

DALTON'S UNFORTUNATE CHOICE

by

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SUMMARY

The private papers of John Dalton remained largely unconsidered by his chosen biographer, William Charles Henry FRS, who belatedly produced a hurried and less than satisfactory account of Dalton's life and work. The reasons for Dalton's choice and for its going awry and being redeemed by James Woolley, a member of Dalton's 'extended family', who came forward to facilitate a fitting memoir of Dalton, are described in the context of Dalton's life in Manchester. Most of Dalton's papers were lost during the bombing of Manchester in December 1940, and with them went the possibility of a revision of the image of Dalton. Thus the Woolley story and family papers, reproduced here fully for the first time, give new and interesting insights into Dalton's personality, habits and connections.

INTRODUCTION

On 18 April 1837 the 70-year-old John Dalton (1766–1844) suffered a first attack of paralysis, followed by a second slight seizure three days later. Within a few weeks his thoughts turned to posthumous affairs. He bestowed a singular responsibility on William Charles Henry FRS (1804–92) (hereafter referred to as Charles Henry), his former pupil and medical adviser, and the son of his late friend and collaborator William Henry FRS (1774–1836). Charles Henry, somewhat taken aback, reported to his friend J. Liebig (1803–73), Professor of Chemistry at Giessen, on 2 June 1837:

He has named me his literary executor, having bequeathed to me his scientific manuscripts and journals. I shall therefore consider it my duty to become his biographer, and to prepare some account of his scientific career and some portrait of his high gifts as a discoverer and especially as a legislator in chemical science.¹

He made the same point again in 1838 in a letter to the Revd James Yates, Secretary to the Council of the British Association for the Advancement of Science (BAAS):

My excellent friend Dr Dalton after the severe seizure which threatened his life early last year, bequeathed his scientific papers and unpublished manuscripts to my care, and I should therefore feel it my duty in the event, which at his advanced age cannot be very remote, to attempt some biographical notice of him and some analysis of his scientific discoveries.²

Charles Henry had earlier informed Liebig, who was due to visit him in Manchester:

You will find poor Dalton, if you find him alive, quite a shadow of his former self... I fear, if he survives, it can only be a melancholy second childhood. I was of course in constant attendance upon him before I left home, and since my return I have resumed some share of his medical superintendence.³

Dalton did survive and gradually regained his faculties; after a minor setback in February 1838, he rallied remarkably. Although physically more frail and needing a male attendant, he continued his various activities as President of the Manchester Literary and Philosophical Society (referred to hereafter as the Lit. & Phil.) and with friends, including trips to the Lake District, for a few more years to come.

Despite Charles Henry's noble intentions, no memoir or biography of Dalton appeared from his pen until 1854—10 years after Dalton's death. Charles Henry had left Manchester with his family in September 1837 to live in the country at 'Haffield' near Ledbury after a particularly traumatic time in his life. His father had committed suicide the previous year by shooting himself inside the private chapel attached to the house, and his mother, too, died soon after their removal to the new house in the country. As the only surviving son, the sudden and tragic loss of his parents was particularly poignant for Charles; he gave a glimpse of his pain in his letter to Liebig:

My whole system, moral and intellectual, has been so terribly shaken by the sudden deprivation of my earliest friend and counsellor that I have not felt courage enough to work in his rooms and with his apparatus, every object recalling to my mind many painful impressions.⁴

THE HENRYS OF MANCHESTER

Charles was only 33 when he turned his back on the city of his father and grandfather and for the next 55 years lived the life of a country gentleman. His grandfather, Thomas Henry FRS (1734–1816), was born in Wrexham to parents of modest means. He was apprenticed to a leading apothecary in Knutsford and returned to set up business there after a brief move to Oxford. He finally moved to Manchester in 1764 and established a successful apothecary's business in the fashionable St Ann's Square.

Manchester at this time was just a country town, surrounded by open fields, with half-timbered buildings along narrow streets and alleyways, and its skyline had nothing loftier than spires. However, it was on its way to flourishing as a boom town offering plenty of opportunity for trade and enterprise. Within 10 years of arriving, Thomas began the manufacture of a very useful indigestion powder from Magnesia alba (MgCO_3), calcined by his own secret process. In an age of heavy drinking and meaty meals, it earned him a handsome income and the nickname 'Magnesia Henry'.

Thomas Henry was an energetic and public spirited man with a zeal for chemistry. He translated Lavoisier's *Opuscules*. Through Josiah Wedgwood FRS, who supplied him with chemical apparatus, he was well acquainted with members of the Lunar Society centred on Mathew Boulton and James Watt in Birmingham, particularly Joseph Priestley, who along with Benjamin Franklin recommended him for Fellowship of The Royal Society in 1775. He founded the Manchester Lit. & Phil. with Thomas Percival FRS (1740–1804) and the Revd Thomas Barnes (1747–1810) in 1781 and served as its first



Figure 1. John Dalton by Benjamin R. Faulkner, presented to the Society by a Memorial Committee in 1841.
(© The Royal Society.)

Secretary for five years. He was also visiting apothecary to the Manchester Infirmary, whose influence and reputation extended far beyond the town in which it was situated.⁵

Dalton came to Manchester from his native Cumberland in 1793 at the invitation of Thomas Percival, armed with an excellent reference from John Gough (1757–1825) of Kendal and a good publication record. He was to teach mathematics and natural philosophy at the New College, the successor institution to the celebrated Dissenting Academy

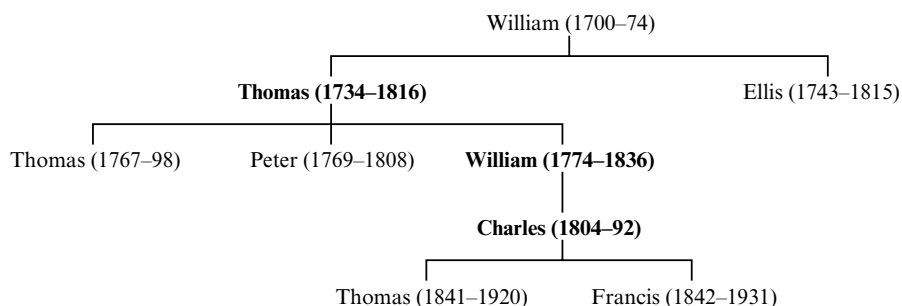


Figure 2. The Henry family tree (daughters not included here).

at Warrington, and was quickly absorbed into the affairs of the Lit. & Phil.⁶ The lives of all the Henrys down the successive generations were to remain entwined with that of Dalton (figure 2).

Thomas Henry, along with Thomas Percival and Robert Owen, sponsored Dalton for the membership of the Lit. & Phil. in 1794. Dalton became a Secretary of the Lit. & Phil. in 1800, while Thomas was one of the Vice-Presidents. In 1808, Dalton was elected a Vice-President and, when Thomas Henry's presidency ended upon his death in 1816, Dalton followed on as the next President till his own death in 1844. Other members of the Henry family, too, remained active on the Council of the Lit. & Phil.⁷

William Henry FRS (1774–1836), the youngest son of Thomas, gained his MD from Edinburgh but was the only one who helped his father in carrying the Magnesia factory and business forward. From 1803 they diversified into the manufacture of soda water for medicinal use, and attempted what was perhaps the first Leblanc process in Britain. William, a skilled practical chemist, and Dalton collaborated very closely around this time. William enunciated 'Henry's Law' and Dalton developed his views on mixed gases, their solubility and partial pressures and announced his Atomic Theory, for which William's support, although characteristically cautious, was valuable for Dalton. William was awarded the Copley Medal of The Royal Society and was elected to its Fellowship in the following year (Dalton was not elected until 1822).⁸

William carried on his private medical practice and his duties as physician to the Manchester Infirmary, and ran the business. His cultivated and hospitable manner made him a popular and influential figure among scientists of his generation. In June 1803 he married Mary Bayley (1775–1837), a descendant of a prosperous and well-established Manchester family. The chemical manufacturing business brought him wealth and opulence, but ill-health and tragedy dogged him all his life. Of their nine children only five lived to maturity. Their eldest son, Charles, became Dalton's pupil before going to Edinburgh to study medicine. He too became more interested in chemistry and in 1835 went to Germany to turn himself into a proper chemist. German university life entranced him—as it did many young Englishman of his day. Going from Berlin to Giessen, he formed a lasting friendship with Liebig.

Charles returned to Manchester in the summer of 1836, fired to do chemical research and full of anticipation of Liebig's visit to Manchester to collaborate with him. However,

he came back to find his father in extreme distress and his laboratory in a shambles; then a few weeks later came the tragic death. It altered his whole life. He turned away from science and research, retired to the estate in Herefordshire and lived as a country gentleman with a dilettante interest in classical literature and a taste for foreign travel. When the time came for him to produce a biography of his illustrious friend and mentor he could not rise to the occasion.⁹

RACE FOR A BIOGRAPHY

An invitation from the Cavendish Society in the spring of 1853 to write a biography of Dalton spurred Charles Henry into action. In the meantime, the Lit. & Phil., justifiably impatient at the absence of a suitable memoir of their late President, to whom the City Fathers had given a grand State funeral a decade earlier, had commissioned a biography from R.A. Smith FRS (1817–84). The two authors were on parallel courses. Charles Henry's *Memoirs of the life and scientific researches of John Dalton* appeared in 1854. In the preface he justified the delay. In reference to the Dalton bequest he dissembled:

I received intelligence of these bequests in August 1844, at Paris, on my way to Italy, where I remained till the following autumn. Regarding them as significant of my venerable friend's intention that I should act as his literary executor, and should write some account of his life and discoveries, I commenced shortly after my return to prepare for the task, by the careful re-perusal and analysis of all his published works.

He also complained that Peter Clare (1781–1851), the acting executor, who had the manuscript remains of Dalton, had been reluctant to hand them over to him. In fact, at one stage Clare had offered a joint authorship, which Charles Henry had declined.

Smith's memoir, *Dalton and history of the atomic theory up to his time*, appeared in 1856. He stressed that he had merely filled gaps in Charles Henry's biography, since 'the History of our ideas of matter is one of the most interesting fairy tales of science'. He also took the opportunity to defend Dalton against some unflattering references in Henry's biography. Otherwise, the essential image of Dalton is as painted by Charles.

R.A. Smith, who was later to become the first Alkali Inspector under the Alkali Act of 1863 and contributed much to public health, only came to Manchester in 1843, when Dalton was frail and failing, a year before his death. He did not know Dalton at the height of his powers but he certainly showed an empathy with his subject.

A late Dalton biographer was H. Lonsdale, a fellow Cumbrian and Quaker, with his *The worthies of Cumberland: Dr John Dalton* in 1874. He too felt he was filling some gaps in the earlier accounts by enlarging on Dalton's early life in Cumberland, but essentially he took his cue from Henry. His is a readable and sympathetic narrative, although he, too, did not know Dalton personally.

All three biographers make acknowledgement to Mr James Woolley and his manuscript, which they used extensively, albeit selectively, editing and choosing what they wished for their purpose. None of them found it necessary to introduce Mr Woolley to their readers, which implies that everyone knew him and his association with Dalton. Posterity, on the other hand, is at a disadvantage.

DALTON'S 'EXTENDED FAMILY'

James Woolley (1811–58) (figure 3) was a member of Dalton's 'extended family' and perhaps his true biographer. He read the first memoir of Dalton to the Lit. & Phil. in December 1848, when Professor Eaton Hodgkinson FRS (1789–1861), another member of the same extended family, was presiding. James Woolley began:

I trust the fact that more than four years have elapsed since the death of Dr Dalton without a memoir of his life having been offered to this Society will acquit me of any charge of presumption in too hastily offering to you my humble tribute to his memory.¹⁰

Presenting it in three parts, he covered Dalton's early life in Cumberland, his Manchester period confined to his scientific career and, finally, 'his private life and habits derived mainly from a journal kept by the Misses Johns in whose family the Doctor so long resided, from letters written by the Doctor to different members of the same family, and from an unfinished essay probably intended for publication by Miss Johns'.

This was a painstakingly produced memoir; although never published, it served as an invaluable and substantial source for the other memorialists, to whom it was generously lent along with the journals, the original letters and notes mentioned above.

James Woolley had married Ann Johns, a niece of the Revd William Johns (1771–1845), with whose family Dalton lived in Manchester for 26 years. Johns and Dalton became lifelong friends when the former came as a classical tutor to the Manchester New College in 1799, where Dalton was already employed.¹¹ They resigned simultaneously in 1800 when the college seemed in decline. Dalton embarked on a career of private teaching, lecturing and technical consultancy; Johns, after a few years away teaching and ministering, returned to Manchester to run a successful Academy (a school for boys) located just across the road from the new house of the Lit. & Phil. in George Street and around the corner from the Infirmary with its gardens, fountains and public baths, in a rising elegant part of Manchester.

In the autumn of 1804 Dalton moved in with Mr and Mrs Johns and their family of two little girls, Elizabeth and Catherine. Later Catherine Johns recorded in her journal that, upon taking residence with her family,

He was ever after regarded by us in the light of a relative and completely identified himself with the interests of our family....

He frequently brought in distinguished visitors, & sometimes left them for us to entertain & he never failed, if possible, to join our parties of young people, & entered into the amusements of the evening with great affability.¹²

The bond between the two friends was deep and lasting; alike in many ways, but different in their callings, both pursued their respective activities in perfect harmony and understanding.

William Johns was born in a small village in Pembrokeshire into a strict Calvinist farming family (figure 4). The area was poor, life was simple and austere, and he had to work hard on the farm. He spoke only Welsh until the age of 16. He was inspired to learn Latin by a local schoolmaster; he taught himself Greek and became a very accurate scholar in both. He left home and trained as a Unitarian minister at the Dissenting

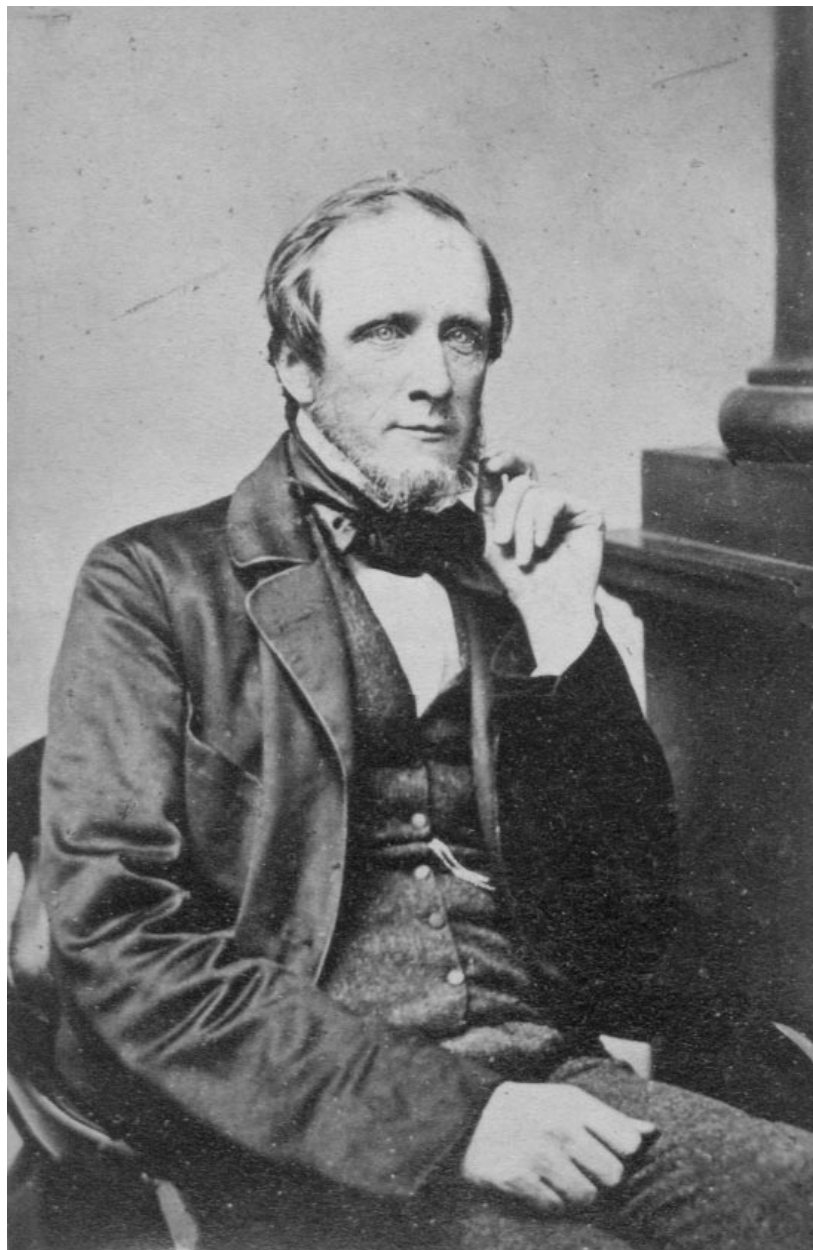


Figure 3. James Woolley (1811–58). (Reproduced courtesy of the Woolley family.)

Academy at Northampton, to the wrath of his parents. His reputation as a classical and general scholar and success in teaching brought his Academy the best clientele in Manchester. Dalton had his laboratory and workroom in the house of the Lit. & Phil., where he taught science and mathematics to young boys and girls. The Johns's house 'became a centre of the highest educational influences in the town and neighbourhood'.¹³

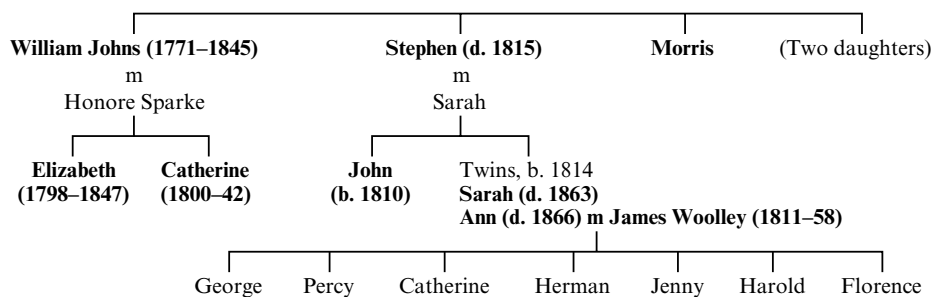


Figure 4. The Johns family tree.

Dalton and Johns made an effective team. Johns was elected a member of the Lit. & Phil. in 1805; he became joint Secretary with Dalton in 1807 and was one of its Vice-Presidents from 1816 till 1822. He read numerous papers to the Lit. & Phil., ranging from classical history to philology. In due course, Elizabeth and Catherine joined their father in running the school and taught the juniors in their front parlour. They were considered ‘very kind and much liked by the students’.¹⁴ The calm tenor of all their lives had been shaken in 1815 by the accidental death of Johns’s brother Stephen at Antwerp, while he was supervising the offloading of supplies for troops at Waterloo. He was a ship’s rigger based at Woolwich docks and mostly in financial straits.¹⁵ His three orphaned children, John and twin daughters Sarah and Ann, were taken in by Johns and brought up with great care and kindness. The family had extended. Dalton was a frequent minder of these young children when the Johns family was away from Manchester.

In 1836 Ann Johns married Dalton’s friend James Woolley, who eventually became the founder of a large and prosperous business of wholesale chemist and druggist. While serving his five-year apprenticeship, Woolley also attended a course of lectures at the Medical School in Pine Street, where Dalton taught chemistry.¹⁶ On completing his apprenticeship in 1832, he went to Edinburgh University as a medical student. Twelve months later he was forced to abandon all thought of a medical career because he could not witness the major operations, which were then carried out without any anaesthetic. It was a not uncommon reaction—young Charles Darwin in his student days was similarly affected.

On his return to Manchester, Woolley consulted Dalton, who advised him to continue with pharmacy. This he did, and in 1833 he opened his first shop in Manchester as a chemist and druggist. In 1841 he opened another shop in a fashionable residential quarter of the town. Three years later he acquired a well-established business in the city’s centre, which in addition to selling drugs supplied chemicals and colours for the cotton trade. During the next 13 years his business prospered and became predominantly wholesale.

He also became interested in heavy chemicals and was eventually a partner in the firm of Halliday & Co., manufacturing chemists. When Halliday’s health failed, Woolley placed his travelling salesman, Henry Davis Pochin, as manager of the firm. Soon Halliday retired and a new partnership, Pochin and Woolley, was formed. Pochin was a very able experimental chemist and had patented a discovery in the treatment of certain

compounds of alumina and their application in printing, dyeing and paper making. The partners acquired new premises for the manufacture of this compound and were doing considerable business by 1857.¹⁷

TWILIGHT YEARS

The Johns family moved out of Manchester in 1830, for the cleaner air of the suburb of Broughton, to a house they named 'Eaglesfield'. The city had taken its toll of their health. It was now the overcrowded, smoke-infested city of 'satanic mills', about which writers and visitors would exclaim in wonder and horror for decades to come. Those who could afford to get out did so, but many remained and many arrived afresh; and a new generation took up the challenges of improving and ameliorating this first industrial city. Local government and parliamentary reform, education and public health were all issues that concerned Woolley and his friends. Most were connected with the Lit. & Phil., and Dalton was still providing the link between the old and the new. He did not leave the city.

Catherine Johns (figure 4) married one of Dalton's star pupils, Eaton Hodgkinson, in 1841. William Fairbairn FRS (1789–1874) and Dalton were witnesses. It was a happy time for Dalton—two of his favourite people were coming together. But a year later Catherine was dead. Her father was devastated and the effect on Dalton must have been similar, because when the fledgling BAAS met in Manchester for the first time, Dalton, the natural President, could not play the part.¹⁸

William Johns died in 1845, a year after Dalton, and Elizabeth Johns followed two years later, aged 49. James Woolley was one of her executors and, when he read Dalton's memoir before the Lit. & Phil. a year after her death, he was painfully aware of the mortality of Dalton's memory. In 1853 he tried again to draw attention to a facet of Dalton's life that was becoming forgotten—his climbs and excursions in his beloved Lake District in the company of Jonathan Otley (1766–1860). As he told members of the Lit. & Phil.:

During a brief excursion through the Lake District in the autumn of last year I spent a couple of days at Keswick and whilst there I enquired for and sought out the residence of Mr Jonathan Otley the old friend of Dr Dalton and his companion on so many of the Dr's summer rambles amongst his native mountains. I found him an old man far advanced in his 87th year apparently feeble in body, but his mind still active, and his memory retentive and clear in all that related to his distinguished friend. He still occupied the dwelling where he had formerly carried on his occupation of a watchmaker, living alone, and repairing to the house of a neighbouring cottage to take his meals. I announced myself as wishing to purchase one of his maps of the Lake District, but he informed me they were out of print and he did not think that he should issue another edition. I stated that I came from Manchester and introduced the subject of Dalton, on this Mr Otley soon became communicative and after a time he brought out a sort of portfolio made from a school account book into which he had pasted printed scraps of such notices of Dalton as were published soon after his death by the local press of this and neighbouring districts and containing also a manuscript journal of the principal excursions he had made in the company of Dr Dalton. Before taking leave of Mr Otley, I obtained from him a promise of the loan of his manuscript for any communication from it which I might wish to make to this Society.

Sometime afterwards I wrote to claim the fulfilment of that promise, and he forwarded to me the short journal which I am about to bring before the Society. I have read it with much pleas-

ure. It exhibits in a simple and familiar manner some of the leading characteristics of our great Philosopher; his enthusiastic love for all that related to the scenery amongst which he had passed his youth—prompting him to claim [*sic*] a lofty mountain in order to ascertain what point it was that was visible from his native village of Eaglesfield & the patient accuracy of research which induced him cheerfully to make a second ascent of Helvellyn in order to clear up a doubtful error as to the relative names of two points of which he had taken the elevation are here told in the unmistakable language of an eye witness.

I may mention here an anecdote showing the idea of ownership and partnership which had grown up in Mr Otley's mind on all subjects connected with Dalton and himself. It reached the ears of Mr Otley sometime ago that a gentleman from Manchester had been on Windermere & had taken away a bottle of air from the floating Island for examination. This roused the old gentleman's anger & he wrote to the Kendal newspaper saying that he understood that some person named Smith from Manchester was examining the gas & that he ought to have known that Dr Dalton & he Jonathan Otley had settled that question 30 years ago.

At the time when I received Mr Otley's manuscript and announced my wish to read it before this Society nothing had been done publicly towards rescuing the personal History of Dalton from the oblivion to which it was fast hastening, and I indulged the hope that the partial publication of this Journal would conduce to draw attention to the memorials of Dalton yet existing in scattered manuscripts and in the recollections of some of his old friends and companions; memorials which the lapse of a few years would suffice to destroy or efface.

Events occurred to prevent me reading the Journal during last session and I had consequently given up the intention of presenting it to the Society, and had returned the original to Mr Otley keeping with his consent a copy. But in the meantime affairs have changed—the inquiries instituted by this Society during last session, I believe conduced to rouse the attention of the surviving Executor of Dalton to a sense of the importance of immediate action and the papers found at Mr Clare's death by his Executors have been forwarded to Dr Charles Henry, Dalton's literary legatee and he at the request of the Cavendish Society has undertaken to write the life of Dr Dalton.

Dr Smith is also engaged I believe in writing a memoir at the request of this Society, under these circumstances having originally received the manuscript from Mr Otley for communication to you I conceived that however late I should still best carry out the wish of its author by reading it.¹⁹

Otley's journal was reproduced completely by Charles Henry in his biography.

PREPARATIONS FOR THE BIOGRAPHY.

In the autumn of 1853 James Woolley received a request for help from Charles Henry:

1853
Haffield near Ledbury
Sept. 23

Dear Sir

I hasten to thank you for your obliging promise, communicated to me, this morning, by Mr Langton [*sic*], to permit me to inspect the documents in your possession, relating to the late Dr Dalton. Will you be so good as to include in them a letter from Berzelius? If it is dated London 13 Oct 181 [*sic*]. I possess a copy without the year, but I shall like to compare my copy with the original. Do you know anything of the letter from Mr Watt to Dr Dalton, which Mr Langton says exists some where & year after the great question of the discovery of the composition of water. I have none in my possession from Mr Watt—indeed I am surprised generally with the scantiness of the correspondence with men of science which is too more remarkable, as Dr Dalton seems to have preserved carefully all written documents & to have kept copies of many letters written by himself, of unusual importance. So the letters must have been lost or given away by the late Mr Clare.

You will particularly oblige me by any hints, you may be able to give me as to other sources of information to which I ought to apply. I will spare no labour or time to render my biography as complete as possible. But residing in the country so far from all local sources of intelligence, I am much in want of personal anecdotes to enliven the succession? analysis of Dalton's scientific memoirs. I had myself the good fortune to accompany him in 1823 to the Lakes & Helvellyn to Oxford in 1832 and to London in 1834 when he sat to Chantrey & to Bristol in 1836—so that on those points I feel sufficiently informed.—as also respecting his pension, as I possess all the correspondence between my father, Mr G Wood & Poulett Thomson on that question.

I want anecdotes about his stay in Paris, but Mr Dockray & Mr Crewdson to whom Mr Neild has kindly applied are not able to supply any. Pray please sir ? in possession of any anecdotes that you may have heard from the late Miss Johns or other source I rely upon the friendly co-operation of yourself Dr Smith and other surviving friends of Dr Dalton in Manchester.

My own relations with him were very intimate during my Manchester life. I was his pupil for six years from 1818 to 1824, when I went to Edinburgh & read with him his New System, taking minute notes of his opinions then, as modified by subsequent experience, which I now find very useful.

I am most deficient in information ? stroke 1837 & his death as I saw him in 1837. However his intellectual ? was ? in extremely ? before that year, which was the year of his paralytic seizure.

Believe me
Dear Sir
Yours sincerely
W C Henry

(Notes: ? indicates unreadable. Dockray finally furnished a vivid and interesting account of the Paris visit, which Charles used in his biography (pp. 166–168); again, this was probably obtained with James Woolley's assistance.)

James Woolley helpfully forwarded his manuscript, which Charles used copiously; an autobiographical note in Dalton's hand for Catherine and the essay by Elizabeth were reproduced completely by Charles in his book except for a final paragraph (this will be addressed again later); Charles did not use Dalton's letters to members of the Johns family, which give the greatest insight into 'Dalton, the person'. Both Smith and Lonsdale, sensing this omission, reproduced parts of these letters in their respective works to give a more human and sympathetic portrayal of Dalton; figure 5 shows part of the original of a letter reproduced fully by Smith, and the Appendix gives the full text of some of the other letters used by him.

Woolley also collected other interesting anecdotal material for Charles, as requested, such as Dalton's taste for playing bowls every Thursday afternoon in the company of William Johns and other regulars:

142 Water Street
Manchester
October 11th 1853

Mr Woolley
Dear Sirs

It would give me much pleasure if any memoranda I could supply you with relative to the character and habits of the late Dr Dalton, should be thought worthy the notice of the Biographer of that distinguished Philosopher, but my knowledge of him was very circumscribed, being derived from having enjoyed his society for a long series of years, on the afternoons of Thursday in each

Respected Friend,
 Edinburgh, April 19th - 1807. -
 As the time I proposed to be absent is nearly expired & as my views have recently been somewhat enlarged, I think it expedient to write you for the information of enquirers. Soon after my arrival here I announced my intention by advertisement by hand bills; I obtained introduction to most of the professional Gentlemen in connection with the college & to others not in that connection; by all of whom I have been treated with the utmost civility & attention: a class of 80 appeared for me in a few days; my five lectures occupied me nearly 2 weeks; they were finished last Thursday, & I was preparing to leave this place & return by Glasgow to spend a week: But several of the Gentlemen who had attended the course represented some, that many had been disappointed in not having been employed in time of my intention to deliver a course, & that a number of those who attended the first course would be disposed to attend a second, I have been induced to advertise for a second, which if it succeeds, will commence on Wednesday the 22^d & be continued daily till the conclusion. This will detain me a week yet: I then set off for Glasgow where I may be detained a week or more, so that I see no probability of reaching Manchester before the beginning of May, to which I look forward with some anxiety. Altho' I have been most highly gratified with my journey; it is worth coming 100 miles merely to see Edinburgh. It is the most

I any think remarkable
 occur to write to me, my
 address at present is
 Mr. Dalton's
 Mr. Dalton's Lodgings, 99. Nicholson Street.

Figure 5. Copy of two pages from Dalton's letter from Edinburgh to the Revd William Johns in Manchester. (Reproduced courtesy of the Woolley family.)

week at a concerted meeting of his old Friends at the Bowling Green where retired for a few hours from his serious studies, the exercise appeared to be his favorite relaxation. He did indeed enter into the games with a zest equal, if not more intense than that of any other players, so far did he appear interested that he brought with him slips of ruled paper, upon which he regularly

noted down the result of each game and during the play appeared quite to forget his habitually laborious investigations for the amusement of the hour, in the course of which he exhibited all the playfulness and docility of the child, retiring occasionally to his Pipe, altogether he was so much delighted with his favorite relaxation that he very seldom indeed withdrew his thoughts from it for the time, or entered into any speculative conversation whilst at the Bowling Green.

I have only to add the notice of a singular habit of the Doctor's—that he persisted in making use of two odd Bowls in his play one a very strong biassed [*sic*] one, the other a very weak one—instead of a regular pair of Bowls—as habit never noticed any other Player—the money played for was fixed at three pence each game.

If these remarks or any of them should be deemed worthy the notice of the Biographer of the late Dr Dalton I shall be gratified and remain Dear Sir,

Yours truly
John Barrow²⁰

THE FINAL IRONY

The letter from Charles Henry to Woolley in September 1853 clearly demonstrates how hurriedly he had put together the Dalton biography, which is dated by him as March 1854. He obviously did not study the Dalton papers that were bequeathed to him in any depth, nor did he consult the archives of the Lit. & Phil. and he never collected the Dalton apparatus. He finally gave the Dalton papers that were in his possession to the Lit. & Phil., where all the Dalton collection languished for many years, for most of it to be lost altogether when the Lit. & Phil.'s house was damaged during the bombing in December 1940.²¹

James Woolley was suddenly taken seriously ill in 1857 and died a painful death on 30 January 1858, aged 46. His business partner, Henry Pochin, was a pillar of strength through his illness and to his family. Pochin bought out Woolley's share in the business and went on to make a considerable fortune from his patent and other enterprises. In 1875 he acquired Bodnant Hall and an estate along the River Conway, where he laid out the beautiful Bodnant Gardens, now a National Trust property. His son-in-law, when raised to the peerage, took the title Lord Aberconway.²²

A methodical and conscientious man, James Woolley had actively promoted the cause of education in the city. He was a Director of the Manchester Mechanics Institute (the forerunner of UMIST), a Member of the Council of the Pharmaceutical Society of Great Britain and he became President of the Manchester Pharmaceutical Association. He supported the Anti-Corn-Law League and for six years served as a town councillor. After his death, his widow, Ann, who was one of the Trustees in the business, was left with eight children from the ages of 21 to 3. The eldest son, George, with the help of his brothers Herman and Harold, all of whom trained as chemists, steadily took the company forward and as James Woolley Sons & Co. the firm expanded with new laboratories and works. The decline only came after World War II, when it was taken over by BDH in 1962.²³

George Woolley, as a young boy, had known Dalton and had even run minor errands for him; he, like his father, lent the Dalton papers and his father's memoir to Lonsdale. The sum of information about Dalton's life that has been derived from the efforts of James Woolley is substantial. He helped Charles, who reproduced full texts of essays provided by him, while Smith and Lonsdale made addenda to Charles's work from material

again loaned by Woolley (or his family). If it had not been for him we might never have had significant insights into Dalton's life outside his scientific publications.

One can speculate why Dalton chose Charles Henry as his literary executor. Around 1834, Charles had shown what Dalton would consider great promise. He had published a paper in *Philosophical Magazine*, which conformed with Dalton's views on the hypothesis of Avogadro put forward in 1811, and later independently by Ampère. The paper was submitted to Dalton in manuscript before being read before the Lit. & Phil.²⁴ Charles was echoing Dalton's views. Dalton proposed him for Fellowship of The Royal Society and he was elected in 1834.

Considering Dalton's long and intimate association with the Henry family over three generations, it is not surprising that he should have placed his faith in Charles to be his biographer. No doubt the father, William, had he lived, would have been best suited to the task. He had embarked on writing a history of chemistry from the mid-eighteenth century through the lives of eminent chemists and had produced biographical notices of Priestley, Davy and Wollaston. Dalton would certainly have figured large in his scheme. Knowing this, Dalton may well have assumed that William's successors would complete the work—he could not have imagined that Charles would go into retirement upon leaving Manchester; their original plan was to live in the country for four years. Dalton must also have had faith in help from Mary Henry, Charles's mother. Unfortunately, she too died just a year after her husband.

Charles in his book reproduced (nearly) the full text of the essay on Dalton by Elizabeth Johns, whom he described as 'a highly educated lady, and superior classical scholar', but he deleted much from the final paragraphs, which is revealing. Elizabeth, writing about Dalton and on 'the subject of his sentiments towards the female sex, which were common to him with almost all great and good men', goes on to say:

He preferred their society,—for their understandings he ever professed the highest respect,—his warmest friendships were to the end of life with individuals of that sex & on all occasions he showed them those little delicate attentions, which are particularly acceptable to them....

*Mrs Henry wife of his scientific friend Dr Henry he admired and respected through life; & indeed I sometimes fancied that she was his standard in judging of others of her sex.*²⁵

(The section in italics was not reproduced by Charles Henry.)

Mary Henry (*née* Bayley) belonged to a large, illustrious and prosperous Manchester family, which included politicians, industrialists, clerics and men of letters. Her uncle, Thomas Butterworth Bayley FRS (1744–1802) of Hope Hall, was one of the richest men in the district; a Justice of the Peace, he was committed to prison reform and laid the foundation stone of the New Bayley prison in Manchester, which was named after him. He was President of the Manchester Board of Health and an active member of the society founded for the abolition of slavery. It is no surprise to see him as a founding Vice-President of the Lit. & Phil. as well.

Mary's father, Thomas Bayley of Booth Hall, was a successful merchant; her sister's husband, Thomas (later Sir Thomas) Potter, became the first Mayor of Manchester and his two sons entered Parliament. Another famous member of the Bayley family was the author William Harrison Ainsworth (1805–82), who introduced Dickens to Manchester. Many of the younger Bayleys, including Mary's brother, were Dalton's students.²⁶ There

is no doubt that had Mary Henry lived longer, Dalton would have been blessed with a more sympathetic biography and we should have had a more interesting account of his life and work in Manchester. As it turned out, Dalton was not to have a Boswell or a Samuel Smiles; instead, historians of science have labelled Charles as 'the real villain of the piece so far as Dalton scholars are concerned' and his work is described as 'careless and slipshod'.²⁷ He seems to have missed 'the opportunity of writing one of the great scientific biographies'.²⁸ Whatever credit there is in his work, a great deal of it must go to James Woolley, who, though not Dalton's choice, nevertheless admirably fulfilled his duty to a member of his 'extended family' and should be considered the true biographer of Dalton.

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NOTES

An important source is L. Smyth, *John Dalton 1766–1844. A bibliography of works by and about him* (Manchester Lit. & Phil. Publications, 1997).

The Woolley family papers privately communicated to the author will be referred to as 'Woolley Papers'.

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- 3 *Ibid.*, p. 23.
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- 5 W. Henry, 'A tribute to the memory of the late President of the Literary and Philosophical Society of Manchester', *Man. Mem.* **8**, 204–240 (1819); A.E. Musson & E. Robinson, *Science and technology in the industrial revolution*, ch. 7 (Manchester University Press, 1969); Hills and Brock, *op. cit.*, note 1, ch. I, pp. 183–208, and ch. VI, pp. 12–13.
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- 20 Henry and Barrow letters from: Woolley Papers.
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- 22 H.T. Milliken, *Road to Bodnant* (E.J. Morten, Manchester, 1975).
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- 24 Hills, *op. cit.*, note 1, ch. VI, p. 3; *Phil. Mag.* **5**, 33–39 (1834).
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- 26 E. Axon, 'The Bayley family of Manchester and Hope', *Trans. Lanc. & Chesh. Antq. Soc.* **7**, 193–228 (1889).
- 27 H.E. Roscoe and A. Harden, *A new view of the origin of Dalton's atomic theory*, introduction by A. Thackray (Johnson Reprint Corporation, New York, 1970); A. Thackray, *John Dalton: critical assessment of his life and science* (Harvard University Press, 1972), p. 127.
- 28 Hills, *op. cit.*, note 1, ch. VI, p. 9.

APPENDIX

This Appendix contains the full texts of letters that were reproduced by some of Dalton's biographers. Charles Henry, the official biographer, used none. Dalton's own style, punctuation and spellings have been retained here.

(I) Letter reproduced partly in Smith, similarly in Lonsdale

From: Dalton; London, Dec. 27th 1809.

To: Revd. William Johns; 10 George Street, Manchester.

Respected Friend,

I apprehend I must write a line or two to say where & how I am & how I got here.—I had a young Lady & a boy of about 12 or 14 for fellow travellers through from Manchester to London, besides other shorter passengers. We took in two Gentlemen at Stockport, one for Leicester the other for Derby, the former a country Gentleman, the latter a tradesman. When we got near to Buxton, all was covered with snow, & continued so till Ashbourn;—our two Gentlemen kept us thoroughly awake by a long disputation about the advantages & disadvantages of Towns to the lower orders of the community; it was Town against country; The Town beat the country in multitude of words as well as in force of argument. It rained a good deal from Derby to Leicester, where we arrived about 9 o'Clock, when the evening turned out fine & moon light. I felt very little fatigued, &

therefore changed my mind of stopping there, & paid my fare to Northampton. We got an addition of 2 Gentlemen & another young Lady for London: it was a fine night & we soon found ourselves very comfortable & warm. I had two top coats, one on & the other on my knee; which last was very serviceable both to myself & the two Ladies (who were but thinly clad) one of whom sat opposite & the other on my left. I tucked it round us frequently, but it was soon off & I had to do it again; however we crept very close together. The night slipped over before we were aware, & at 6 we found ourselves in Northampton; the moon had set & it was a dismal, dark, rainy morning. The passengers sat down to breakfast. I had to decide, whether to give up my birth & run the risk of the following coaches, or to persevere; they had taken good care to make me pay nearly the whole fare to London, so that by paying very little additional (about 10 or 11^s) I might proceed the remaining 66 miles. I balanced accounts as well as I could, to stay, was to see friends at Northampton, but first I must go to a cold bed two or three hours, or sit by the kitchen fire; and then run a great risk of getting a place in that day's coaches afterwards & at a great advance of fare; to go on, was to err on the safe side, I had not finished my sleep with the two young Ladies, & it seemed a pity to let go a pleasure which one cannot always command. It was accordingly decided to go on; I put Mr. B.'s parcel into the coachman's hand who said he would deliver it himself in the course of the day & off we set again. When the morning light came & we saw one another, I found a pretty young woman of 18 or 20 opposite, & learned that she was considered as one of the belles of Leicester; she was going with her Brother in Law to London on a visit. The party began conversation & it came out some how or other, as if by accident, who was married and who not. The young Ladies began to rally me, but I bore it patiently. In order to do away with the effects of the night I stretched out my arms at full length & between sleep and awake observed that I felt as if I wanted pulling out a bit. The arch damsels smiled upon each other & set the whole company on the laugh at my observation, which was made in great simplicity.

We got well away to Dunstable; had an excellent beef stake to dinner & were treated with a bottle of wine, one of the company having betted a bottle that Northampton was more populous than Leicester, & lost. We got safe to London at 8 o'Clock; a wet evening & coaches very difficult to get. I believe more than one of us wished the journey had been longer, we were such good company. I saw them all off, & took the last coach; it cost me half as much in going from the Inn to my Lodgings as it had coming from Northampton.

I have got a snug birth at 69 Swallow Street; I have the first floor wholly; it consists of a sitting room to the front of a fine wide street & facing the end of another street; at the other end is *St. George's Church* in view, which I have exchanged for *St James's**. My Landlady is sister to Mr Haigh formerly leader of the concert, Manchester. They have a large Bread shop under me, so that you need not be afraid of my coming to want. On the same floor I have my bed room, & one or two other conveniences appended to it. They order these things better in London than in Edinburgh. People here are complaining much of the late meeting of Parliament—because they cannot let their lodgings.

On Tuesday I spent the greatest part of the day (morning they call it here) with Mr Davy in the Laboratory of the Royal Institution. Sir J. Sebright, MP who is becoming a student of chemistry, was present. We had a long discussion. In the evening I walked three miles into the city to Pickford's to look after my boxes. I found them there; but as they promised to send them the next day, I did not take them. They disappointed me. On wednesday I attended Mr Pond's lecture on astronomy, & prepared for mine the next day. On Thursday at 2 I gave my first Lecture. Mr Pearson, a former acquaintance, went home with me after the Lecture, & we had a long discussion on Mechanics. Mr Davy had invited me to Dine with the club of the Royal Society at the Crown & Anchor at 5 o'Clock, but I was detained till near 6; I got there & called Davy out; all was over; the cheese was come out. I went therefore to the nearest eating house I could find to seek a dinner: looking in at a window I saw a great heap of Pewter plates & some small oblong tables covered with cloths. I went in & asked for a beefsteak. No:—What can I have—boiled

* The Johns's house was virtually adjacent to St James's Church on George Street; Dalton's room must have had a view of the Church (now no more).

beef. Bring some immediately. There was nothing eatable visible in the room; but in three minutes I had placed before me a large pewter plate, covered completely with a slice of excellent boiled beef, swimming in gravy, two or three potatoes, bread, mustard, & a pint of porter. Never got a better dinner. It cost me 11^d 1/2. I should have paid 7^s/- at the Crown and Anchor. I then went to the Royal Society & heard a summary of Davy's papers on chemistry & one of Home's on the Poison of the Rattlesnake. Sir J. Banks in the chair. Davy is coming very fast into my views on chemical subjects. On Friday I was preparing for the 2nd Lecture & recd. a visit from Dr Roget: in the evening I was attacked with sore throat; I sweated it well in the night with cloathing; but it was bad on Saturday, & I was obliged to beg a little indulgence of my audience on the score of exertion. However, I got through better than I expected. I kept in on Sunday & Monday & got pretty well recruited. On Tuesday I had my 3rd Lecture; after which I went to dine at a Tavern to meet the chemical club. There were 5 of us; two of whom were Wollaston & Davy, Secretaries of the Royal Society; we had much discussion on chemicals. Wollaston is one of the cleverest men I have yet seen here. To day (that is, Thursday, for I have had this letter two or three days in hand) I had my 4th Lecture. I find several ingenious & inquisitive people of the audience. I held a long conversation today with a Lady after the lecture on the subject of rain gauges. Several have been wonderfully struck with Mr Ewart's doctrine of mechanical force. I believe it will soon become prevalent doctrine.

I should tell Mrs J. something about the Fashions here; but it is so much out of my province that I feel rather awkward. I see the Belles of New Bond Street every day, but I am more taken up with their *faces* than their *dresses*. I think blue & red are the favourite colours. Some of the Ladies seem to have their dresses as tight round them as a drum. Others throw them around them like a blanket. I do not know how it happens, but I fancy that pretty women look well either way.

I am very regular with my Breakfast, but other meals are so uncertain that I never know when or what; hitherto I have dined from 2 to 7 o'Clock; as for tea, I generally have a cup between 9 & 10 & of course no supper. I am not very fond of this way of proceeding. They say things naturally find their Level; but I do not think it is the case in London. I sent for a Basin of soup the other day before I went to Lecture, thinking I should have a good three penny worth, but I found they charged me *one shilling & nine pence* for a pint, which was not better than some of our Mary's broth. Of course I could not digest much more of this soup.

I must now conclude this long scrawl; for my dinner is coming up (4 o'Clock on Friday) & I must have this in the office before 5, or it will be too late.

I remain with best respects to you all

J Dalton

(II) *Letter reproduced partly in Smith only*

From: Dalton, Manchester, July 2nd 1825.

To: Revd. William Johns on holiday with the family in Beaumaris on Anglesey.

Respected Friend

We were all glad to hear so promptly of your safe arrival: the message was sent that evening to Mr Mason's; but from Mary's acct. it did not seem they were likely to visit you. Polly¹ got her work nearly done on Thursday & went to look after a place but all the outside were taken for Friday: the fare inside being 5/, or 2/ more than outside Polly thought it was a serious sum to throw away. She therefore took outside for Saturday & went accordingly: unfortunately it rained all the morn'g. From 7 to 12, & how she came on she has not written to inform us. Mary says there were no insides at parting; surely she would think the *loss* of 2 was better than the *gain* of a bad cold.

I hope by this time Kate² has recovered her appetite for fine scones & does not continue to exclaim 'no fine scones for me'.

We are all well & going on as usual; the girls say they still work so many hours a day, but I think they have a good deal of the *Otium* along with it. Sarah reads & Ann helps Mary & they

have been once or twice a visiting, & the time seems to pass with them quite as comfortably as when getting their Latin. Ann desires her Love to 'Uncle & Aunt & Cousins'; & Sarah 'to them all'.

We have sent 3 news papers.—Mr Sanderson smoked his pipe with me above a week ago, & said he had recd. a line from Mr Johns & intended to write; but, you know, I have not seen him since. I ascribe it to the fickleness of the weather. For in Hay time Mr S. studies meteorology with uncommon interest. He was very lucky the first week; but I doubt he has been so since.

The Weather—Friday—gloomy; but fine & dry.

—Saturday. Gloomy: but warm & shower about noon.

People making & housing Hay about Bolton.

—Sunday. Gloomy with showers.

—Monday & Tuesday: Gloomy & showers.

—Wednesday. Dry & gloomy at times.

—Thursday. Very fine: 14 drank tea at green.

The only thing remarkable was that Mr G. ?, Ed. Shawcross & I, beat Mr Woodward, Ashton & Barrow, getting 6 before they got any.

—Friday. Cloudy & ?

—Saturday. AM constant rain PM cloudy & dropping.

—Sunday. Showery before 6 PM some peals of thunder & heavy drops.

Since then the weather has been fine & sunny but no hay weather. Showery with fine & sunny intervals.

On Thursday I found Mr Ashton alone at the Green, on inquiring I found all the rest were at Church; & that even Mr A had been there: but as it must be a matter of some moment to keep Mr A at Church on a Thursday, I found he had escaped by *pairing off*, as the phrase is. The rest came at 3 or 4 o'Clock some with & some without dinner.

I have been very busy all last week in having a thorough cleaning over the way: all scoured &c &c. it is not yet set straight.

Yesterday I dined at Dr Henry's, meeting Professor Almroth of Stockholm & a party together with his young family & Miss Bayley. The new house is very pleasant.—The old one looks very forbidding: all the windows out it looks as if a fire had happened.³

Professor Almroth breakfasted with me this morning; he is well read in Shakespere, Walter Scott, & the German Literature as well as in *Shimetry*.

You will have a new Chapel to go when you come home; the great water hole opposite has now a chapel in it for Baptists (they say); it is already up one story & will be ready to open by the time you return at the rate they go on.

I am nearly ready for a jaunt some way now, but whether it will be to the W or N, I do not know till my stick falls.⁴ As for Mr S & Mr A I cannot yet obtain any definite answer. The weather is awkward; but the glass is rising.

My best respects to all

Yours truly

John Dalton

- 1 Mary and Polly were the domestic servants; Dalton was always very thoughtful of their well-being.
- 2 Catherine Johns.
- 3 The Henrys sold their house on Moseley Street for the adjacent development of the Royal Manchester Institution and moved to a larger one at Cornbrook on the southern edge of the town.
- 4 Dalton joined the Johns family for a few days in Beaumaris.