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WILLIAM HIGGINS AT THE DUBLIN SOCIETY, 1810–20: THE LOSS OF A
PROFESSORSHIP AND A CLAIM TO THE ATOMIC THEORY

by

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William Higgins is primarily remembered for his claims to have developed the principles of the atomic theory before John Dalton. Why did Higgins, who did not issue a single word in print on the atomic theory for 25 years after his 1789 book *A Comparative View*, suddenly claim priority in 1814, and then continue to pursue his assertions against Dalton and his supporters with such vitriol? This paper argues that Higgins's delay in sending a sample of the Mooresfort meteorite to the naturalist and illustrator James Sowerby contributed to the Dublin Society's decision to split Higgins's dual professorship of chemistry and mineralogy, which led to the hiring of mineralogist Charles Giesecke. Higgins's subsequent frustrations, including an ongoing competition with Giesecke, indicate that his claims to the atomic theory were attempts to rebuild his diminished status.

Keywords: Higgins; Dublin Society; atomic theory; Giesecke; Dalton; Davy

INTRODUCTION

John Dalton's (1766–1844) development of the atomic theory—which states, in addition to other principles, that elements consist of identical atoms that cannot be further divided, and when atoms combine, they do so in fixed and multiple proportions—is one of the milestones in the history of chemistry. In 1808 Dalton first described his work in *A New System of Chemical Philosophy*.¹

From 1814 to 1819, the Irish chemist William Higgins (1763–1825), who was employed by the Dublin Society at the time, heatedly asserted that he developed the principles of the atomic theory before Dalton in his book *A Comparative View of the Phlogistic and Antiphlogistic Theories*, which was published in 1789.^{2–4} Sir Humphry Davy (1778–1829) first suggested Higgins's priority in his Bakerian Lecture,⁵ read before the Royal Society on 15 November 1810, evidently by another Fellow.⁶ Davy had already arrived in Ireland at the end of October to give a series of lectures during November at the invitation of the Dublin Society.^{7,8} Charles Wye Williams (1779–1866), a student of

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William Higgins's,⁹ relates the following story of how Davy accepted Higgins's claims during his Dublin lectures:

In Dublin, Davy lodged at the house of a chemist of the name of Hogan. The latter observing that he did not seem to recognize the advance that had been made on the subject, took the opportunity of asking him if he had seen Higgins' tract on the atomic theory. Finding he had not, he put it into his hand. Davy sat up late, reading it, and on the following morning, thanking Hogan, he said, 'Why, it's all here! He is right; the elements of the theory are here given.'¹⁰

The story seems to be somewhat embellished, for Williams mentions that 'Berzelius, and other Continental authorities'¹¹ acknowledged Higgins's claims of priority, which is not true of Jöns Jakob Berzelius (1779–1848), although the French chemist Gaultier de Claubry (1792–1878) did support Higgins.¹² Williams may have even heard the story directly from Higgins. Davy's Bakerian Lecture mentions experiments that he performed in the Dublin Society's laboratories, indicating that he was still working on the lecture when he arrived in Ireland. His reference to Higgins's priority was probably inserted while he was in Dublin, as noted in Williams's story,¹³ although the manner of his discovery and his reaction to Higgins's work are by no means certain. However, having worked in the Society's chemical laboratory, Davy would have discussed the matter with Higgins after learning of his work.

Davy continued to support Higgins, referring to the matter in an 1811 letter to Berzelius¹⁴ as well as in his 1812 book, *Elements of Chemical Philosophy*.¹⁵ However, Higgins did not pick up the gauntlet and issue his own assertions in print regarding *A Comparative View* until 1814, when his book *Experiments and Observations on the Atomic Theory* was published. The debate played out over the next five years, as Higgins responded to and criticized the authors of various articles in journals, encyclopaedias and texts, who either did not reference his work or credited Dalton with priority. He essentially claimed that Dalton was a plagiarist, and used language that was at times startling and abusive, even by today's standards.

Higgins wrote *A Comparative View* to support Antoine-Laurent de Lavoisier's (1743–94) theory that combustion did not involve the release of 'phlogiston', which was then widely believed to be the substance of fire. It was not a treatise on the atomic theory. He was only 26 years old at the time, one of the first supporters of Lavoisier, and he adopted the opposite position on the phlogiston debate to that held by two noted and elder Irish chemists of the time—Richard Kirwan (1733–1812) and Bryan Higgins (1741–1818), who was his uncle.¹⁶

A Comparative View did contain a system of chemical symbols and some insight into the law of multiple proportions and other principles, which were presented in the context of the phlogiston debate, but Higgins's theory stressed the attraction between atoms, and he apparently did not appreciate the importance of Dalton's atomic weights, an integral part of the latter's theory, nor did Higgins ever publish a clear and coherent theory to match that of his adversary.^{17–23} Overall, Higgins was unsuccessful in establishing his priority during his lifetime, and just one year after his death, Dalton received the Royal Medal in 1826 for developing the atomic theory. There are those who believe that Higgins should receive more credit for his work, and the controversy is still alive and well today.²⁴ A discussion of the details and merits of both sides of the argument, as well as the nature of Higgins's claims, is beyond the scope of this paper.

In a similar manner to the careers of so many modern chemists, Higgins held several positions before arriving at the Dublin Society, his final place of employment until his death in 1825, and from where he waged his battle with Dalton. After attending Oxford for about two years, he published two editions of his *Comparative View* in London in 1789 and 1791, returned to Ireland to take a position with the Apothecaries' Hall in 1792, and left in 1795 to secure both a part-time position with the Irish Linen Board and an appointment with the Dublin Society.

Higgins was employed by the Dublin Society through the efforts of Richard Kirwan (1733–1812), who was responsible for acquiring the famed Leskean mineral collection for the Society.^{25,26} Although he was not a mineralogist, Higgins was placed in charge of the cabinet consisting of more than 7000 specimens, and he became a professor of chemistry and mineralogy. Having been one of the first chemists to accept Lavoisier's antiphlogistic theory in contrast with his elder and more noted chemists, 'Mr. Higgins was considered a paragon' when he arrived.²⁷

William Higgins remains a somewhat shadowy figure to this day. He has been described by one of his contemporaries at the Dublin Society, Isaac Weld (1774–1856), as an obstinate ill-tempered individual, who was at times unpredictable and defiant of the Society.²⁸ When he pursued monies owed him by the Apothecaries' Hall where he resided in 1795, he was told to move 'immediately from this House in consequence of your very unhandsome Language to different Subscribers and to this Court last Tuesday.'²⁹

However, his actions are best explained by a strong territorial instinct that dictated whether he actively engaged someone in battle or simply ignored their requests. Commenting on why he issued his claims after Dalton's book appeared, he stated rather bluntly, 'A man must be very stupid, or timid, who, on finding his property invaded, would not step forward to defend it; and this I did when attacked by Mr. Dalton and his accomplices.'³⁰ This territorial behaviour was not limited to defending his intellectual property. It is demonstrated on the most basic level by his protests about who was allowed to enter his laboratory at the Apothecaries' Hall and whether lectures could be held in the chemistry laboratory at the Dublin Society,³¹ as well as his disregard for other professors at the Society by unilaterally scheduling his lectures at conflicting times.³²

Even Davy aroused Higgins's instinct to defend his turf when the English chemist travelled to the Dublin Society to present his lectures in 1810. In a letter dated 1 May 1810, honorary secretary John Leslie Foster (1781–1842) wrote about the need to obtain Davy's formal acceptance of the forthcoming speaking engagement and then continued:

Higgins is a little vexed—very unreasonably so—it produces however this good effect that he labors incessantly to make his own Course as perfect as possible & certainly to do him justice—except in eloquence it is the best Course I have seen or heard.³³

When Foster finally did write to the Royal Society on 4 May, requesting Davy's attendance at the conclusion of Higgins's lectures, he tactfully acknowledged Higgins's efforts:

While they witness and applaud the exertions of their own Professor, Mr. Higgins, they feel that they should be wanting both to the public, and to their own immediate object, if they did not use their best exertions to procure for Ireland the advantages of the fullest communication of the great discoveries which have been made by Mr. Professor Davy.³⁴

Davy seems to have been sensitive to the delicate political situation; as Foster noted,³⁵ he recognized Higgins's experimental abilities in his introduction to his lectures. After mentioning the time constraints on the lectures and the material that could be covered, he stated:

& I cannot but omit such demonstrations as properly belong to a general chemical course. I must consider these as already discussed by my able & learned friend the professor of Chemistry; What I have to offer I offer merely as a sequel to his lectures.³⁶

Any threat from Davy quickly vanished with these words and his advocacy of Higgins's priority for the atomic theory in his Bakerian Lecture.

Perhaps Davy captured the essence of Higgins's character in just two sentences scrawled in one of his laboratory notebooks. Davy was probably thinking about Higgins's early support of Lavoisier when he started to write his words, but then realized how his actions regarding his claims to the atomic theory had taken their toll. Having given the matter some thought as indicated by some stricken words and inserts, he was finally satisfied with the following description:

Indefatigable experimentalist & the importance of his discoveries were universally felt & generally acknowledged. His political and polemical disputes latterly however considerably interfered with his Scientific Researches & injured his high reputation.³⁷

Higgins's battle with Dalton has overshadowed his work in the field of meteoritics. In addition to being credited with being the first to provide detailed accounts of the 1810 Mooresfort fall³⁸ and the 1813 Limerick meteorite shower,³⁹ *Atomic Theory* contains four pages on his views on meteorites, including his belief that accumulation of electric charge on the surface of a meteorite as it falls through the atmosphere releases internal caloric, the supposed substance of heat at the time, which was responsible for the light and noise that can accompany such falls. Higgins was a strong supporter of Ernst Florenz Friedrich Chladni (1756–1827), the father of meteoritics, who stated that meteorites were extraterrestrial.⁴⁰

This paper provides new evidence to address one of the key unanswered questions about Higgins's life. Why did Higgins, who did not issue a single word in print on the atomic theory for 25 years after his *Comparative View*, suddenly claim priority in 1814 and then continue to pursue his assertions with such vitriol? Kelham has speculated that Higgins did not view his atomic theory to be a unique entity, having been cast in the context of the phlogiston debate, and was preoccupied with other more routine chemical work, only to regain interest after Dalton's theory was published.⁴¹ But in spite of the fact that Dalton's *New System* had been in print since 1808, and Davy had been promoting Higgins since 1810, Higgins still did not issue his claims until 1814. None of Higgins's biographers have been able to come up with a satisfactory explanation, or even speculation, as to what might have triggered Higgins to act.

I argue that Higgins's delay in responding to a request for a sample of the Mooresfort meteorite contributed to the elimination of his dual professorship, the removal of the Leskean mineral collection from his oversight, and the hiring of Charles Giesecke as Professor of Mineralogy. These developments were bitter blows to the territorial Higgins, and it is the downsizing of his position and his subsequent frustrations at the Dublin Society, including an ongoing competition with Giesecke, that explain why he first issued and then continued his claims to the atomic theory with such anger.

MOORESFORT—AN UNACCEPTABLE DELAY IN SENDING SOWERBY A SPECIMEN

In August 1810 the nearly 8-pound Mooresfort meteorite fell in Co. Tipperary, about three months before Sir Humphry Davy gave his series of lectures at the Dublin Society in November after the summer break. Higgins had addressed the subject of meteors in his presentations at the Dublin Society before 1801,⁴² and Davy had discussed meteorites at the Royal Institution as early as 1808.⁴³ When the two men met in November 1810, they probably talked about the recent Mooresfort fall, and it was decided that Higgins would send Davy an analysis of the stone for one of the latter's forthcoming presentations at the Royal Institution. Davy probably gave the lecture in March 1811, at about the same time as he wrote to Berzelius about Higgins, and the 'Varieties, Literary and Philosophical' column of the 1 April 1811 issue of *The Monthly Magazine* reported the following:

Dr. Davy lately read an account of a meteoric stone, which fell, a few weeks since, in the county of Tipperary. The phænomena surrounding its fall were the same as described in other instances of the like kind. The stone has been analyzed by Mr. Higgins, of Dublin, and contains, like other meteoric stones, iron and nickel.⁴⁴

It is somewhat uncanny how so many meteorite specimens during this period of history crossed the path of the naturalist and illustrator James Sowerby (1757–1822), who described and included drawings of numerous meteorite specimens in his works *British Mineralogy*⁴⁵ and *Exotic Mineralogy*.⁴⁶ Sowerby owned the main mass of the Wold Cottage meteorite, which was then known as the Yorkshire meteorite. When it fell in 1795 it weighed 56 pounds—the largest meteorite to land on the soil of Great Britain or Ireland at the time. He also possessed a large sample of the Cape of Good Hope iron, which fell before 1793.⁴⁷ Sowerby displayed his specimens in a small museum, which was an addition to his house, and traded pieces of his Wold Cottage and Cape of Good Hope samples to acquire specimens of other meteorites.^{48,49} After reading the *The Monthly Magazine* column, Sowerby wrote a letter on 2 May 1811 to Henry Joy (1763–1838), a barrister and member of the Dublin Society's Committee of Chemistry, requesting a sample of the Mooresfort meteorite.⁵⁰

Higgins, who had already analysed a sample for Davy, knew that the meteorite was held by Maurice Crosbie Moore, a resident whose house was located near the fall, but had not obtained the stone or an account of the event for the Dublin Society. The Society seemed to act quickly on Sowerby's request, and within the next three weeks, the main mass of the meteorite was obtained from Moore, who was asked to provide and subsequently supplied a letter with further details about the occurrence.^{51,52} Higgins was then instructed to supply a specimen to the Assistant Secretary, at that time Bucknall McCarthy (1774–1829),⁵³ to send to Sowerby. With the word of the meteorite fall spreading, more requests for samples were received in June from the Royal Cork Institution and from Dr Barker, Professor of Chemistry at Trinity College.⁵⁴ Higgins was probably concerned that another investigator would be the first to report an analysis of the meteorite in a scientific journal, receiving credit for his analytical work, which Higgins viewed as his intellectual property. On 28 July, not quite a month after the Royal Cork Institution had received its sample,⁵⁵ Higgins sent his paper⁵⁶ describing two of the three analyses he had conducted on the stone along with a copy of Moore's letter to Alexander Tilloch (1759–1825), the editor of *Philosophical Magazine*.

Five months after the Dublin Society had approved his request, Sowerby was still waiting for his sample, and was probably furious after reading Higgins's paper in the October 1811 issue of *Philosophical Magazine*. On 29 October he wrote a strong letter to Joy noting that the latter had written to William Henry Fitton (1780–1861) on 5 August 1811 mentioning that he would do everything he could to obtain a sample and a cast of the Mooresfort meteorite for Sowerby in exchange for a sample of the Wold Cottage stone. Sowerby 'was happy in anticipating that the result would be that I had not only got a new and arduous friend, but that all would be highly gratified by the mutual exchange.' Sowerby continued:

I must therefore now beg to be excuse [*sic*] / if this is an intrusion to say that some months having elapsed and neither hearing from you nor finding the stone arrive after the positive order of it by the Society, I fear something unforeseen to you or what I do not know has happened to interrupt your intention so long, and I am the more hurt if possible as the Society may expect at their meeting to see me fulfil my promise, which I solemnly wish to do, but cannot with propriety to myself or friends, till I know what has happened to prevent the arrival of the Societys [*sic*] gift. I should wish to have the matter cleared up that I may not get innocently reprehended.⁵⁷

Joy must have been embarrassed about the delay, as well as concerned about the effect it would have on his relationship with Sowerby and the Society, and apparently took action. A little over a week later, on 7 November, Higgins read the results of his Mooresfort analyses before the Dublin Society, and it was resolved to publish Higgins's study as an appendix to the final volume of the Dublin Society's *Proceedings* for 1811.⁵⁸ After the inexplicable passage of three more months, Sowerby received his sample and on 27 February 1812 sent a thank-you letter, addressed to the Dublin Society, mentioning his delight. He continued: 'I received the specimen of Tipperary meteor-stone, by favour of Mr. Joy, on Jan. 31, 1812, and immediately acknowledged it, by notes to Mr. Joy and Dr. Higgins, in a letter to Mr. Mackay [*sic*].'⁵⁹ In fulfilling his promise for an exchange, not only did Sowerby send a sample of the Wold Cottage meteorite, he included some 'fragments, for analysis, in case Dr. Higgins, or any member, should choose to undertake it, for the sake of comparison.' In addition he included a sample of the Cape of Good Hope iron and some particulate matter generated from the cutting of this meteorite for further study.⁶⁰ In spite of the Dublin Society's resolution that Higgins analyse these specimens, he did not publish anything further on them.

Joy was not the only member of the Dublin Society who was unhappy with the turn of events, because it is certain that Higgins's delay angered General Charles Vallancey (1725–1812), the influential and long-term member and vice president of the Dublin Society. In March 1806, Vallancey wrote to John Foster (1740–1828)—a fellow vice president of the Society, last Speaker of the Irish House of Commons and John Leslie Foster's uncle—'bear in your mind our want of a specimen or two of the cloud stones or Moon Stones that have fallen in England', a clear reference to the Wold Cottage meteorite owned by Sowerby.⁶¹ Vallancey was present at all of the meetings in May 1811 when the Society dealt with Sowerby's request for a sample of the Mooresfort meteorite, and he was well aware how Higgins's inaction endangered the acquisition of the specimens he desired. Isaac Weld stated that Vallancey 'was always on the spot and was sort of a dictator in the Society',⁶² and he was at times strong willed and testy.⁶³ Higgins had previously irritated Vallancey by closing his lectures to Society members, and when

he reversed this practice Vallancey remarked that Higgins had ‘opened his eyes’ as well as his lectures.⁶⁴ The lackadaisical response in fulfilling Sowerby’s request no doubt angered Vallancey as well.

Wheeler and Partington mention Higgins’s delay in supplying an important elected official with an analysis of a water sample when he worked at the Apothecaries’ Hall in 1794, in spite of his employer’s desire to communicate the results as soon as possible.⁶⁵ Apparently the very same situation developed with the Mooresfort specimen. Sowerby had his finger on the pulse of the mineralogical world, and the names of those who lent him specimens for illustration, as well as those he traded samples with, constitute a list of some of the most prominent scientists, mineralogists and collectors of the time.⁶⁶ Anyone seeking to expand a mineral cabinet, including, as we shall see, the director of the famous Vienna collection, would understand the politics involved—the need to do everything possible to reach out and nurture a relationship with Sowerby—except, perhaps, for the territorial Higgins. Higgins was complacent to reside in his world at the Dublin Society, a world that was about to change dramatically.

THE LOSS OF A PROFESSORSHIP AND A COMPETITION WITH GIESECKE

On 28 December 1811 Higgins wrote a letter to Vice President John Foster that had dire consequences for his career at the Dublin Society (figure 1). Higgins was pressing Foster for an increase in salary, a request that he had made in person sometime earlier at Foster’s Collon estate. After writing about the increase in the cost of living, Higgins displayed the degree to which his sense of self-importance blinded him to the reality of his employment situation:

It is very well known that the duties of my department are very severe and constant and that they are increasing every year.

Science and indigence do not chime well together, those who have to contemplate and explore the laws of nature should have their minds perfectly at ease, and as they labour for the public at large and even for posterity without any immediate advantage to themselves, they stand more in need of the patronage and support of personages possessed of power and influence than any other description of men.⁶⁷

The Society did act on his request, but in a manner that was totally unanticipated by Higgins. In January 1812 the Society investigated and then decided to split Higgins’s dual appointment, hiring a separate professor of mineralogy at a salary of £300 per year. Because this coincides with the time when Sowerby was finally sent his Mooresfort sample, it comes as no surprise that Henry Joy, who was the recipient of Sowerby’s angry letter, was one of the members supporting the split.⁶⁸ Secretary John Leslie Foster, Vice President John Foster’s nephew, voted with Joy as well, and Vice President General Vallancey chaired the meeting at which the resolution to hire a new professor was passed. In the words of the Dublin Society, a professor of mineralogy would be hired, ‘enabling Mr. Higgins to devote his time exclusively to the cultivation of that science in which he so eminently excels.’⁶⁹

Higgins’s delay in sending Sowerby a sample of the Mooresfort meteorite seems to have precipitated the split as a result of a growing dissatisfaction of the Society about the state of the mineral cabinet under Higgins’s tenure. According to the committee reporting on the

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 for posterity without any immediate advantage
 to themselves, they stand more in need of the patronage
 and support of personages possessed of power and
 influence than any other description of men.
 These considerations and these feelings will I trust
 be a sufficient apology for this second intrusion.
 I have the honor to be, Dear Sir,
 your very humble servant
 Will. Higgins -

Figure 1. Higgins requested a salary increase in a letter dated 28 December 1811 to Vice President John Foster of the Dublin Society. (Reproduced with the permission of the Deputy Keeper of the Records, Public Record Office of Northern Ireland and Viscount Massereene and Ferrard).

breakup of the dual position, the main advantage ‘will consist in having a Professor, whose undivided attention can be devoted to the Sciences of Mineralogy and Geology, and to the care and arrangement of the Museum of Minerals—whereby great improvement may reasonably be expected in that Department.’⁷⁰

If Higgins’s long silence on the atomic theory was due to a preoccupation with applied work, as Kelham has speculated,⁷¹ he certainly had more time for chemistry after losing half his appointment and the mineral cabinet. Although Higgins had taken no action after Davy’s Bakerian Lecture of 1810—he still had his dual appointment at the time—Davy’s continued advocacy of Higgins’s priority in 1812, as expressed in his book *Elements of Chemical Philosophy*, probably fell on more receptive ears and spurred Higgins to speak out finally against Dalton in his 1814 *Atomic Theory*.

This argument is supported by Higgins’s own explanation for his delay in issuing his assertions:

As it is nearly five years since the first part of Mr. Dalton’s ‘New System’ appeared, it might be asked why I had not taken notice of it sooner; I will only say that it is with much reluctance I do so now at the request of some scientific friends. Besides, I had it in contemplation, for some years past, to publish a system of chemistry on a new arrangement, which I am now determined upon. In such a work I thought my claim to the *new system* would appear less pointed, and with more grace.⁷²

The reference to scientific friends certainly includes Davy, and Higgins's sudden determination to publish a work on a chemical system that he had thought about for years, but did not act on, clearly reflects his new marching orders from the Dublin Society to focus his activities on chemistry.

In the light of these developments, his claim to have formulated the atomic theory before Dalton seems to have been an attempt to latch on to something that had been of no interest to him after the publication of *A Comparative View* in order to boost his importance after his professorship was downsized. In fact, after Dalton issued his *New System*, Higgins mentions that he had not read his own *Comparative View* for 20 years.⁷³ And after reviewing Dalton's book, as well as his own, he simply put both volumes aside and returned to his routine at the Dublin Society for another three years, until the splitting of his dual appointment.

Higgins's concern about his claim to a new system being less pointed was certainly not evident in his subsequent actions. The splitting of the chemistry and mineralogy positions and the removal of the Leskean mineral collection from his oversight after 17 years must have been tremendous blows to someone who was so combative and territorial, and there is no surprise that he pursued his claims with extreme vitriol. Higgins realized that after so many years he was no longer the paragon that he was when he first came to the Dublin Society as one of the first supporters of Lavoisier.

His attempts to rebuild his status are evident not only in his claims of priority over Dalton but also in the introduction of his electric/caloric theory in *Atomic Theory*,⁷⁴ which stated that caloric was released by electricity and, for example, resulted in the light associated with meteors. Just before launching into his main exposition on his claims over Dalton in *Atomic Theory*, he described his electric/caloric theory as follows:

The theory, or rather the hypothesis, which I have advanced, on electrical phenomena, is founded on well-known facts, and according to my knowledge is quite new. It is simple and uniform in its application, and capable of accounting for many phenomena which appeared hitherto inexplicable upon any rational principle whatever. Should it stand the test of further investigation, it will establish the materiality of the imponderable elements beyond a shadow of doubt. . . .

I will now return to the atomic theory, the principal object of this essay, and endeavour to submit to the philosophical world such testimony as will enable it to judge who is the author of that doctrine.⁷⁵

In a February 1818 paper, Higgins formally extended his electric/caloric theory to address the relationship between caloric and light, referring to the existence of both in the free and combined states,⁷⁶ and he believed his theories involving the 'imponderable elements' of electricity, light and caloric were significant additions to his *Comparative View*. His biographers and historians have generally paid little, if any, attention to these theories and the importance that Higgins placed on them. They were his only efforts to regain his reputation that did not involve resting on the laurels that he won so long ago as an antiphlogistonist, and he was ultimately disappointed that despite his efforts to advance their acceptance,⁷⁷ they did not help him regain the status that he thought he deserved. Higgins's own words on the atomic theory, contained in his very last paper published in 1819, support these conclusions:

So far as it relates to the development of fundamental principles it could not be advanced a single step, even at this day, beyond the limits at which I left off in my *Comparative View*. I have indeed applied it a little more extensively in my *Atomic Theory*, and also in a paper on the *connexion* of *light* and *caloric*, published in this Magazine, vol. 51, page 81. There is as much originality in this paper, and perhaps it is as interesting as any of the principles developed in my *Comparative View*; and yet it has not been noticed, nor should I myself mention it, had not the subject in question led me to it. Probably in about twenty years hence some writer will announce it as his own, together with my hypothesis on electrical phenomena. And to give it greater publicity was impossible, unless I were to puff it off in the daily prints or monthly magazines, which would be a species of quackery beneath any man of science: besides, I had not the smallest doubt but it would sooner or latter make its own way, as I predicted in the preface.⁷⁸

In December 1813 the Society filled the mineralogy professorship with an individual who would remain in the position for almost 20 years: Johann Georg Metzler, later known as Sir Charles Giesecke (1761–1833).⁷⁹ The Scottish mineralogist Thomas Allan (1777–1833) played a crucial role in assisting Giesecke to obtain his position, introducing and recommending him to the Dublin Society.⁸⁰ Allan's associate was the Scottish chemist Thomas Thomson (1773–1852), who analysed Allan's samples and named the mineral allanite after him,⁸¹ proposed Allan's candidature for election to the Royal Society,⁸² and as editor of *Annals of Philosophy* published Allan's complimentary news about Giesecke's arrival in Ireland.^{83,84} Thomson was a strong supporter of Dalton's and a prime target for Higgins's wrath throughout the debate on the atomic theory, and I speculate whether some of Higgins's anger was fuelled by Thomson's association with Giesecke's advocate.

Giesecke's rise in the Dublin Society was truly 'meteoric'. He was famous for having explored Greenland for seven years, and he became Sir Charles Giesecke when he was admitted to the Danish Order of Dannebrog in 1814. He brought thousands of specimens to the Dublin Society's mineral cabinet, which was put under his authority, and he had contacts with mineralogical societies and numerous scientists in several countries. When he came on board he could hardly speak a word of English. Within four years, on 12 June 1817, the Dublin Society awarded Giesecke a gold medal for his activities in expanding and administering the mineral collection.^{85–87}

If Davy's trip to Dublin to give a series of lectures had aroused Higgins's territorial instinct, his reaction to Giesecke's arrival was certainly true to form. The Dublin Society had hoped for a smooth transition when it passed resolutions at the meeting on 9 December 1813 authorizing the Committee of Mineralogy to act as it deemed necessary—without asking the Dublin Society for instructions—to transfer the Leskean mineral cabinet from Higgins to Giesecke and to draw up a list of specimens to be acquired, with the estimated costs of purchase.⁸⁸ More than a year later, in February 1815, Higgins did the exact opposite, and requested the Society to form a committee to examine the mineral collection before it was removed from his charge. At the very same time that he posed this roadblock, he presented some 'curious specimens of minerals' to the Society,⁸⁹ indicating that he was not going to let go of the mineral cabinet so easily. In an effort to facilitate the transfer, in March 1815 the Society asked that a third party participate, but evidently a third person to witness Higgins's and Giesecke's examination of the mineral cabinet would not be sufficient. *Two* persons, the Honourable George Knox



Figure 2. Sample of Mooresfort (Tipperary) meteorite weighing 254 g presented by Sir Charles Giesecke of the Dublin Society to Carl von Schreibers, director of the United Imperial and Royal Natural History Cabinet, Vienna, in 1816. (Copyright © Natural History Museum, Vienna; reproduced with permission.) (Online version in colour.)

(1765–1827) and Richard Griffith (1784–1878), were drafted to oversee the completion of the task.⁹⁰

About a year later, Giesecke was able to establish a successful dialogue with one of the most important museums in Europe—something that Higgins had been unable to accomplish—using a specimen of the Mooresfort meteorite that Higgins had investigated, and one can only imagine the anger with which the territorial Higgins viewed this development. At the Society meeting on 22 February 1816, Giesecke read a letter he had received from Austria indicating that Carl von Schreibers (1775–1852), director of the United Imperial and Royal Natural History Cabinet, wanted to trade samples of meteorites in the Vienna collection for a Mooresfort sample. Giesecke recommended the exchange, and the Dublin Society, realizing the importance of establishing a relationship with Vienna, authorized Giesecke to correspond directly with von Schreibers and send the sample (figure 2).⁹¹ Unlike Higgins, the importance of a relationship with Sowerby was not lost on von Schreibers, for in the same year that the Vienna mineral cabinet received its Mooresfort sample via Giesecke, it received four meteorite samples from Sowerby in an exchange (figure 3).

Higgins seems to have responded to these developments by attempting to compete with Giesecke, for at the meeting on 14 November 1816 the Professor of Mineralogy announced that Higgins was donating ‘a very important series of tin ores, collected by himself in Cornwall’, a rare marble and several other minerals to the Society.⁹² But there was no way in which Higgins could match the ability of a Sowerby or a Giesecke to build and exploit relationships through the exchange of minerals. When the Honourable George Knox—the very man who had been required to witness the transition of the mineral cabinet from Higgins—wanted to visit the German writer Goethe (1749–1832), it was his subordinate Giesecke who provided him with a letter of recommendation.⁹³ Giesecke began a correspondence with Goethe after he sent the German author a mineral collection including a sample of the Mooresfort meteorite in June 1819.⁹⁴

Giesecke's voyage began in July 1817, and he did not return to Dublin until December 1819.¹¹¹ Because Higgins returned from his own trip in October 1817 after Giesecke had left, the two men apparently did not see each other for more than two years. On Higgins's return, as though fate wanted to twist the knife a little deeper, James Sowerby, who had started all of Higgins's woes, honoured Giesecke in November 1817 by naming the mineral gieseckite after him in *Exotic Mineralogy*.^{112,113}

Higgins's growing frustration regarding his status at the Dublin Society is exemplified by a serious dispute, perhaps his worst ever, that occurred on 22 December 1817, about two months after his return to Dublin. This time it involved honorary secretary Boyd, not a fellow professor employed by the Society. We do not know the specifics of the disagreement, but Higgins interpreted some remark made by Boyd in the Lecture Room as a personal insult, even after Boyd asserted this was not his intention. At the meeting of the Committee of Chemistry on 2 February 1818, a statement by Boyd and a letter written by Higgins were reviewed, and the Committee passed a unanimous resolution stating that Higgins had 'acted with great impropriety towards Mr. Boyd as Secretary of the Society and towards the Society at large'.¹¹⁴ The resolution required Higgins to apologize not only to Boyd but also to the Dublin Society. One can only imagine the humiliation and anger that Higgins concealed as he stood before the Committee, first listening to the resolution as it was read to him, and then apologizing.

As Higgins's prominence at the Dublin Society diminished in light of Giesecke's accomplishments, his language in his papers towards Dalton and his supporters became stronger and stronger. As an employee of the Society, he could do or say little against his noted co-worker Giesecke or risk another dispute with one of his superiors at the Society, but he certainly had more freedom to vent his frustrations and anger at those outside in pursuit of his claims. Two examples illustrate this point. At the end of March 1817, at the time that Giesecke became a Member of the Royal Irish Academy and just before Higgins asked for his leave, he accused Dalton of intentionally omitting references to his work. He then described Dalton's behaviour as follows: 'It is said that there is a species of depravity peculiar to human nature—which is, that we hate the person we injure more than any other individual. This is readily accounted for.'¹¹⁵

And in January 1818, less than one month after his heated dispute with honorary secretary Boyd and just before his forced apology, Higgins compared Dalton to a monkey imitating his master. These words, some of the strongest he used against his adversary, were included at the end of the very paper detailing his new theory on light and caloric that he believed would bring him the recognition he deserved.¹¹⁶

CONCLUSION

One wonders whether Higgins would ever have started the controversy over the atomic theory if he had simply been allowed to retire quietly with his dual appointment and the Leskean mineral cabinet intact. Unlike Giesecke or Sowerby, who would have used a relationship with a noted chemist to develop further contacts for mineral exchanges, there is no evidence that Higgins actively exploited his association with Davy to obtain specimens for his employer. His inability to develop influential contacts outside the Dublin Society, as demonstrated by his delay in sending Sowerby a Mooresfort sample, cost him his dual professorship and led to his claims of priority over Dalton.

Higgins's territorial nature was a fatal flaw, which he aptly described in March 1817, just before he took scientific leave from the Dublin Society:

I have many to oppose, but with justice at my back I feel myself equal to them all. Perfect security of every species of property, whether it be scientific or otherwise, is the great spur to industry; and this sacred security once removed, farewell to all human efforts!¹¹⁷

In 1820, when Higgins attempted to become an Honorary Member of the Dublin Society after 25 years of service, his candidacy was eliminated before the election.¹¹⁸ Giesecke had become an Honorary Member within three years of his arrival, and perhaps this was the final blow. Having lost the professorship of mineralogy, the Leskean mineral cabinet and the competition with Giesecke, Higgins bade farewell to scientific community at large, and published nothing further for the remainder of his life.

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