tennant's writing, I cannot make out whether the word is lakes or cakes or what it is; I have cut it out & inclosed it for your decisions but the word is sousligné.

X2 This account of the decompⁿ of the Boracic acid is taken from my notes where it said that the pos wire gave out oxy. & the black substance was deposited on the surface of the wire. — now I suppose this must be a mistake & as the oxy. goes to the pos. wire the basis must go to the other.

X3 This is also from my imperfect notes, do you recollect whether there were iron turnings in the gun barrel, as in the decomp. of potash? If so it should be mentioned.

X4 Is borat a borat of soda; I added that phrase from memory, the rest is [word illegible].

X5 In your lectures you say Davy succeeded in decomposing Fluoric acid by burning it with potassium. Tennant too talks of the war like substances of its basis. I have inclosed the passage. But in my notes it is said the basis was not obtained separate; if I am wrong I hope you will be able to rectify the paragraph.

X6 The account of the muriatic acid is all taken from my notes & those appear to me to be an inconsistency or contradiction. I talked above of burning potassium in mur. acid, & afterwards I said dry acid cannot be used in the V. B. [Voltaic Battery] but why should not dry acid be burnt in potassium — is the Voltaic B. used when potassium is burnt in mur. acid? if not there is some inconsistency. You must return this

M.S. to me because independent of corrections, it would puzzle the printer, as it does not immediately follow the copy you have to correct; there remains a few pages to finish the carbonic acid; before which I have [word illegible] ...

I have ventured to draw up a finale to the 1st Vol of C.C. taken entirely from your lectures, & it is gone to the Printers; it treats of geology volcano's [sic] &c....

The treatment of "volcano's" was also mentioned by Dreifuss and Sigrist (16) and is to be found in the last part of Volume 1, where it is suggested that volcanos result when water trickles down through the soil and rocks and starts to react with metals such as sodium and potassium which were proposed to form the earth's core. Jane refers here to Alexander's chemistry lectures to the medical students at Guy's Hospital, but she is evidently also using material both from Tennant and from her notes from attending Davy's lectures at the Royal Institution.

An undated letter (30) from Alexander written in Gosport must, from its content, also have been written in 1809.

I send you back, my dear Child, your interesting chapter on acids, which, I dare say, is all pretty correct ...

Your fear of considering the dry muriatic acid does not appear ill[?] founded, because, I believe, the acid has never been obtained in that state unmixed with other ingredients. For it would be safer for all those new things to consult Davy's paper which you will find in my library in a blue 4^o volume of Philosoph. Transact. — Suppress all paragraphs about which some doubt or obscurity remains. That is much the safer way.

Jane's next letter (31), of 4 October 1809, tells Alexander that Volume 2 of *Conversations* is almost ready for the printer:

In regard to the Book, the whole of the 2nd Vo^e I can get ready in a few hours to send to the Printer, & the Longmans could forward the proofs to me. Let me know my dear when you have sent the printer all the copy you have & then I shall send what I have ...

The remaining correspondence between Jane and Alexander makes only occasional reference to work on the text of *Conversations*, but concerns printing and publishing, and there is little chemical detail. However, Jane certainly continued to revise the text from time to time. One of her helpers was Michael Faraday, who often expressed his high regard for Jane.

In 1858, the year Jane died, Faraday was approached by M. G. de la Rive for help in writing a short obituary of Jane, and asking whether the story of the influence of

Conversations on Chemistry on his scientific development were true. The Marcets had been instrumental in fostering Faraday's relationship with the scientists of Geneva, a reason for de la Rive's interest, and Faraday replied on 2 September 1858 (32).

Your subject interested me deeply in every way; for Mrs. Marcet was a very good friend to me, as she must have been to many of the human race. I entered the shop of a bookseller and bookbinder at the age of 13 in the year 1804, remained there for eight years and during the chief part of the time bound books. Now it was in those books, in the hours after work, that I found the beginning of my philosophy. There were two that especially helped me, the "Encyclopædia Britannica," from which I gained my first notions of electricity, and Mrs. Marcet's "Conversations on Chemistry" which gave me my foundation in that science.

Do not suppose I was a very deep thinker, or was marked as a precocious person. I was a very lively and imaginative person, and could believe in the "Arabian Nights" as easily as in the "Encyclopædia." But facts were important to me & saved me. I could trust a fact and always cross-examined an assertion. So when I questioned Mrs. Marcet's book by such little experiments as I could find means to perform, and found it true to the facts as I could understand them I felt I had got hold of an anchor in chemical knowledge, and clung to it fast. Thence my deep veneration for Mrs. Marcet—first as one who has conferred a great personal good & pleasure on me, and then as one able to convey the truth and principle of those boundless fields of knowledge which concern natural things, to the young, untaught, and inquiring mind. You may imagine my delight when I came to know Mrs. Marcet personally; how often I cast my thoughts backwards, delighting to connect the past and the present; how often, when sending a paper to her as a thank-offering, I thought of my first instructress, and such like thoughts will remain with me.

An exchange of letters between Jane and Faraday in 1845 emphasized both how highly Faraday regarded Jane on a personal level, and how, even forty years after first writing *Conversations on Chemistry*, she was still ready to revise the text to include new scientific developments. Jane had read a report of one of Faraday's papers in the *Athenæum* on 24 November of that year and asked Faraday for a correct account of his publication (32). In fact Faraday gave orders that until she died Jane she was to be given automatic access to all public events at the Royal Institution and he was still trying to help her in revision of *Conversations*.

References and Notes

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About the Author

G. J. (Jeff) Leigh is an Emeritus Professor at the University of Sussex. After a lectureship at the University of Manchester and a year working in Munich with E. O. Fischer, he spent the rest of his employed career at the Unit (later Laboratory) of Nitrogen Fixation in Sussex, from where he published over 200 papers on the chemistry of nitrogen fixation. He first came upon *Conversations on Chemistry* in 1964 in a second-hand bookshop, and was intrigued by the fact that this book had been written as early as 1806 by a woman who was not a recognized natural philosopher. He has since researched her life intensively, and unearthed a considerable amount of new material about her, including a large number of personal letters, about which he is currently writing a further paper.

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