

# The London Circle: Early Explorations of Photography: The Willats album in the Firestone Library, Princeton University

The Inaugural Gillett G. Griffin Memorial Lecture,  
delivered on 2 April 2017 by  
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I have the great privilege of giving the first lecture in memory of Gillett Good Griffin. I am sad to say that I never met Dr Griffin, but can admire the accounts of the man that I have read. I have had the further pleasure of seeing something of the many and extraordinarily varied objects he collected, which have assisted greatly in making this university a focus not just of conventional scholarly interest in the written word, but also in a wide approach to material objects.

Dr Griffin was not a man to be channelled; his expert collection and knowledge spread from pre-Columbian art to Japanese prints, and, as here, to early photography. He could see things that were of interest, and find things that other people had missed; he was a truffle hunter. So I have taken the pleasure in this lecture of looking for truffles, and hope this will amuse and maybe even enlighten you.

One of the strongest tendencies of modern scholarship is the focus of specialisation; we can know an immense amount in a clearly defined and planned field. The history of photography, and especially the history of photography in these early years, was diametrically opposed to this way of proceeding in research and experiment. There is a sense of a near chaotic enthusiasm in the first half of the nineteenth century, when opportunities, ideas, communication and materials came flooding into the hands and minds of intelligent and inventive people. The Willats album illustrates this fascinating chaos. I should add that having given this talk the local title of ‘The London Circle’ before I had time to research it, the circumference of the Willats’ circle proves to reach Montreal, New York and the Crimea, and as the research continues, presumably will reach much of the rest of the world.

The album contains two collections: the photographs and the autographs. Between them, they introduce us to the early Victorian world, revolving around this one business, in a remarkable fashion. I propose to offer the context of the business, and then to open the subject up, by offering an account of individuals who figure in the album either from their photographs or from their autographs.

## **The Willats business**

Thomas Willats (1818–1856) first worked with the firm run by Edward Palmer, at 115 Fore Street in London from 1832, and later at Newgate Street. Thomas’s father, Benjamin Willats (1784–1832) a druggist, had sold his premises to Palmer in or after 1829, perhaps with the condition that Palmer trained his young son.<sup>2</sup> Palmer’s interests were wide-ranging. By 1840, his catalogue contained: ‘Three hundred engravings of apparatus, illustrative of chemistry, pneumatics, frictional & voltaic electricity, electro-magnetism, optics, &c., &c.’<sup>3</sup> Pages from Palmer’s catalogue show the extent of this, and they give us an idea of the sheer entertainment offered by

scientific development at the time. Experiments took place in the home as often as in a laboratory, and the emphasis on subjective experience and observation seems still dominant in such experimentation. Observe the little houses.

The contemporary Scottish photographer, John Muir Wood (1805–1892), took a photograph of the Irish optician, Dr [James] Jasper Macaldin (died in London in 1880), with such a ‘thunder house’ attached to a battery—a charge of electricity from the battery made the little house collapse, demonstrating the advisability of lightning conductors.<sup>4</sup> This little house may indeed have come from Edward Palmer. I should allow that the Willats manuals produced four to five years later are more solemn, but our tendency to turn major technological discoveries into toys has here an excellent pedigree.

The taste for science as a branch of entertainment, can be seen in the advertisements of the Royal Polytechnic Institution in London in 1840, when the pleasures to be seen and experienced included glass spun by steam power and woven into sumptuous tapestries, a balloon designed to cross the Atlantic, the Chromatic Fire Cloud Fountain, a diving bell, the blowing up of the Royal George, and last in the list, ‘Daguerreotype and Photogenic Drawing’.<sup>5</sup> These spectacles were enticing, and were reviewed with great enthusiasm.

In an advertisement establishing himself in trade in 1844, after Palmer’s retiral, Thomas Willats wrote that in his time with Palmer he had: ‘full opportunity of becoming practically acquainted with every branch of the trade [and would be] happy to treat with any parties having New Inventions or Improvements upon the present construction of Apparatus, also with Authors of Popular Treatises on scientific subjects’.<sup>6</sup> His young colleague in Palmer’s shop, William Thornthwaite, joined forces with Edward Fallon Horne in 1843, and bought Palmer’s business. Thomas Willats set up his own shop at 98 Cheapside and his brother Richard joined him in partnership the following year.

The word ‘Cheap’ was originally the Saxon word for market, and Cheapside was one of the principal grand trading streets of London—close to St Paul’s Cathedral. At this time, London already had more than a million people, and a proportionate number of visitors prepared to spend money. In the course of the next decade, the Willats emerge as a firm, concentrating on photography but providing other instruments from barometers to telescopes, and, unexpectedly, as the makers of an electrostatic machine for medical purposes; they also sold chemicals. They combined their advertisements with a series of manuals – on photography, medical electricity, and microscopic manipulation, which informed, encouraged and enlarged their trade. The radical improvement in the postal service in 1839-40 enabled them to deal with mail order business. In 1853, Thomas Willats left the partnership—perhaps suffering from ill health, leaving Richard to continue alone.<sup>7</sup> Thomas Willats died in 1856 aged only 38.<sup>8</sup> His brother remained in business until 1861.

The album we have in Princeton was, like other albums and collections surviving from the period, a private object, even though it was put together in the context of a commercial firm. It is certainly an extraordinary object, in that records of such firms have rarely survived. On page 73, the compiler includes an autograph of Thomas Willats, cut from a note, and on the same page, Richard Willats has written his own

autograph, which suggests the construction of the album belonged to a time when he was there and his brother may not have been. It may have been started when the firm was still in business, but the later stages of the album suggest it was put together after Richard retired.

### **The difficult pursuit of photography**

Famously, 1839 is the date we are familiar with as the effective beginning of photography, when it was first given publicity, and the first two viable forms were announced and eventually described. An article by John Eagles in *Blackwood's Magazine* in March 1839, wrote of these developments:

Where are we going? Who can tell?... Is the hand of man to be altogether stayed in his work? – the wit active – the fingers idle? ... Steel engravers, copper engravers, and etchers, drink up your aquafortis and die! There is an end of your black art... The real black art of true magic arises and cries avaunt. All nature shall paint herself... Invention says it. It has found out the one thing new under the sun; that, by virtue of the sun's patent, all nature, animate and inanimate, shall be henceforth its own painter, engraver, printer and publisher. Here is a revolution in art.<sup>9</sup>

We visualise this in terms of the satirical engraving made in France by Theodore Maurisset in December 1839—the world run mad for a new art. One macabre detail of this even offers gallows to let for the benefit of the ruined engravers.

But this extreme explosion of activity did not immediately or obviously happen. In Britain and particularly in England, there were excellent reasons why the art of photography was held up, and held back, for a decade. This fact is most remarkable in the context of London, a focus of industrial and technological sophistication. The streets of London were not suddenly filled with people carrying wooden box cameras.

There are two reasons for this. In 1839, Daguerre's process, supported by a political campaign, was purchased by the French government and given free to the world—a grand gesture. Unfortunately, before this agreement was reached, an English entrepreneur—a coal merchant called Richard Beard – had secured the patent rights for England. In the Willats album, there is a calotype of St Paul's seen from Blackfriars' Bridge taken by Henry Cundell in 1844. In the middle ground of the picture, Beard's coal warehouse may be seen on the bank of the Thames, among the other businesses for importing the raw materials of industry.

In consequence of Richard Beard's action, the French government gave the daguerreotype process free to the world, except to England. At the same time, Talbot's methods—the first negative positive processes, that is, the photogenic drawing and the calotype—were ignored by the British government. It was left to Talbot himself to patent his own calotype process, in 1842.<sup>10</sup> The English were faced with the problem that both practical methods of photography were subject to patent restrictions; these patents could not control the interest and experimentation of individuals, but they unquestionably made it difficult.<sup>11</sup>

The Willats placed themselves within a learned and enthusiastic amateur market. Many knowledgeable people explored photography as an adjunct to their professional interests. The 'amateurs' were of critical importance: partly because photography had

only just emerged and there were few ‘professionals’, partly because experimenters were intrigued and driven by the difficulties of the art. People struggled to take an acceptable picture, and although photographers talked later in the century of having assembled a camera from an old spectacle lens and a cigar box, the probability of achieving anything good from that base was slender. Thomas Sutton (1819–1875), who became an important photographer from the 1850s, first encountered the art in 1841, when he was daguerreotyped in the studio of Antoine Claudet. In 1867, Sutton said: ‘In some conversation with M. Claudet about the wonderful art which he practiced, he informed me with the utmost gravity, that to achieve anything like success or eminence in it required the chemical knowledge of a Faraday, the optical knowledge of a Herschel, the artistic talent of a Reynolds or Rembrandt, and the indomitable pluck and energy of a Hannibal; and under these circumstances he strongly dissuaded anyone from taking it up as an amusement... I smiled at [his] pompous and discouraging observations, and I determined one day to try my hand at photography.’<sup>12</sup>

Sutton was himself a pompous and self-opinionated man, so we should take his estimate of Claudet accordingly; Sutton’s talk, which includes this assessment of Claudet, goes on to explain that he himself did not himself succeed in photography until 1851—ten years later, when he encountered a good teacher on the island of Jersey; this demonstrates that Claudet had a good point.

In these early stages, it was apt to be assumed that it was difficult to take photographs, because Talbot did not give clear instructions. In practice, development was seriously hindered by the uncertainty of chemicals and the eccentricity of paper. Many people engaged in experiments, and there were numerous different publications – more or less describing Talbot’s process. Variations were given elaborated names, which implied that a new process had been invented, and that Talbot’s patent was irrelevant. One of the Willats’ customers, Dr Golding Bird (1814–1854) of Grays Hospital was an expert on kidney diseases, and an authority on the uses of electricity and electrochemistry. Bird presumably dealt with the Willats in the area of electrical equipment. But he printed an article on Photogenic Drawing in a magazine called *The Mirror of Literature, Amusement, and Instruction*, in April 1839, which was illustrated with a woodcut of photogenic drawing, of a fern leaf, and this is the first visual illustration of negative/positive photography.<sup>13</sup>

He wrote: ‘this heliographic or photogenic art will be of immense service to the botanist, by enabling him to procure beautiful outline drawings of many plants, with a degree of accuracy which, otherwise, he could not hope to obtain...’ He added, ‘It is not a little amusing to observe how many pretenders to the discovery have started up since the announcement of Mr Talbot’s discovery... I prefer Talbot’s process [to the daguerreotype], although it is to be regretted that this gentleman has not stated more explicitly the proportions in which he uses the ingredients employed in the preparation of his sensitive paper. I have performed a set of experiments on this subject and can recommend the following proportions as the most effective and economical...’ So already at this early stage, we have an emphasis on other claims and on Talbot not communicating effectively.

The enthusiasm and the energy applied to photography were certainly there, as this album demonstrates, and the extensive supplies for the purpose offered by the Willats

among others in London are evidence of this. As late as 1849, the *Art Journal* responded to several correspondents who had expressed an interest in the 'Photographic Club', otherwise known as the London Calotype Club, with the following comments: 'A few years since a dozen gentleman amateurs associated together for the purpose of pursuing their experiments in the Art of Photography, who carry on their operations at different times and places, (some residing in London, others in the country) but keep up a constant communication with each other, detailing their several improvements and discoveries, and interchanging the repetitions of such sun pictures as each may have produced.

The meetings are held occasionally at the houses of the members, and among artists these reunions have created a great interest, and the expressions of delight, more particularly by some of our most eminent landscape painters, at the aid given them by the copies of nature produced by the photographic processes, sufficiently mark the value of the Club.' Having given us this enticing account, the *Journal* then adds, depressing our pretensions: 'We are not certain that we should do right in subjecting any gentleman, pursuing the Art merely for his own pleasure, to the trouble of replying to correspondents, who might be induced to make inquiries, if we published the names of the members.'<sup>14</sup> This must have been frustrating for outsiders.

Clearly the Willats aimed to make money from photography as a professional business. They sold the iodised paper for the calotype process, and issued a series of manuals explaining the photographic processes from 1844 onwards. In September of that year, Talbot's mother wrote to point out their advertisements to her son, asking, 'How can they do this without a licence from you?'<sup>15</sup> In the first manual which Thomas Willats issued, he expressed himself both challengingly and naively. He was probably quoting the irritation expressed by his own customers in the shop. He wrote: 'It may be necessary to remind the reader that the Calotype is a patented process. In the two patents obtained by Mr Fox Talbot, the use of the following processes is claimed as his exclusive right. Some of these claims must, however, be considered invalid, and would possibly affect the value of the entire patents if brought to trial'.<sup>16</sup> It must have been galling to receive a warning letter from Talbot's lawyer, but in 1845, the lawyer reported to Talbot that the Willats had submitted.

However, while the new versions of the Willats manual on photography published from 1845 and into the 1850s, omit the iodised paper, the written advice continued to explain the method. As time passed, the text, now written by John Honour Croucher (1784–1858), became less conciliating, and presented increasingly more variant processes: Robert Hunt's Energiatype; Thomas Woods' Catalissisotype; the prolific John Herschel's Chrysotype, Amphitype, Anthotype and Cyanotype; Mungo Ponton's Chromotype; M. Gaudin's Gaudinotype. The version of Croucher's manual, which was republished in the United States in 1855, says: 'The Calotype, or Talbotype, is... the invention of Mr Fox Talbot, or is claimed by him. It has been much improved since its introduction. To Mr Cundell in particular we are indebted for many practical suggestions, which he first communicated to the world in the "Philosophical Magazine," [in May 1844], and the more recent experience of other photographers has produced valuable modifications of the original process.'<sup>17</sup> This was George Smith Cundell, a highly-inventive man, and the brother of Henry Cundell. He was consistently credited with having made Talbot's calotype process practical. Croucher then introduces into his text the Mr Brodie from Jersey, whose photographs figure

largely in the Willats album, and quotes him, rather than Talbot, on the process: ‘Mr Brodie, whose specimens of Photography upon paper are so beautiful, has kindly communicated the following modification of the Calotype process which he has adopted.’<sup>18</sup> Brodie’s version has little original in it.<sup>19</sup> For our conservation or analytical purposes, however, this gives the precise method used in making these prints.

The inherent handicap, imposed by the two patents on English practice, was revealed in the Great Exhibition, staged in London in 1851. This exhibition was expected to demonstrate the superiority of the industrialised and technological British nation. Unfortunately, in the area of chemistry and photography, it demonstrated the technical superiority of other nations: the French, the Germans and the Americans.<sup>20</sup>

The inhibition of Talbot’s patent was blamed, and Croucher extended his attack, laying the claim that Talbot’s discovery of the latent image through the use of oak galls and gallic acid, had already been found by Rev J. B. Reade, whose autograph appears in the album.<sup>21</sup> It seems reasonable to say that the photographers were too frustrated and angry by this point to do Talbot justice. In the manual, Croucher continued: ‘The death of M. Daguerre has saddened but not discouraged his numerous followers, who are determined to make his beautiful invention a fitting monument to his memory. The disciples of Talbot in England are only less zealous because of the restrictions which, unfortunately, surround the practice of Heliography on paper... A small sum appropriated by Parliament as a reward for inventions of this character, would save the English from the disgrace of proving themselves to be, what their neighbours have slanderously reported them, a NATION OF SHOPKEEPERS.’<sup>22</sup>

In 1852, Talbot freed amateurs from the patent, and after a court case in 1854, he was obliged to abandon his claim altogether. By this time, the new commercially viable processes, using films of albumen and collodion on glass, were on the market, and the practice of photography was opened up as a large-scale professional business alongside the amateur passion.

### **The Willats’ Customers**

In the curious situation surrounding the patents, the interest in photography had nevertheless been sustained. The Willats’ shop was evidently a focal point for discussion and queries. People living in London would meet visitors from other parts of the country and would fall into conversation; the Willats would offer advice, and their knowledgeable customers would give them further information and indeed examples of photographs, which they could show and pass on, some of which are now in the album. Their premises would act as a growing base of knowledge and a centre for a widely dispersed group of people.

This takes us to the question; how far can we construct that group and what can we do with the album as evidence. As an artefact, it is scarcely transparent. The individual photographs and autographs are not ordered and do not make a coherent story – we are not looking at a box containing the pieces of a jigsaw puzzle or the evidence for a mystery story, which would give us a complete picture when assembled.

However, the album contains more than 230 photographs (others have been removed) and 223 autographs, which between them offer us the work and identity of a

surprising number of men and women.<sup>23</sup> The collection of autographs is in itself distinguished from the more usual collection, made for the celebrity of the writers and implying no more than admiration or a collector's enthusiasm. In this case, we can be confident that the writers were connected with the firm and its interests. The signatures have been snipped off the business correspondence. It is hard not to mourn the letters, which would have told us how the business worked. However, the autographs do give us the names of their customers and we can identify most of them. The Willats' trade was expensive – a trade in luxury, and technical sophistication, well before photography might be defined as easy. Even a brief survey of the photographs and signatures gives us a fine list of both prominent and inventive people, and there are histories—both small and grand—attached to these names.

So, who were they, and what did they do outside or inside the practice and theories of photography?<sup>24</sup> We can begin to construct a series of case studies through the photographs, and around the histories of the people.

### **The photographs, John Sherrington**

In recent months there was a discussion on the Princeton website, pleasingly between scholars in Norway, the Netherlands and England as well as here in Princeton.<sup>25</sup> They were concerned with the John Sherrington photograph, inscribed in the Willats album as 'Ruins of Theatre after a Fire Rotterdam'. The devastation of this fire left a grand doorway standing amongst the rubble, which looks like the entrance to a theatre. However, the image was efficiently connected during the exchange of information, with two other photographs of the same subject by Sherrington, which were identified as the aftermath of a fire on 13 May 1849 in a sugar factory.

John Sherrington was a businessman who moved from England to Rotterdam with his family in 1838. By the later 1840s, he seemed to have been a confident and competent photographer, and there are examples of his work in an album in the University of Leiden as well as here. Rotterdam was apparently not an early centre of photography, so Sherrington may have been working substantially alone – perhaps in correspondence with London.

My question here (and much of the research for this has been done by Michael Gray) was, how far can we go in adding to the information on the subject of such a photograph? Looking at the newspapers for 1849, we have come upon an account published in the north-east of England in the city of Hull, in a newspaper called the *Hull Packet*. Hull and Rotterdam were closely connected by trade through a regular service of steamboats. A few days after the fire, the *Hull Packet* reported 'the terrible conflagration', and a week later published a translation of the account given in the *Amsterdam and Rotterdam Courant*. The fire started in the sugar refinery belonging to Messrs P. H. Tromp and Company. The director had left the building early, and 'scarcely was he gone, when a fire broke out in the place used for making animal charcoal, and which raged so violently and increased in such a way, that in a short time the whole building was in flames.

Very soon a great many fire engines were on the spot, and poured streams of water out upon the buildings, but nothing could lessen the violence of the fire, which was strongly fortified by the quantity of sugar lying on the spot. Soon the fire was proceeding to the house of Mr P. H. Tromp, who was at that time absent. There was

then no wind, and it was expected that a greater destruction might be prevented, but the wind increased to a fresh breeze, the blazing flames took another direction, and the house of Mr Schuurmans, rented by Mr Schutze van Houten, was soon destroyed, which in its turn set fire to the house of Mr Boogard, rented by Mr Meinsma, and the house of Mr Van Doorp, and the offices of Messrs Van Dulken, Van Dorp and Co. All four buildings were soon nothing but one burning mass, and speedily set fire to the buildings backing the houses.’

The story then comes to the focus of Sherrington’s photograph: ‘In the meantime, every exertion was made to save out of the magnificent house of Mr Rochusen what could be saved, and it is gratifying to add that the valuable gallery of pictures of this gentleman was rescued from the flames, as also the most valuable furniture. This most beautiful building, set on fire at the back by the burning warehouses, and at the left side by the house of Mr Boogard, was soon burned to the ground.’

The fire continued to rage, taking out the whole of New Street, and firemen with forty engines struggled to contain it against shifting winds. But the shipbuilding warehouse of Mr Munhart Retemeijer and company, which was ominously described as full ‘of pitch &c... gave increased fury to the flames’. The fire burnt for twelve hours, twenty to twenty-five large houses were destroyed, and the immediate calculation of the value of that property lost was somewhere between 3 ½ to 4 million guilders or 300,000 to £350,00. It is cheering to read that no-one died.

The melancholy sense of the destruction of fine architecture in the photograph—an archaeological echo of ancient Rome and the loss of a significant expression of culture—is evidently a correct reflection of the situation. The collections were rescued, but a fine house and its history have gone.

By turning to the history of painting, we can find more. The painting, which is recognisably indebted to the photograph, is by Charles Rochussen (1814–1894), the son of the house’s owner, Mr Hendrik Rochussen, who grew up there. On the back of the painting there is a label about the fire, saying that only the granite stone porch of the house remained. Given that John Sherrington was an amateur, so his photograph was less likely to be on public sale, we can assume a live connection between him and Charles Rochussen—who may indeed have asked him to take the photograph.

Charles Rochussen was a professional painter, and had an interest in the subject, but the drama of the fire attracted quite a few artists – the smoking ruins seem to have been surrounded by people with sketchpads alongside the photographer. Looking at the history and buildings of Rotterdam, we can take this story somewhat further. There is a sequence of drawings showing the neighbourhood destroyed by the fire, how it looked afterwards and how it was rebuilt. There are maps of the district which show the relation to the harbour and the allotted mooring places for the ships to different trading centres – the mooring place for the Hull packet is one of the nearest to the fire, and that city’s own trade must have been damaged in consequence. Sherrington’s photograph is not just an interesting image, but a central point in the record and dissemination of a serious event.

### **The Photographs, John Brodie of the Island of Jersey**



The ‘Mr Brodie’, whose method J. H. Croucher quoted so handsomely in the Willats manual, contributed between 20 and 40 photographs to their album – the largest group found here. It may be assumed that he spent some time in the Willats’ shop talking, and he may have become a friend. He was John Brodie (d 1849), an amateur photographer and a brandy distiller by profession. He was probably Scottish in origin.

John Brodie knew William Collie (1810–1896), who came to Jersey in the Channel Islands from Aberdeen in the north of Scotland as a portrait painter around 1840.<sup>26</sup> They both lived in Belmont Road in St Helier, and may have formed a Scottish social group on the island. Brodie’s photographs give us an idea of a pleasingly relaxed situation, and some are even snapshot-like in character.

We can see that Collie and Brodie worked together. Brodie photographed Collie and presumably the other way about. They either took similar photographs of the Jersey market women or there are some of Collie’s photographs here within the Willats album. You have the largest extant group of Brodie’s work in Princeton, but there is one repeated in the Scottish national collection, and there are others in the album of Collie’s photographs in the Royal Photographic Society’s collection. They may have used the same models and the same setting. Unlike Brodie, Collie took a professional interest in photography. He sent a group of his calotypes of the market women to the *Art Journal* in 1847, where they were favourably reviewed.<sup>27</sup> And he sent a similar group to the Great Exhibition in London in 1851, where, to his disappointment, they were largely ignored.

Brodie exported his Jersey brandy to England and probably north to Scotland. In 1844, he became embroiled with the English Board of Excise, who thought that he was evading customs duty by mixing French brandy with other spirits. The report in the *Jersey and Guernsey News*, which was also published in Scotland, said that the excise refused the brandy because it was a compound and ‘from some quibble in the law, or whim, which they refuse to assign’. The report goes on, ‘Messrs Brodie and Co submitted samples of their spirit, taken from the London Docks, to a chemical analysis; first to Mr Warrington, the chemical operator at Apothecaries’ Hall and secondly Dr [Andrew] Ure, analytical chemist to the Board of Customs, both of which gentlemen reported that the spirit contained no portion whatever of foreign brandy, no sweetening material, and that it was in no sense of the term a compound.’ Messrs Brodie memorialised the Treasury, offering this proof and asking for the trade to continue. ‘Nothing [reported the newspaper] could be more open, candid, and honorable than this.’

The Jersey paper regarded this as an attack ‘by rivals on the other side of the Channel’ and an attack on the ‘chartered rights’ of the islands. ‘Another blow has been struck at our commerce,’ they wrote.<sup>28</sup> The case was tried in 1845, and the Customs’ decision was upheld.<sup>29</sup> I may say that reading the report of the legal case, I can well understand the incomprehension of the newspaper reporter, and imagine the deep frustration of John Brodie.

It is possible that Brodie attempted to transfer or expand his trade to this side of the Atlantic, and it is interesting to consider that he might have brought his camera with him. Brodie’s father, George, died in William Collie’s house in 1848, so John may

well have been absent then. It is a sad fact that John Brodie himself died of cholera in Montreal only a year later, on 17 July 1849.<sup>30</sup>

### **The Photographs, Unidentified and missing pictures: William Lake Price, D. O. Hill and Robert Adamson**

There are a number of unidentified photographs in the album and some are missing. The unidentified images include a professional group, taken in the 1850s, which are pasted in the corners of page 58. These are by William Lake Price (1810–1896), and were sold as stereo halves or cartes de visite, specifically to be pasted in album collections. They include one called ‘The Monk’, and another called ‘The Reader’—romantic historical constructions. From their physical appearance, I assume all four to be his work.

Lake Price started his working life as a painter and turned to art photography in the mid 1850s. He was the author of yet another manual, offering aesthetic as well as practical instruction.<sup>31</sup> This is an immensely careful and detailed account, including analysis of lenses, the design of studios and the right kind of glass for the windows and paint colour for the walls, and a concern for health. The virtuoso nature of the two pictures of men in armour on this page is underlined by his passing advice, ‘The most difficult objects to delineate are all bright and polished surfaces, which reflect light [such as] armour, fish, &c.’<sup>32</sup> The scrupulous care he describes in all phases of the operation can be seen in the quality of the Willats’ prints which have survived as strong images despite the presumable acidity of the album pages.

One of the elementary problems with albums, which have been on the market, is that subsequent owners may remove images they particularly admire. Pages with two of the missing images are annotated: ‘Scotch Fishwives by Sir W. Allen’ [p25] and ‘Sir William Allen Late President of the Royal Scottish Academy’ [p 29]. These images probably appear among the work of David Octavius Hill and Robert Adamson. I have no reason to think that Allen was responsible for any of the calotypes taken in Edinburgh of the Newhaven fishwives, so you are probably missing a Hill and Adamson work of this kind. We do however know that Allen was responsible for arranging his own portrait in Robert Adamson’s studio in 1843, and your missing photograph may have been this one.

### **The autographs, Alfred Swaine Taylor**

The album includes the autograph of Alfred Swaine Taylor (1806–1853), who published a number of manuals on medical jurisprudence, which were the standard works in his lifetime. He essentially founded the discipline of forensic toxicology – bringing the knowledge of the chemists and the lawyers together in the courtroom.<sup>33</sup> He was involved in analysis for macabre and distressing trials, such as the case against Dr William Palmer, who was accused of murder by strychnine. Taylor’s books influenced the fiction writers, Wilkie Collins, Arthur Conan Doyle and Dorothy Sayers, and more particularly R. Austin Freeman, in his stories featuring Dr Thorndyke. Taylor has indeed something of the look of a Sherlock Holmes prototype – with his prominent nose and lank hair.

The Willats’ stock included Palmer’s toxicological chest for the detection of poisons. Taylor’s career suggests that his connection to the Willats’ firm lay in the identification of poisons, but he was interested in photography. In 1839, he advocated

the superiority of ammonia nitrate over chloride of silver as a sensitiser, and hyposulphate of lime over hyposulphite of soda as a fixer.<sup>34</sup>

He published this in a pamphlet, called 'On the Art of Photogenic Drawing', in 1840. The daguerreotypist, John Werge, who wrote a history of photography published in 1890, quotes verbatim a letter from Taylor in 1880, when sending him examples of his 'now ancient photographs'. Taylor wrote: 'They show the early struggles which we had to make. The mounted drawings were all made with the ammonia nitrate of silver... All these drawings (which are dated) have been preserved by the hyposulphite of lime... [which] does not form a definite compound with silver, like soda... I send you the only copy I have of my photogenic drawing [ie the pamphlet]. Five hundred were printed, and all were sold or given away.'<sup>35</sup>

Werge adds that this was 'the last of many letters on photographic matters that I received from Dr Taylor, and the last time I had the pleasure of seeing him was when I returned the photographs and pamphlet alluded to therein, only a short time before his death. Dr Taylor never lost interest in photography [and had worked at it] through all its changes, despite his many professional engagements, from its dawn in 1839, right up to the introduction of gelatino-bromide dry plates... [He] was a man of remarkable energy and versatility. He was a prolific writer and an admirable artist. On his walls were numerous beautiful drawings, and his windows were filled with charmingly illusive transparencies, all the work of his own hands; and once, when expressing my wonder that he could find time to do so many things, he remarked that, "a man could always find time to do anything he wished if his heart was in his work." Doubtless it is so, and his life and what he did in it were proofs of the truth and wisdom of his observation.'<sup>36</sup>

Werge regarded Taylor as one of the 'fathers of photography' and, in 1885, he exhibited portraits of these pioneers at The International Inventions Exhibition.<sup>37</sup> None of the photographs in the Willats album is named as Taylor's work, but he may be responsible for some of the unidentified pictures.<sup>38</sup>

### **The Autographs, Lord Farnham**

The figure in the group I have chosen to expand on, who remains so far unconnected to his dealings with the Willats' shop, is the peer who signed himself, 'Lord Farnham'. He was Irish, the seventh Baron Farnham (1799–1868), and a man of considerable wealth. His interests lay principally in genealogy and he was engaged in ceremony, as a Knight of the Order of St Patrick. After his death he was said to have been 'possessed of an exceedingly kind heart, and a most affectionate nature'.<sup>39</sup> It is part of the character of our interest in history or 'news', that we more often become familiar with exaggerated events and disasters than with the ordinary circumstances of life. Farnham came violently into the public eye, when he and his family died in one of the most distressing railway accidents of the nineteenth century. He, his Lady and members of his household were travelling back on the Irish mail train from London on 20 August 1868. Moving through North Wales on an upward incline, they approached a junction where a goods truck was being shunted. The truck ran into wagons on the main line, and these were not braked. They started down the incline on the track of the oncoming train. The driver of the train saw them coming, shouted to his colleagues, and jumped out with the key to the carriages to release the passengers, injuring himself as he did so, but believing he could save the situation.

Unfortunately the oncoming wagons were carrying paraffin or petroleum; they ran into the passenger train, and exploded, causing a violent fire. Thirty-three people died. The driver succeeded in freeing the passengers further down the train and in separating the back half of the train from the front. But his stoker and advance guard were killed, along with men, women and children passengers.

The inquest, faced with the fearful confusion of broken and unidentifiable bodies, examined extensive and minute evidence, which is extremely touching, including the four little deer's feet, which they determined had belonged to a pet 'gazelle or antelope perhaps', the fate of a Newfoundland dog and a greyhound. The fragments of possessions: the metal frames of the women's crinolines, the fishing reel, items with names, such as a prayer book, bunches of keys and buttons, were tracked with meticulous care.

The train was carrying a number of wealthy people (including the Duchess of Abercorn and her family who were placed in the rear carriages and were unharmed), and the debris offered startling evidence of wealth, mostly attributed to the Farnhams: 'A number of diamonds of extraordinary size and singular brilliancy are among the salvage. There are a magnificent diamond necklace, a costly diamond ring, a centre ornament of a tiara having one large diamond, and eleven others not much smaller. There are rubies, opals, emeralds, gold tops of smelling bottles, opera glasses, chains, clasps of bags, &c.'

The overwhelming impact of the disaster added to rather than diluted by the careful records of the inquest, overlays our concern for the Willats' firm and photography. Since Farnham's correspondence with the Willats probably dates to some twenty years earlier, it may have had no relevance to his current interests.<sup>40</sup> As yet there is no obvious connection, but there are two possible lines of enquiry. The Cavan County Museum has a Farnham Gallery with artefacts from the family's collection; Farnham's correspondence, diaries, accounts and papers are held by the National Library of Ireland, at NRA 31140, the Maxwell family papers.

### **The Autographs, Major John Thomas Douglas Halkett**

The Willats album contains two signatures from Major John Thomas Douglas Halkett (died 1854), who was a cavalry officer of the Fourth Light Dragoons. This was one of the regiments of the Light Brigade who fought in the Crimean War between 1854 and 1856. The war was arguably the first to be efficiently covered and criticised by the press—the *Times* newspaper had its correspondent there, and we know from both official and unofficial reports how the war went; how badly the soldiers were supplied and fed and the illness which carried off almost as many as the actual fighting. Like so many other facets of Victorian life, it is probably not so much that this war was appreciably more chaotic than earlier combat, as that it was fought under a spotlight of public attention.

The story behind the Charge of the Light Brigade in 1854 is well known. Tennyson's poem, with the lines: 'Theirs not to reason why, theirs but to do and die', makes an extraordinary statement of heroism in the face of a perverse order: sending a troop of cavalry armed with swords against a battery of cannon. The whole issue of who had given this order is still argued. It is poignant that the men who died were shown, and

were regarded, as heroes, despite the stupidity of the order that sent them to their death.

Major Halkett – the man who wrote the letters to the Willats – was killed. One of his mourners said: ‘Brave as he was gentle, his gallant bearing was noticed, even amidst the fury of that death charge. The last time he was seen, was on the field, fearfully wounded, holding out some banknotes to his men, with the characteristic words, “Take them for the wives and widows at home”’.<sup>41</sup>

Halkett’s two autographs give us a sense of historic touch: like the autograph of Lord Farnham, they give us the personal sign of a man who died in tragic circumstances. But can we take this further? We don’t know what the letters said, though from his signature as a Captain, we can at least determine that he wrote them before March 1850, when he was made a Major. However, a few years later, the photographic societies were formed. Their meetings were publicly reported, and there is printed evidence of Halkett’s interest in photography. In 1853, he sent a paper to the Photographic Society in London, ‘On a Peculiar Arrangement for a Camera’.<sup>42</sup> Marcus Sparling (1826–1860) was there to present the paper and to demonstrate the camera, which he had himself made. He commented: ‘The camera sent by Major Halkett is not a new one, but has been now for some years in use in the army in most parts of England and Ireland...’ It was a light, portable camera which folded down; it could take large-format photographs, 11 x 8 inches; it had a rising front; it held ten or more prepared negatives which could be dropped down one after another.

Sparling had been a Corporal in the 4th Light Dragoons between 1846 and 1853, serving under Halkett, and he was a member of the London Photographic Society—so he would have known Halkett in two contexts. Sparling is now familiar as the man who appears in the photograph by Roger Fenton, perched on Fenton’s photographic van. In 1855, he went out as Fenton’s assistant to the Crimean war, the year after the disastrous charge, when Major Halkett died. The Photographic Society of London in February 1855, expressed some anxiety for Fenton: ‘that gentleman’s devotion to the extension of the art has led him to undertake the somewhat arduous task of photographing the heroes and the scenes of the Crimea, for which place he is about to start immediately... The Council feel that the Members will all sympathize in their wishes for his safe return, wishes not unaccompanied by fear, since unfortunately two eminent Photographers have already fallen victims to the war—Major Halkett, whose ingenious camera was exhibited at one of the early meetings of the Society, who was killed in the gallant charge at Balaklava, and Mr Nicklin, who was lost in the transport ship, the ‘Rip Van Winkle’’.<sup>43</sup>

Sparling might have been in the Charge of the Light Brigade himself; the fact sheds a light on his determined role as a war photographer, beyond his working relationship with Fenton. In 1856, Sparling published his own work on the *Theory and Practice of the Photographic Art*, with three pages devoted to Halkett’s camera, and an engraving showing it standing in the landscape.<sup>44</sup> His text begins: ‘Within the last quarter of a century there has not been a discovery more useful, interesting—I may say, more fascinating—than photography. Whether employed as an assistant to the artist, or a means of sending home from far off scenes of war, the portrait of a friend, or the spot whereon, perhaps, he died or conquered, what can equal its truthfulness? What can surpass its beauty?’ This suggests that he accompanied Fenton partly with an idea of

offering some memorial of his regiment and the Major. Sparling's positive admiration for the Light Brigade is emphasized here in his reference to Halkett as killed 'in the glorious charge at Balaklava.'

Consideration of Halkett opens up the whole question of the role of the army in photographic practice and experiment, both in the 1840s and more specifically during the Crimean war. It may be that there were more cameras and attempts at photography than we yet know of. The Photographic Society referred to Halkett as an eminent photographer – so far as I know, his photographs have not yet been found. They may still exist in family albums; maybe his camera is still sitting in a cupboard and well known to the family. It would be pleasing to think so.

### **The Willats' Circle**

Between the photographs themselves and the autographs, we have potentially some 200 photographers represented here. They range from people of wealth and people of high social status, both men and women, to less prominent figures. The Willats album represents people who flit by with only a passing reference, and people who strode through history making waves. In the earlier years there were fewer professional photographers, but those represented include authoritative figures like Antoine Claudet; others emerged in the profession at a later point, such as Thomas Sutton and William Russell Sedgfield (1826–1902). There is a considerable geographical spread represented, mostly within Britain, connecting such figures as William Ramsay (1806–1865) Professor of Humanity and photolithographer in Glasgow, Scotland, or Henry Bath (d. 1868), metal merchant and amateur photographer of Swansea in Wales, but also into Europe and America, including the intriguing Madam Bertha Wehnert (1815–1901), a leading daguerreotypist, who owned studios in Dresden, Leipzig and New York.<sup>45</sup>

The Industrial Revolution shifted the patterns of society; new knowledge, skills and talents brought people to the fore and made common ground between strangers and the, sometimes opaque, layers of society. One of the most knowledgeable and earliest critics of photography, Elizabeth Rigby, who became Lady Eastlake, engaged with D. O. Hill and Robert Adamson in their studio from 1843 to 1847, and proved a passionate enthusiast for the calotype.<sup>46</sup> By 1857, photography had finally taken off in the extraordinary way projected in 1839, through the impetus of the collodion and albumen processes and the new freedom achieved by Talbot's abandoning his patent. Eastlake then wrote a critical review of the progress of photography, expressing at length the remarkable social mixture of people who had taken an interest:

When before did any motive short of the stimulus of chance or greed of gain unite in one uncertain laborious quest the nobleman, the tradesman, the prince of the blood royal, the innkeeper, the artist, the manservant, the general officer, the private soldier, the hard-worked member of every learned profession, the gentleman of leisure, the Cambridge wrangler, the man who bears the weightiest responsibilities of this country on his shoulders, and, though last, not least, the fair woman whom nothing but her own choice obliges to be more than the fine lady?<sup>47</sup>

Eastlake's generally expressed text opens up a possibility. What she says here may be followed through with the real, named people to be found in the Willats album; we can explore a social history of photography, focussed on this one shop, and, more

simply, encounter remarkable lives and careers through the Willats' customers. This album is a door to the past.

Julie Mellby tells me that she wishes to make the album more fully available on the web, and to index and identify each image thoroughly. She says quite rightly: 'The topic is ripe for many researchers', and it should be an international pursuit.

May I say, that we have only worked on this album for a month, and have been impressed to find how much of the material, written and photographed, can be readily traced through the research and the handsome readiness of experts to respond, and through the many publications which have been generously put on the web. With only a preliminary sweep it is clear that extraordinary histories underlie both the images and the autographs.

I thank you for the opportunity to study the Willats album and for inviting me to undertake the first of these important lectures. I hope that you enjoy the future pursuit.

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<sup>1</sup> <http://pudl.princeton.edu/viewer.php?obj=k930bx11x#page/1/mode/2up>.

Because of delays with the new digitization of the Willats album and other the new Gillett Griffin Memorial Lecture website, this essay is being posted without images, in answer to the many requests from researchers who couldn't be at the original lecture. In the future, it will be illustrated and moved to a permanent site. Our apologies for the places in the text where images would be desirable. Above is the link to the old site, which should be live for some time.

<sup>2</sup> Reference to Benjamin Willats may be found on:

<http://www.rootschat.com/forum/index.php?topic=234029.0>

<sup>3</sup> *Palmer's New Catalogue, with Three Hundred Engravings of Apparatus... manufactured and sold by him at 103, Newgate Street, London, London, 1840.*

<sup>4</sup> Sara Stevenson, Julie Lawson and Michael Gray, *John Muir Wood 1805–1892. An Accomplished Amateur*, National Galleries of Scotland, Edinburgh and Dirk Nishen Publishing, London, 1988.

<sup>5</sup> Reviewed in *The Athenaeum*, 23 May 1840, p.420.

<sup>6</sup> [Thomas Willats], *Photographic Manuals No. 1. Plain Directions for obtaining Photographic Pictures by the Calotype and Energiatype Processes*, Thomas Willats, 98 Cheapside, London, 1844. From the copy in the Marquand Library, Princeton University Art Museum. See Graphic Arts Collection blog: [\[https://graphicarts.princeton.edu/2017/04/06/1844-plain-directions-for-obtaining-photographic-pictures/ \]](https://graphicarts.princeton.edu/2017/04/06/1844-plain-directions-for-obtaining-photographic-pictures/)

<sup>7</sup> The Willats partnership, 'in the trade or business of Opticians and Mathematical Instrument Makers', was dissolved on 25 March 1853 by mutual consent, 'it being arranged that all debts and liabilities should be received and discharged by

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the undersigned Richard Willats'. The agreement was concluded and registered on 28 June 1853, *The Gazette*, London, p 1864.

<sup>8</sup> Notice of death, 'at Windsor, Mr Thomas Willats, of Winchester, late of Cheapside, aged 38', *Morning Chronicle*, 18 April 1856.

<sup>9</sup> John Eagles, 'New Discovery – Engraving, and Burnet's Cartoons', *Blackwood's Magazine*, 45 (1839) 383-4.

<sup>10</sup> The calotype was a good and workable process, because Talbot had made the astonishing discovery of the latent image. With his first invention 'photogenic drawing', the operator had to wait for the sun to print the image visibly on the paper. The comparative slowness and insensitivity of this process meant that it was principally used for contact printing from inanimate objects, as in the Willats album with Theodore Smith Redman's prints of 1839. Talbot then worked out that he could expose the sensitive paper briefly to the light, and develop out the still invisible image using gallic acid.

<sup>11</sup> Scotland had a different legal system, so Talbot's patent was not in force there.

<sup>12</sup> Thomas Sutton, 'Reminiscences of an old Photographer', paper read to Edinburgh Photographic Society 21 August 1867, *British Journal of Photography*, August 1867, pp. 413-4.

<sup>13</sup> Golding Bird, 'Photogenic Drawing', *The Mirror of Literature, Amusement, and Instruction*, vol 33, 20 April 1839, pp 242-4, reprinting his article from a letter, dated 25 March 1839, written from Wilmington Square, *Magazine of Natural History*, April 1839, pp188-92.

<sup>14</sup> *The Art-Journal*, vol 11, 1 August 1849, p.262.

<sup>15</sup> Lady Elisabeth Feilding to Talbot, 15 September 1844, Talbot correspondence website: <http://foxtalbot.dmu.ac.uk/letters/ftbh.php?docnum=05069>.

<sup>16</sup> Unknown author, presumed to be Thomas Willats, *Plain Directions...* Thomas Willats, London, 1844, p. 9.

<sup>17</sup> John Honour Croucher [Part one], *Plain Directions for Obtaining Photographic Pictures by the Calotype and Energiatype, also upon Albumenized Paper and Glass, by Collodion, and Albumen, Etc., Etc....*, Philadelphia, Henry Carey Baird, [earlier editions from 1845], 1855, pp. 30-31.

<sup>18</sup> *Ibid.*, p. 39.

<sup>19</sup> 'A good paper (Mr B. prefers Nash's) is marked, the marked side passed over a solution of ten to fifteen grains nitrate silver in one ounce distilled water, every part touching the solution, and is dried gently by the fire. It is then immersed in a bath of iodide potassium, fifteen grains to the ounce of water, dried, and afterwards soaked in plenty of water for twelve or fifteen hours. Before placing in the camera, it is washed over with a solution containing nitrate of silver and acetic acid in the proportion of about one-tenth of that used in Mr Talbot's



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formula, gallic acid being omitted. When removed from the camera, the picture is brought out by dilute gallic acid without heat. When sufficiently developed, immerse in water ten or fifteen minutes, then apply the hyposulphite soda, of the [p40] strength of one ounce in a pint and a half water, and wash carefully as before directed. Papers that have undergone repeated washings are liable to become rough and to have the pile raised. Mr Brodie recommends that such proofs should be placed between two or three sheets of highly glazed paper, and rubbed well over with a smooth ivory paper-knife, by which means the paper will again acquire a fine surface. The same gentleman has suggested a very elegant method of producing the appearance of sky on a positive picture, which is often wanting from that part of the negative having become entirely and equally darkened. By laying a piece of black paper over the picture, when taken from the printing-frame, and gradually moving it downwards from the top, a nice graduation of tone is produced, which gives a fine effect to the picture.'

<sup>20</sup> The Judges were not looking at aesthetic excellence so much as technological improvement. To D O Hill's distress, his and Adamson's calotypes were not awarded a medal.

<sup>21</sup> The dating of Reade's original communication and Talbot's authority in the discovery has been discussed by R Derek Wood, 'J. B. Reade, F.R.S., and the early history of photography', *Annals of Science*, 27, 1971, pp. 13-45. Talbot's application of the idea was far from a simple matter.

<sup>22</sup> Croucher, op. cit., pp. 72-3.

<sup>23</sup> I have omitted the set of lithographed signatures on p. 66.

<sup>24</sup> Authoritative work has already been done, notably by Julie Mellby in the official blogs on the collection:  
[<https://graphicarts.princeton.edu/2015/08/25/willats-album-then-and-now/>]. See also Roger Taylor and Larry Schaaf, *Impressed by Light, ...* I offer a sample of others, and aim to add to the established information.

<sup>25</sup> <https://graphicarts.princeton.edu/2017/01/05/comparing-collections-in-oslo-glasgow-oxford-and-princeton/>

<sup>26</sup> See Gareth Syvret, *Les Iles de Manche: Photography in the Channel Islands 1840-1870*, Ph.D. thesis in preparation, De Montfort University; and Sara Stevenson and A D Morrison-Low, *Scottish Photography: The First Thirty Years*, Edinburgh National Museums of Scotland, 2015, pp. 110-2.

<sup>27</sup> *Art Union Journal*, June 1847, p. 231.

<sup>28</sup> 'The Channel Islands', *Fife Herald* 1 October 1844, quoting the *Jersey and Guernsey News*.

<sup>29</sup> For the extremely convoluted argument, largely to do with paperwork, see the trial of the case, J. L. Adolphus and T. F. Ellis, 'The Queen against The

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Commissioners of Excise', *Queen's Bench Reports*, new series, vol 6, London William Benning and Co, 1846, pp. 975-9.

<sup>30</sup> Notice of death, 'At Montreal, on 17<sup>th</sup> ult. of cholera, Mr John Brodie, distiller, late of Jersey', *Greenock Advertiser* 14 August 1849; *Caledonian Mercury*, 13 August 1849.

<sup>31</sup> William Lake Price, *A Manual of Photographic Instruction*, London, John Churchill, 1858.

<sup>32</sup> *Ibid* p. 187.

<sup>33</sup> Noel G. Coley, 'Alfred Swaine Taylor, MD, FRS (1806–1880): Forensic Toxicologist', *Medical History*, 1991, vol 35, pp. 409-427. Taylor was Chemical Lecturer at Guy's Hospital along with Alexander Aikin, whose signature also features in the album and he appears in a photograph with Professor William Brande, for whom the album contains a card of invitation.

<sup>34</sup> Alfred Smee had also recommended the use of ammonia nitrate, his autograph on p. 63.

<sup>35</sup> John Werge, *The Evolution of Photography*, pp. 104-5.

<sup>36</sup> *Ibid*, p. 106.

<sup>37</sup> *Ibid*. p. 114.

<sup>38</sup> For further information on Taylor and reference to two scrap albums which contain examples of his work, see Stephen White, 'Alfred Swaine Taylor – A Little Known Photographic Pioneer', *History of Photography*, vol 11, 1987, pp 229-35; Laurence Alt, 'Alfred Swaine Taylor (1801-80) Some Early Material', *History of Photography*, vol 16, 1992, pp. 397-8.

<sup>39</sup> For accounts of the accident, including the view of an uninhibited eyewitness, and the subsequent painful analysis of the victims and their identity at the inquest, see Anon, 'The Fearful Railway Accident Near Abergele', *Wrexham and Denbighshire Advertiser and Cheshire Shropshire and North Wales Register*, 29 August 1868:

<http://newspapers.library.wales/view/4580247/4580253/40/williams%20yny> and, Anon, 'Frightful Railway Accident Near Abergele', *The North Wales Chronicle and Advertiser for the Principality*, 29 August 1868:

<http://newspapers.library.wales/view/4449633/4449635/2/jones>

and, Anon, 'The Burning of the Irish Mail Train', *Illustrated London News*, vol 43, 29 August 1868, pp. 205-206, with a picture:

[http://www.iln.org.uk/iln\\_years/year/1869.htm](http://www.iln.org.uk/iln_years/year/1869.htm)

<sup>40</sup> In a sale of Farnham's books, the following year, there is only evidence of a passing interest in photography, in no. 129 '*Paris et ses environs reproduit par le*

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*Daguerreotype*, Paris 1840', sold by Thomas Arthur 45 Booksellers' Row, Strand, May 1869.

<sup>41</sup> Catherine Marsh, *Memorials of Captain Hedley Vicars, Ninety-seventh Regiment*, Robert Carter & Brothers, New York, 1856, pp. 222-3.

<sup>42</sup> *Journal of the Photographic Society*, no 3 (April 21 1853), pp.36-9.

<sup>43</sup> Account of the Annual General Meeting on 1 February 1855, *Journal of the Photographic Society*, 1856, p.117.

<sup>44</sup> Marcus Sparling, *Theory and Practice of the Photographic Art...*, [also published as part of *Orr's Circle of the Sciences*, 1856, pp. 134-6] London, Houston and Stoneman, 1856, pp.42-44.

<sup>45</sup> For Henry Bath, see <http://www.henrybath.com/about-us/company-history/> for Bertha Wehnert, see Claudia Gabriele Philipp, 'Bertha Wehnert-Beckmann – eine Frau der ersten Stunde...', Dewitz and Matz (eds) *Silber und Salz*, Koln, Heidelberg, Ed. Braus, 1989, pp 214-35; Jochen Voigt, *A German Lady. Bertha Wehnert-Beckmann*, edition mobilis, Chemnitz, 2015.

<sup>46</sup> See Elizabeth Rigby, praise of Hill and Adamson's calotype work included in a review of German painting, *Quarterly Review*, vol 78, 1846, republished in Sara Stevenson, *The Personal Art of David Octavius Hill*, Yale University Press, 2002, p. 36.

<sup>47</sup> Lady Eastlake, review of the progress of photography, first published in *The Quarterly Review*, vol 101, April 1857, republished by Beaumont Newhall, *Photography: Essays and Images*, Secker & Warburg, London, 1980, pp. 81-95.