Jamaican Chemists in Early Global Communication

by Robert Lancashire

Justus von Liebig (1803-1873) has been described as "one of the founding fathers of organic chemistry and a great teacher who transformed scientific education, medical practice, and agriculture in Great Britain" [1]. His research was generally initially published in German, although in some cases an English translation was released at the same time. William Brock identified a number of people associated with providing English translations. Most of these were former students, such as John Buddle Blyth (1814-1871), John Gardner (1804-1880), William Gregory (1803-1858), Samuel William Johnson (1830-1909), Benjamin Horatio Paul (1827-1917), Lyon Playfair (1818-1898), Thomas Richardson (1816-1867), Warren De La Rue (1815-1889), as well as Edward Turner (1796-1837) and his brother Wilton George Turner (1810-1855). In this article, the emphasis is on Edward Turner, Wilton George Turner, and John Buddle Blyth, who were all born on sugar plantations in Jamaica [2].

Edward and John became founding Professors of Chemistry at The University of London, England (University College) and Queen's College, Cork, Ireland, respectively. Wilton returned to the region, where he ran a sugar plantation and zinc refinery in British Guiana.

The Turner Family

Edward Turner (24 June 1796, Jamaica - 12 February 1837, London, England) was the eldest surviving son of Dutton Smith Turner and Mary Gale Redwar (see below). Their next child was William Dutton Turner (1798-1858) who became a Physician in Spanish Town, Jamaica. **Wilton George Turner** was their 9th child (9 December 1810, Jamaica - 23 October 1855, Salt Quay, Turks Islands). They were all considered "creole", that is, born in Jamaica of British descent [3].

Dutton Smith Turner (7 April 1755, Clarendon, Jamaica - 2 Oct 1816, "*Teak Pen*", Clarendon) was the son of Thomas Turner and Syddippe Smith, both born in Jamaica, and his monument in the family vault at *Teak Pen* provides the details that he died leaving a widow and eight children. Dutton married Mary Gale Redwar (3 October 1776, St. Catherine, Jamaica - 16 March 1822, Bath, Somerset, England). She was the eldest daughter of Henry Redwar (1752-1798) and Elizabeth Gibbons Lewis (3 May 1754 - 7 May 1825, Bath England).

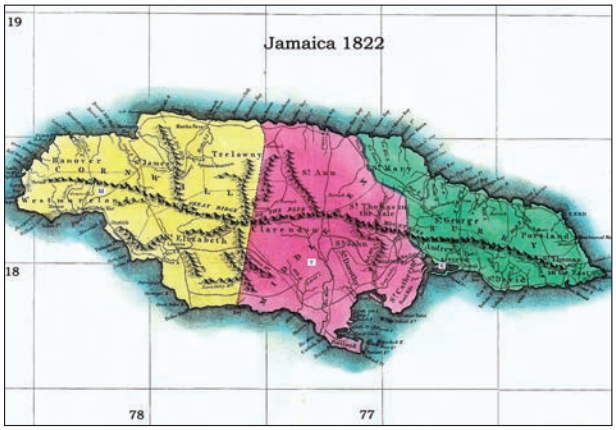


Figure 1. 1822 Map of Jamaica (K=Kingston, east region in green T=Teak Pen, (Central area in pink M=Mesopotamia) K=Kingston (East region in green)

The Blyth Family

John Buddle Blyth, a "free child of colour," was the son of John Blyth, Esq., of Berkeley Square in the parish of Westmoreland and of Mary Buddle, a "free woman of colour" of the same Parish, according to the Baptism Records for Westmoreland, Jamaica of 17 April 1816. His exact date of birth is not recorded but is accepted as July 1814 at the Mesopotamia Estate, Westmoreland, Jamaica [4,5].

Education

Edward and John permanently left Jamaica at an early age to attend school, Edward in Bath, England and John in Dumfries, Scotland. The two of them, as well as Edward's brother William, obtained Medical Degrees from the University of Edinburgh, graduating in 1819, 1839, and 1820, respectively [6]. Wilton is known to have excelled in Mathematics at the Edinburgh Academy, where, since both parents had died by 1822, he and his unmarried sisters lived with Edward [7]. When Edward was appointed to the University of London, Wilton attended lectures in Physics and Chemistry in London as well.

Subsequent to obtaining Medical Degrees, Edward and John spent time studying in Europe, quickly turning away from Medicine to become Chemists. Edward took courses with Stromeyer at Gottingen [8] and John spent about two years at Giessen with Justus von Liebig and a further six months in Berlin with Heinrich Rose and Gustav Magnus [9]. Wilton spent time in Europe, as well (he married a Berliner, Marie Auguste Fricke, in London in 1836) and received a PhD in 1838 from Giessen, working with Justus von Liebig [10,11].

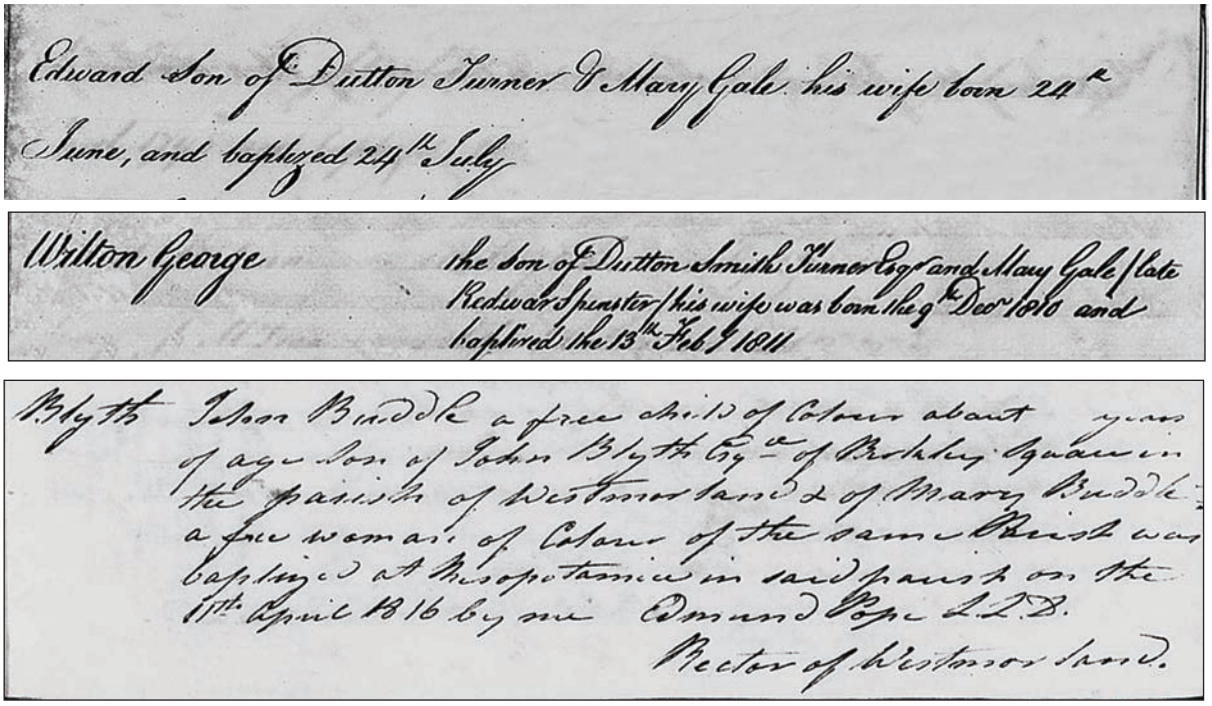
Wilton's wife's sister Friederike Auguste Frick (1805-1847) married Gustav Rose (Heinrich's younger brother) in 1828, creating a link to the Rose family, well known for its distinguished scientists. After graduation, William departed to Spanish Town, Jamaica, gaining respect and recognition for his role there, especially in treating a small-pox epidemic in 1851 with his cousin, Dr. Lewis Quire Bowerbank (1814-1880) who graduated from the University of Edinburgh in 1836) and a cholera epidemic in the 1850's.

Careers

In 1823, Edward returned to Edinburgh from Gottingen and was appointed a Lecturer in Chemistry. From there he was appointed as the first Professor of Chemistry at the University of London [3].

Wilton taught Mathematics at University College School between 1832 and 1839, having only a few years earlier received a certificate for merit in examinations in Physics in a Junior Course run by the Rev. Dr. Dionysius Lardner. He is noted as having acted as Senior assistant to Edward, running Chemistry practical classes as well as having given the chemistry lectures for 1836-37 when Edward died [12]. He wrote to Whewell on 26 April 1837 asking advice about applying as Edward's replacement. The position, however, went instead to Thomas Graham. He had earlier unsuccessfully applied for Chairs in both Mathematics and Mineralogy at the University of London. He applied for several patents between 1840 and 1846 while the partner of Christian Allhusen (1806-1890) at the Allhusen, Turner and Co. soap and alkali works in Newcastle. Finally, he left England for British Guiana, where he has been credited as one of those who put the rum industry on proper scientific grounds [13,14].

John was appointed at the Royal College of Chemistry in 1845 to work with August Wilhelm Hofmann. Hofmann and Blyth were the first to use the term "synthesis", in their paper "On Styrole, and Some of the Products of Its Decomposition" [18]. From there, John went to the Royal Agriculture College in Cirencester in 1847. Like several of his predecessors, it appears he had a falling out with the Administration and left after


Edward Son of Dutton Turner & Mary Gale his wife born 24th June, and baptized 24th July

Wilton George the Son of Dutton Smith Turner Esqr and Mary Gale [late Redwar Spinster] his wife was born the 9th Decr 1810 and baptised the 13th Feb 1811

Blyth John Buddle a free child of Colour about – years of age Son of John Blyth Esq of Berkeley Square in the parish of Westmoreland and of Mary Buddle a free woman of Colour of the same Parish was baptized at Mesopotamia in said parish on the 17th April 1816 by me Edmund Pope LLD Rector of Westmoreland

Figure 2. Register of Baptisms for the Parish of Clarendon 1796 page 223 *"Edward son of Dutton Turner and Mary Gale his wife born 24th June and baptized 24th July"*
"Wilton George the son of Dutton Smith Turner Esq and Mary Gale [late Redwar Spinster] his wife was born the 9th Dec 1810 and baptised the 13th Feb 1811"
"Blyth John Buddle a free child of Colour about – years of age. Son of John Blyth Esq of Berkeley Square in the parish of Westmoreland and of Mary Buddle a free woman of Colour of the same Parish was baptized at Mesopotamia in said parish on the 17th April 1816 by me. Edmund Pope LLD Rector of Westmoreland"

a few years. He was then appointed as the first Professor of Chemistry at Queen's College, Cork, Ireland in 1849 [15,16]. He made several trips to Europe and copies of Belgian and French visa papers from the 1840's are maintained at the archives at what is now the Royal Agricultural University (RAU), Cirencester.

The inauguration of Queen's College, Cork took place on 7 November 1849 and the first President of the College was Sir Robert Kane, a distinguished chemist and Fellow of the Royal Society (another who worked at Giessen with von Liebig). In 1842, Kane had published his textbook called "Elements of Chemistry" in Dublin and in the same year a US edition appeared with John William Draper (a former student of Edward Turner who later became the first President of the American Chemical Society).

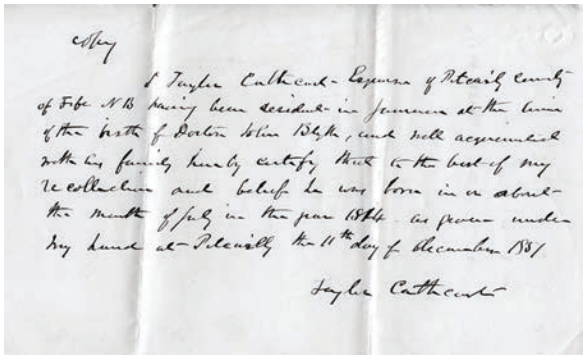
English translations of von Liebig's articles and books

Edward first published his textbook "Elements of Chemistry" in Edinburgh in 1827 and undoubtedly it was because of its popularity that he was appointed at the University of London. It went through numerous editions and for the sixth edition, where he collaborated with Professor Justus von Liebig, a section on Organic Chemistry was enlarged. It was the first English Language textbook covering Organic Chemistry. Edward did not live long enough to see this published and it was completed by his younger brother, Wilton.

The text was published in London by Taylor & Walton. A German translation was produced by Hartmann and there were many American editions, the first supervised by Franklin Bache, later ones by James Blythe Rogers and his brother Robert Empie Rogers, and the last edited in 1856 by John Johnston and published in Philadelphia by Thomas, Cowperthwait & Co. and Charles Desilver; and in Baltimore by Cushings & Bailey [1].

In October 1840, William Gregory, while still at Aberdeen prior to taking up the post of Professor of Chemistry in the University of Edinburgh, wrote to Michael Faraday [17]:

> "I regret that I was not concerned in the translation or editing of the first part, which I think might have been rendered more easily intelligible to the student, as well as more interesting. This part, in which the general principles of organic chemistry are developed, was edited by a gentleman [Wilton George Turner] who had no practical acquaintance with organic chemistry, and who in consequence committed some mistakes, occasionally even reversing the author's meaning. In the part now published, which contains chiefly details of facts, I could not repair the errors of the introductory part, but I have endeavoured as far as possible to render these details clear and consistent....
>
> I have further to mention that the concluding part of the Organic Chemistry, to be published before Christmas, will be, except the first few pages, written by myself; so that I shall consider myself in reality the responsible editor of that part of the work. Imperfect as I fear it will be, still I have some satisfaction in the consideration that the subjects it contains will be for the first time offered to the British public in their actual state of progress. I omit no endeavours to keep myself fully informed of everything that is done on the Continent, where alone, I regret to say, with hardly an exception, organic chemistry is as yet pursued. I fervently trust that the rising British chemists will take their fair share in the future advancement of this department of our science."



"I Taylor Cathcart of Pitcairlie County of Fife NB (Newburgh) having been resident in Jamaica at the time of the birth of Doctor John Blyth and well acquainted with his family, hereby certify that to the best of my recollection and belief he was born in or about the month of July in the year 1814 as proven under my hand at Pitcairlie the 11th day of December 1837. - Taylor Cathcart"

Figure 3. Letter from Taylor Cathcart of Carbiston (1777-1857) giving DOB of JBB as Jul 1814 Courtesy of the Royal Agricultural University, Cirencester archives

Gregory decided to revise the textbook from scratch, and the revision appeared as a 7th edition in December

Figure 4. John Blyth passports a) Belgian 1844 b) French 1839 Courtesy of the Royal Agricultural University, Cirencester archives

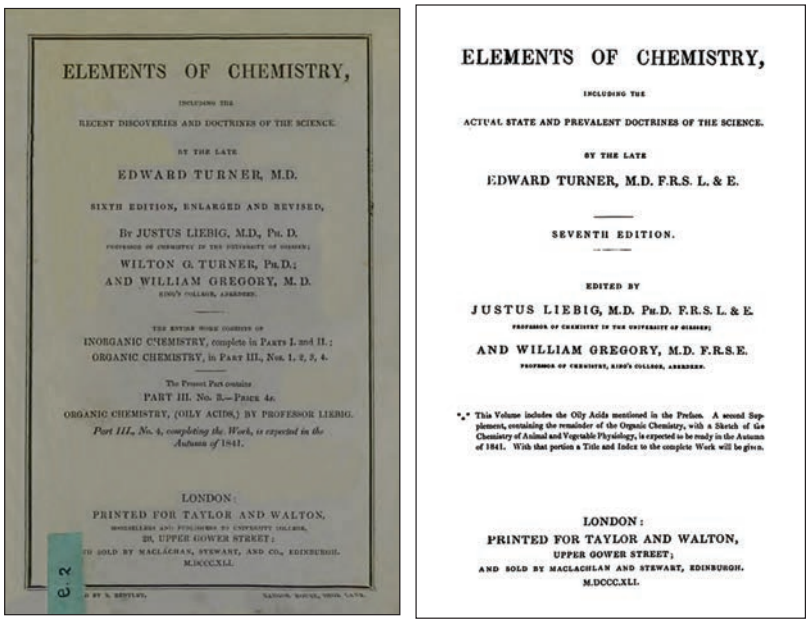
1842. An Advertisement for the 7th edition noted that

> "There is no English work on Chemistry which has been in so many hands, and has met with such universal approbation, as Turner's Elements; and there is scarcely any work which has received so many additions and improvements in passing through its numerous editions. The present one appears to fulfil all that can be desired of a work of this kind. In the former editions, which were conducted by the late lamented Dr. Turner, the inorganic division of the subject was treated with that clearness, perspicuity, and beauty of arrangement, so peculiarly his own; but the organic part of the work, although giving a very good general outline of this part of chemistry, was not so full as could be wished, when the most miraculous advances of this interesting branch of the science were taken into consideration. The edition now before us, by W. Gregory and J. Liebig, leaves nothing to be desired in this respect; they have rendered it exceedingly complete, carrying out at the same time the original idea of Turner. As a compendium of the present state of chemistry, and a text-book for all beginners, we consider it as unequalled by any in the English language, and we even doubt whether there are any of the Foreign manuals, of an equal size, which can venture to compete with it." -*Chemical Gazette,* 1 Dec 1842.

Gregory later informed von Liebig, that "*Turner was too expensive and too advanced for British students*", and in consequence he planned to compile his own simpler textbook. Gregory's highly successful *Outlines of Chemistry* was duly published in 1845 [19].

Wilton Turner and William Gregory seem to have clashed again some years later over a proposal based on a December 1847 patent by John Scoffern to use lead salts to process sugar. In 1849 investigations were instituted in a range of countries including by the Governor of British Guiana, that resulted in

> "reports from Dr Shier, the colonial agricultural chemist; Dr. Blair, the surgeon-general; and Dr. Wilton Turner, a chemist of eminence, employed in investigations on the manufacture of sugar; who concurred in opinion that the complete separation of lead from sugar made by Dr Scoffern's process cannot be ensured, and that specimens made by the agent to the patentee had been found to contain the pernicious ingredient in sufficient quantity to render it injurious to health. Dr Wilton Turner suggested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INCLUDING THE

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WILTON G. TURNER, Pm.D.;

AND WILLIAM GREGORY, M. D.

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E. 2

ELEMENTS OF CHEMISTRY,

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M.DCCC.XLI.

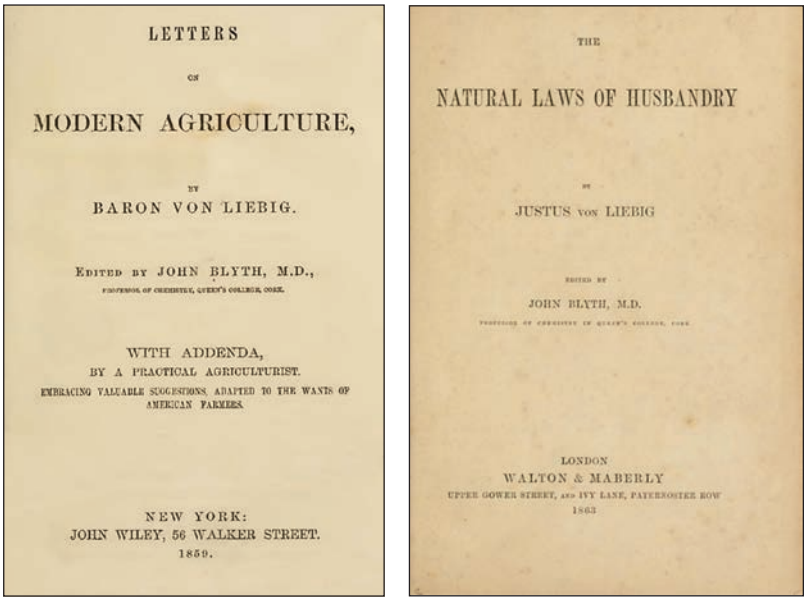
Figure 5. Turner's Element's of Chemistry a) 6th Edition b) 7th Edition Public domain

that the casks containing sugar made by this process should be branded with the word "lead" [20].

William Gregory wrote in 1850 that he had fed lead sulfite to dogs and rabbits over a series of days and weeks and seen no ill-effects. In fact they appeared so well and fat that many were stolen. He concluded that it was perfectly innocuous and "*as harmless as chalk would be*" [20]. The proposal was ultimately rejected.

Following the death of William Gregory in 1858, Justus von Liebig noted in the Preface of the 4th Edition of Familiar Letters on Chemistry that:

> "My friend Dr. Gregory, who assisted me in the former editions, has, meantime, been removed by a Higher Power from his family and from science. United for more than twenty years by the ties of a sincere and intimate friendship, no one feels more keenly than I do, the great loss sustained by his friends in his death. Rare extent of knowledge, combined with admirable powers of mind, enabled him to apprehend exactly the ideas and views of others, and to put them forward in the best form, and with the precision of original composition.
>
> I have requested Dr. Blyth, Professor of Chemistry, Queen's College, Cork, my friend and former pupil, to edit the present edition of my Letters. Dr. Blyth is one of the most distinguished Chemists of Great Britain. From his intimate acquaintance with chemical science, and with the different subjects discussed in these Letters, I esteem myself fortunate, that he has in the kindest manner acceded to my wishes."


LETTERS

ON

MODERN AGRICULTURE,

BY

BARON VON LIEBIG.

EDITED BY JOHN BLYTH, M.D.,

WITH ADDENDA,

BY A PRACTICAL AGRICULTURIST.

EMBRACING VALUABLE SUGGESTIONS ADAPTED TO THE WANTS OF AMERICAN FARMERS.

NEW YORK:

JOHN WILEY, 56 WALKER STREET.

1859.

THE

NATURAL LAWS OF HUSBANDRY

OF

JUSTUS von LIEBIG

JOHN BLYTH, M.D.

LONDON

WALTON & MABERLY

1863

Figure 6. Liebig books a) Letters on Modern Agriculture b) Natural Laws of Husbandry Public domain.
Figure 7. Bust of Edward Turner housed at University College, London (Photo taken June 2012 by the author)

John Blyth was appointed by von Liebig as the editor of a number of his works in Britain and translated "Letters on Modern Agriculture" (1859), the fourth edition of "Chemical Letters—Familiar Letters on Chemistry" (1859) and "Natural Laws of Husbandry" (1863) [21].

Translations of the "Preface" and "Introduction" to the 7th edition of von Liebig's great work on agricultural chemistry of 1863 were not published in English, even though all the rest of the book eventually was, and even though all of von Liebig's previous editions had been issued in English only months after their appearance in German (The first edition had been translated by Lyon Playfair). The reason was that this "Introduction" (or "Einleitung") was seen as too critical

of English high farming and John Blyth decided not to provide a translation. Walton, the publisher, apparently destroyed the whole of the first volume [22].

An unpublished translation of the "Einleitung," was produced by Lady Gilbert [Maria Smith], the [2nd] wife of one of the most distinguished agricultural chemists, Henry Gilbert, in January 1863, and a copy apparently exists in the archives of the Rothamsted Experimental Station (now IACR-Rothamsted) in Hertfordshire [22].

Conclusions

Edward Turner died aged 40. In a memorial to him Robert Christison noted that

> "I have reason to believe he never made an enemy, and never lost a friend" and that "upwards of three hundred of his former students attended the funeral at Kensal Green Cemetery in London on the 18th February, many of whom continued to wear mourning afterwards as if for a relative" [24].

No pictures of Edward seem to have survived and it is noted that Timothy Butler is said to have produced "A remarkably clever work of art. The action of the head is particularly spirited, and characteristic of the subject, of whom it is a striking likeness; a circumstance deserving of the higher commendation, as it is a posthumous production" [25].

Wilton Turner left England for British Guiana and by November 1852 he was obviously in arrears with the Chemical Society, who recommended that his name be removed from the list of Fellows. In Guiana he was reported to run a sugar plantation and zinc refinery and is credited as being one of those who improved the quality of rum there that had previously been described as being of poor quality [14]. In 1853, Wilton is to be found in Barbados, where his daughter Eliza died and was buried at the church of St Matthias in Christ Church. Still in Barbados in 1855, he was acting as a homeopathic doctor treating cholera. He was reported as having excellent results, with less than 10% deaths, compared to others using more conventional treatments. Finally, while travelling to Canada he died in the Turks Islands in 1855 (where large deposits of guano had been found and exported to Europe, perhaps a stop influenced by von Liebig?). His remaining family seems to have finally settled in Guelph.

According to an obituary for John Blyth published in the Journal of the Chemical Society in 1872,

Figure 8. Colourised photo of John Buddle Blyth, 1862, from a B/W image courtesy of the Royal Agricultural University, Cirencester

> "In this new institution he had most arduous duties to perform, not only in connection with the Chair of Chemistry, but also in conducting the course of medical jurisprudence. His success as a teacher here was such as to render it necessary to make large additions to the laboratory for the accommodation of the students".

Blyth died of apoplexy on 24 December 1871, and was buried on the December near his friend and Mathematics colleague, Dr. George Boole, at St Michael Church at Blackrock, Cork. A local obituary noted

> "on Thursday he delivered an able lecture to the Chemistry Class in the College with his accustomed vivacity. On Friday two of his brother College professors dined with him at his residence on Wellington Road, Cork. During dinner he was in his usual spirits—conversational and entertaining. Shortly after the removal of the tablecloth, he leant back in his chair, apparently in a swoon; but one of his guests, a medical gentleman, quickly declared his illness paralysis. Every

aid was sought, and every known remedy applied, but he never rallied, and he breathed his last on Saturday night to the deep regret of all who were favoured with his acquaintance" [26].

Justus von Liebig died in Munich, 18 April 1873, outliving all three.

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Hannah Gay and William P. Griffith, The Chemistry Department at Imperial College London, A History, 1845 –2000. x + 569 pp., illus., tables, bibl., index. London: World Scientific, 2017. Appendix One: Liebig at Giessen; Some early 19th Century Chemistry

Acknowledgements

Thanks to Professors Alwyn Davies and Andrea Sella for accommodating my visit at University College, London and providing information on Edward's time there.

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