

Accounting W. H. F. Talbot's Photogenic Drawing at the Royal Society in 1839

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I (Introduction)

On learning that an announcement¹ had been made in Paris about the diorama painter Daguerre having invented a way of capturing the images seen in a camera obscura, W. H. F. Talbot hurriedly exhibited some of the 'photogenic drawings' he had produced up to that time in the library of the Royal Institution on the evening of their regular meeting held on 25 January 1839.² Sir Anthony Carlisle, who was at the Royal Institution on the evening of 25 January, wrote some disparaging remarks about the photogenic drawings displayed by Talbot, pointing out that forty years before Thomas Wedgwood and himself had produced such images with silver nitrate.³

On 29 January Talbot sent a letter to the Académie des Sciences in Paris.⁴ It was his attempt to establish his own priority of discovery and was read by François Arago at the meeting of the Académie on 4 February 1839:

In a few days I shall have the honour of sending to the Académie des Sciences a formal claim of priority for the invention announced by M. Daguerre with two principal points: (1.) The fixation of the images of the *camera obscura*;
(2.) The subsequent preservation of the images so that they can bear sunshine.
Very occupied at the moment with a Memoir on the subject to be read at the Royal Society the day after tomorrow, I must limit myself to begging you to accept the expression of my full respect,
H. F. Talbot, Member of the Royal Society of London.

After Arago had spoken to the meeting about the early work of Niépce and Daguerre, his fellow secretary of the Académie, J-B. Biot, pointed out that a report about Daguerre's work had been published in the *Journal de Artistes* in 1835, and read a reply he had already sent to Talbot.⁵ Biot handled the situation reasonably and sensitively, although the task from France of calming Talbot's drive for recognition was probably insurmountable. This can be judged by a remark Talbot made in a letter to the *Literary Gazette* a few weeks later when he enclosed a photogenic drawing he had made of "John Bull, in an attitude of firm resolution – for instance, as if he expected foreign aggression, and was resolved to repel

¹ The first announcement in the *Gazette de France* of 6 January 1839 was translated into English in *The Literary Gazette* of London, 12 January 1839, 28

² *Literary Gazette*, No. 1150 (2 February 1839), 74–5; *London Medical Gazette* 23 [ns 1: 5] (9 February 1839), 726–7.

³ *Mechanics' Magazine*, 30: 809 (9 February 1839), 329.

⁴ *Comptes-rendus de l'Académie des Sciences*, Paris, 8 (séance du Lundi 4 Février 1839), 170–1. Talbot wrote in French.

⁵ *Ibid.*, 173. The manuscript of this reply to Talbot dated 31 January survives in the Talbot collection at the National Media Museum, Bradford (previously the Science Museum collection in London) as do two more related letters from Biot dated 13 and 18 February 1839. The full text of Biot's letters has been published in the excellent compilation of documents which make up chapter 3 ('Eighteen Thirty–Nine') of Gail Buckland's *Fox Talbot and the Invention of Photography*, Scolar Press: London 1980, 39–59, 78.

it”.⁶ Talbot’s combative attitude towards the Daguerreotype and the Académie des Sciences is certainly of interest with regard to his psychology (perhaps it should be said that it was not simply a matter of patriotic bigotry, because he acted in the same way to almost everybody) but rather than pursue that matter the purpose of this present article is the more significant approach that Talbot made to the Royal Society in London.

Talbot also sent a letter, to claim that he began his work before Daguerre’s announcement, to the *Literary Gazette* where it was published on 2 February 1839.⁷ As Talbot said in his letter to the Académie, on 29 January he was ‘very occupied at the moment with a Memoir on the subject to be read at the Royal Society’. In fact Talbot had already the previous day sent ‘Some Account of the Art of Photogenic Drawing’ to the Royal Society.⁸ It was read at their weekly meeting of 31 January 1839, and reports of the meeting appeared in *The Athenæum* and *Literary Gazette* on 2 February.⁹ However, eager for his account to be published, Talbot independently sent a copy of the complete text of that Account to *The Athenæum* where it appeared the following week on 9 February.¹⁰ This first account by Talbot was in a very narrative style, limited to stating he had begun experiments with Silver Nitrate on paper in 1834, describing some effects obtained in very general terms, and his thoughts on potential applications. Talbot was not entirely alone in bringing the first photography to the Royal Society, for it should not be forgotten that two ‘photographic specimens’ produced by Sir John Herschel were also provided for informal exhibition at the Royal Society meeting of 7 February.¹¹ However, three weeks after his first generalised ‘memoir’, Talbot provided some chemical details of his ‘Processes employed in Photogenic Drawing’ for the Royal Society meeting of 21 February. He also sent a copy of that second paper to the weekly intellectual journals *The Literary Gazette* and *The Athenæum* where it appeared on 23 February only two days after the meeting.¹² Talbot’s account of his processing was fairly short and so the complete text is appended to the present article, figure 4. As will be seen, he had not yet arrived at a very practical technique, the results still variable and uncertain. After another month, at the Royal Society weekly meeting of 21 March 1839, Talbot did make some attempt to add more information about the way he

⁶ *Literary Gazette* No. 1158 (30 March 1839), 202–3

⁷ Letter dated 30 January 1839 to Editor of *Literary Gazette*, ‘Photogenic Drawing’, *Literary Gazette* No. 1150 (2 February 1839), 73–4

⁸ The manuscript of Talbot’s ‘Some Account of the Art of Photogenic Drawing’ survives at the Royal Society, London, ‘Archives 1839–40. vol. 23’, AP23.19, and is marked ‘Recd 28th Janry 1839 Read January 31 1839’

⁹ (a) **Report** of Talbot’s letter (‘Some Account of the Art of Photogenic Drawing’) read at Royal Society on 31 January 1839, *The Athenæum* No. 588 (2 February 1839), 97, and *Proceedings of the Royal Society* 4: 36 (6 December 1838 – 7 February 1839), 120–1. The manuscript at Royal Society, Archive Papers AP23.20bis) (b) In addition a different and shorter report appeared in *The Literary Gazette* No. 1150 (2 February 1839), 75.

¹⁰ **Full text** of ‘Some Account of the Art of Photogenic Drawing’, *The Athenæum* No. 589 (9 February 1839), 114–17; also reprinted from *The Athenæum* in *Mechanics Magazine* 30: 810 (16 February 1839), 345–51; *Philosophical Magazine* 3rd series, 14: 88 (March 1839), 196–208. These pages fully transcribe the manuscript of the paper preserved at Royal Society (Archive Papers, AP23.19)

¹¹ Herschel Correspondence HS17.281 and 281 bis, Royal Society, London

¹² ‘An Account of the Processes employed in Photogenic Drawing’ (letter dated 20 February, read at Royal Society meeting of 21 Feb. 1839), *Literary Gazette* No. 1153 (23 February 1839), 123–4 (The *Literary Gazette* headed the letter with a different title, ‘Photogenic Drawing (*Further discoveries*)’); *The Athenæum* No. 591 (23 February 1839), 156 (Two introductory paragraphs of general remarks by Talbot omitted); *Philosophical Magazine* 3rd series, 14: 88 (March 1839), 209–11; *Proceedings of the Royal Society* Vol. 4: No. 37 (14 February–21 March 1839), 124–6 (First two paragraphs of general remarks omitted). This Issue No. 37 of the *Proceedings* probably appeared in mid April. The manuscript of this paper is preserved at the Royal Society (Archive Papers 23.20 [*not* 23.20 bis]) and its text is closely transcribed when published in the *Literary Gazette* and in the *Philosophical Magazine*.

prepared his ‘new kind of sensitive paper’.¹³ That third note by Talbot was a poor effort, hardly worthy of publication. The Royal Society by this time had also received a paper submitted by the Rev J. B. Reade, although in this case they decided it did not reach a standard required for presentation at a meeting, and, most significantly, Sir John Herschel’s great ‘Note on the Art of Photography’ read at their meeting of 14 March 1839. Herschel’s advocacy early in 1839 of the use of hypo to preserve photographic images was of supreme consequence for the development of photography, yet this is a fact often lost sight of in historical accounts of the beginnings of the subject. In contrast Talbot is very commonly referred to as the father of photography. His later calotype technique of 1841 is certainly of outstanding importance, but in popular histories of photography it is not uncommon to find no differentiation between the calotype of 1841 and the primitive photogenic drawing technique of 1839. A disservice is done to subject in this way. The reaction of the Royal Society at the beginning of 1839 is illustrative of contemporary attitudes to Talbot’s first accounts of his earlier attempts at photography, and deserves examination in more detail.

II (Royal Society)

The situation regarding the publication of Talbot’s communications on Photogenic Drawing was an unhappy one for the Council of the Royal Society. Talbot eager to obtain priority for the discovery of the new art wished to receive quick dispensation that his communications would be accepted for publication in the Society’s *Philosophical Transactions*. He badly needed this early confirmation, because, in his haste, he had already sent copies of the letters to the weekly journals. Although he wished to publish quickly, he did not wish to publish more than a generalised outline of his work: for he felt that to reveal the chemical details of Photogenic Drawing would enable Daguerre, and others, to appropriate the technique. Unfortunately the Royal Society were unhappy about his papers because of this lack of chemical detail.

I am quoting here above from my own words published in *Annals of Science* more than forty years ago. In addition to this text, the reader was (in a footnote) directed to the manuscripts at the Royal Society in London from which such a conclusion had been reached so that any future researcher could reassess and make their own judgement.¹⁴ It is here appropriate to make fully available, and discuss more, the relevant source material.

On Tuesday 29 January 1839 Talbot wrote to Sir John Herschel.

The Editors of the 2 London principal Scientific newspapers, “the Athenaeum” & “the Literary Gazette” have both taken up with zeal (much more than I could have expected) the subject of my discovery of Photogenic Drawing. The editor of the Athenaeum has applied to me this morning for leave to publish in full, the paper which will be read on Thursday at the R¹ Society, because, he avers, no time ought to be lost, the Parisian invention having got the start of 3 weeks. I replied to him that a resolution of the Council would be necessary to that effect,

¹³ ‘Note Respecting a new kind of Sensitive Paper’ (read at Royal Society meeting of 21 March 1839), *The Athenaeum* No. 597 (6 April 1839), 260; *Proceedings of the Royal Society* Vol. 4: No. 37 (14 February to 21 March 1839), 134; *Philosophical Magazine* 3rd series, 14: 90 (May 1839), 368–9. Only an abbreviated version of Talbot’s Note was printed. The full text of Talbot’s manuscript ‘Note’ of three pages with ‘Addendum’ also of three pages, has not been published, but survives at the Royal Society, London, Archive Papers AP23.21.

¹⁴ R. Derek Wood, ‘J. B. Reade, F. R. S., and the Early History of Photography, Part I: a re-assessment on the discovery of contemporary evidence’, *Annals of Science* 27:1 (March 1971), 13–45. Footnote No.62 on p. 33 cited the relevant documents in the archive collections of the Royal Society in London relating to the problems that arose over the publication of Talbot’s communications on photogenic drawing in early 1839.

& that I would inquire of the members before hand if they would consent to the temporary suspension of the rules, without prejudice to the paper being afterwards printed in the Transactions. In case I receive the assent of the majority of the council, it will then be only necessary to await for a formal note. I hope you for one will accede to this, under the peculiar circumstances.¹⁵

Herschel replied the following day (Wednesday 30 January), although Talbot had arranged to visit him at Slough only another two days later:

I am sure I should not object to printing your paper as a part of the Phil Trans on the ground of its having been published in the Athenaeum under all the circumstances of the case however I think that rapidity of communication of inventions to the Public is of more importance than points of form and the interest of this particular invention supposing it to accomplish all the conditions required to make it practically available, is such that it ought to be preserved in some more durable ~~form~~ collection than the ephemeral leaves of a Lit^y & Sci weekly Journal. However I believe that the practice of the R.S. hitherto so far as I recollect it has been very strictly of a contrary character & prior publication in any other ~~form~~ work has to the best of my knowledge always been held a fatal objection. Must you of necessity give to these Journals a verbatim copy – Is there no matter of detail advantageous in the main publications, no prospective improvements or hints for future wider applications which may advantageously be for a time withheld? However as before said – I shall not be the one to object

¹⁶

Talbot visited Herschel in Slough as expected in the afternoon of Friday 1st February where Herschel showed Talbot his use of hypo and other first experiments on photography. While at Slough Talbot obviously also discussed his considerable anxiety about publication, and the following day sent another note to Herschel:

I forgot to mention that I understood on further inquiry, that the obnoxious clause in the regulations of the Royal Society no longer exists, viz. “that the paper should not be reprinted until 6 weeks after the publication of the vol of the Transactions.” That being the case, there was no longer any reason for wishing to break through the rules in this instance, as there is a council & committee of papers next Thursday [7 February], when I trust [they] will decide respecting giving my paper a place in the Transactions. The editor of the Athenaeum wants to print the whole paper in his publication of this day, which I would not consent to, for the reason of its being [contrary] to the rules; but it will appear next Saturday. Messrs Taylor are now printing it, & only wait for the decision of the Council, to know if the title page is to say “from the Transactions” or not. I hope you will continue the very interesting experiments which you showed me yesterday as I am anxious that something should be effected worthy of the scientific reputation of the country.¹⁷

¹⁵ . Royal Society, Herschel Correspondence HS17.279

¹⁶ . Herschel’s draft of this letter dated 30 January 1839 is preserved in the Herschel Correspondence at the Royal Society, HS17.279bis, while the letter actually sent to Talbot is now in the Talbot Collection (previously of the Science Museum) at the National Museum of Photography, Bradford. The text as quoted here from the draft is almost identical to the letter at Bradford, but the second half of the letter differs significantly where Herschel goes unerringly to the solution of the problem posed in developing the science of photography

¹⁷ Talbot to Herschel dated 2 February 1839: Royal Society, Herschel Correspondence HS17.280

The following Tuesday, 5 February, Talbot wrote to the Royal Society.

I suppose I may depend upon the Council's coming to some decision upon my paper next Thursday, and not postponing. Upon this understanding I have made arrangements for giving immediate circulation to the paper, as soon as I shall know whether it is to be published as "taken from the Transactions", or as a private publication of my own.¹⁸

Obviously Talbot already had discussions with a representative of the Royal Society, but the above note is the earliest surviving written document, and it is very likely that earlier discussion had taken place in person at the Royal Society, for Talbot was living at this period in his town house at 44 Queen Ann Street. Dr. P. M. Roget, one of the two secretaries of the Royal Society, and editor of the *Proceedings of the Royal Society*, answered the next day as follows:

I cannot undertake to say what course ye Council will take with regard to your paper. If it had been complete, I might have ventured to anticipate their prompt decision that it would be printed: but, in its present form, I fear there will be great difficulties in ye way of its publication in ye Transactions. You are, no doubt, perfectly warranted in withholding from ye public the disclosure of ye process of which you have described the results in that paper: but from what I can collect of ye opinions of the members of ye Council, I rather believe they would think it best to defer its publication until you can render it complete by ye communication of ye processes themselves. Perhaps, under the circumstances, you will deem it advisable to withdraw ye paper for the present, <before> a ballot is taken on the question of its publication.¹⁹

Talbot must have received Roget's answer the same day as it was written, for he quickly wrote a second note to the Royal Society dated 6 February, obviously with the intention that this statement would be available to the Council who were to meet on Thursday 7 February.

I have the honor to state to the Council of the Royal Society, that my motive for withholding for the present, some parts of my process of Photogenic Drawing, is, that otherwise I have reason to think I should be completely anticipated in those other, & perhaps more perfect, results which I hope to work out during the ensuing summer. Now, this is a sacrifice which, as it appears to me, I ought not to be called upon to make. With this explanation I am content to leave the matter in the hands of the Council who no doubt, are the best judges of what is most for the interests of the Society, and of science itself.²⁰

Being a half-yearly publication, if Talbot's paper had been accepted by the Royal Society, it would not have been published in full in the *Philosophical Transactions* until the end of the year. Talbot was therefore asking the Council to accept his preliminary 'Account' claiming priority for the time when he began his researches, not only without saying anything about the actual process, but expecting them to provide him with the opportunity to incorporate further investigations that he had not yet begun! (see a later section of this present article in discussing how a couple of years later Talbot used a similar technique

¹⁸ Royal Society, 'Miscellaneous Correspondence, vol 3 1839-43', MC3.5

¹⁹ Roget's answer dated February 6 1839 is drafted on the blank pages of Talbot's letter, Royal Society, MC3.5. The letter was addressed from Bernard Street, R[ussell] Sq, London, not at the Royal Society.

²⁰ Talbot's statement to Royal Society dated 6 February 1839, 'Miscellaneous Correspondence, vol 3 1839-43', MC3.6

when publishing a general account of the calotype without details)

The ‘Committee of Papers’ (including John Herschel and PM Roget) met on Thursday 7 February.²¹ Indeed this committee consisted of the whole Council of the Royal Society who also met as such within the same session. Minutes taken at the meetings of this committee at this period do not record discussions that took place, merely naming who was present, and providing a list of papers placed into standardised categories such as ‘Referred’, ‘Postponed’, ‘Withdrawn’, ‘Archives’, ‘Not to be printed’, or ‘To be printed in the Proceedings’. This last status was the one placed against ‘Some account of the Art of Photogenic Drawings’ although (according to Herschel – see his letter to Talbot on next page below – a first reaction was for it to be ‘postponed’.

No further consideration by the same fellows and officials was needed on the subject when they then all sat to deal with wider matters within the remit of the full Council.²²

The day after these meetings at the Royal Society, Talbot wrote again to Herschel

As I understand that you exhibited some photogenic drawings at the R.S. last night, allow me to ask if it is your intention to publish at present any account of your method of “washing out”? My motive for asking is, that in that case I could take the opportunity of making known my method of “fixing”, either separately, or in a joint communication with yourself to the R.S. if you should be willing to adopt that suggestion. At present however, I merely wish to be informed whether you are intending to describe your process, or to wait a little. Believe me, Yours most truly, H. Fox Talbot.

PS Concerning “washing out” vide Sir H. Davy in the 1st vol. of Journal of R. Institution. He could not effect it – perhaps nothing else will answer than your ingenious recipe.²³

Herschel replied over the next two days of the weekend of 9/10 February,

I left one or 2 Photographic Specimens (very poor ones) with Mr. Robertson — not as a formal exhibⁿ to the RS, but merely with a view to keep up attention on the subject by affording <matter> of conversation to those who might chance to see them in his hands or on the library table in the evening. As Daguerre has obtained his price for his secret of course it will soon be published — and I am told that his performances are so exquisite as to be almost miraculous. [Indecipherable sentence of about nineteen words heavily deleted here] ~~I have~~ ~~not~~ /So far therefore from having now/ the smallest objection to your mentioning either publicly or privately my application of the Hyposulphite to washing out the Silver /I rather wish it to be [known]/ – ~~That class of Salts was unknown to Davy~~

²¹ Royal Society, ‘Minutes of the Committee of Papers’, vol 2 (1828–1852), pp.177–8 (7 February 1839), The committee members present were the Marquis of Northampton (President, in the chair); Mr Bailly; Mr Children; Mr Christie; Mr Daniell; Mr Galloway; Mr Graham; Sir John Herschel; Mr Kiernan; Mr Lubbock; Mr Rennie; Dr Roget; Dr Royle; Captain Smyth; Dr Todd; Mr Wheatstone; Reverend W Whewell. Indeed it will be seen (next footnote) that this committee consisted of the whole Council at the same session. In the minutes of the next meeting held on 14 March 1839 (pp.178–80), Talbot’s second paper on ‘the processes employed in Photogenic Drawing’ was marked as filed in the ‘Archives’.

²² Royal Society, *Minutes of the Council*, Vol 1 (1832–46), 203–7. Council members sitting on 7 February 1839 were the President (Marquis Northampton) as chairman; F. Bailey; J. G. Children; S. H. Christie; J. F. Daniell; Thomas Galloway; Thomas Graham; Sir John Herschel; F. Kiernan; Sir John Lubbock; G. Rennie; P. M. Roget; Dr. J. F. Royle; Capt Smyth; Dr R. B. Todd; Charles Wheatstone; W. Whewell.

²³ Talbot to Herschel dated ‘Friday’, postmark Feb 8, 1839, Royal Society: Herschel Correspondence HS17.281

or of course he could not have missed the application in question which is too obvious to need being made a point of: — All Idea of secrecy being taken off by the chat being let out of the Frenchman's bag, I have myself mentioned this to several persons.

On the subject of your paper I wish to say a word, having been at the Council on Thursday where it was discussed in committee [Herschel must be referring here to the Papers committee]. I then learnt for the first time that your processes were not therein described, especially that of "fixing". In consequence of this & of some part of the paper having been withdrawn on its being understood that you ~~intended to~~ considered it incomplete & intended its completion with an account of the processes — it was proposed to "postpone" it till it could appear in its complete form. Now this I think would have been very objectionable on other grounds & I therefore suggested what I hope will meet your approbation — the printing not as usual of an abstract — but, of the whole paper as it now stands verbatim in the next "Weekly Notice", whereby the speediest circulation of its contents in the Scientific world will be served — and that without prejudice to the appearance in the Trans of a further & more complete paper, embodying the contents of the former as an integrant part. I hope to hear from you that you approve this. Of course I presume there can be no objection to your having any number of copies of this "notice" for private use. [Herschel completed this sentence on the following day when rewriting the letter to send to Talbot] — only if so pray lose no time in writing to the Secretary to that effect.²⁴

Talbot answered the above letter immediately he received it on Monday 11 February:

The re-Transfer process is thus mentioned by me in my paper read to the R.S. which is reprinted [sic!] in Saturday's Athenaeum, a copy of which I will have the pleasure of sending to you. ... Although Daguerre is said to succeed so admirably with the Camera, it does not follow that he can copy an engraving, a flower, or anything else that requires close contact. I say this, on the supposition that he uses a metal plate covered with a liquid from which light precipitates something previously held in solution. If so, it is evident that the engraving would prevent all effect. This was my idea when I suggested that it might be best not to disclose at present the washing out process the retransfer, &c until brought to a state more worthy of publication, inasmuch as the Parisians would hardly be able to discover it immediately if it is no part of Daguerre's process, & I wished to show him that we could do something here which they could not imitate as yet. Do you think me right in this respect? There is not the smallest doubt that the finest engravings can be imitated, & I wished that we might have the honour of first exhibiting them. I can work with very thick engravings on a summer's day. I am much obliged to you for proposing to the Council to print my paper in full in the Proceedings, which sufficiently establishes the date of that communication. I never expressed my intention of withdrawing the paper. I wrote to Dr. Roget quite the contrary.

... I am so confident about the success of copying engravings judging by those which I have already made, that I should like very much to prepare a fine collection of them to be shown at the Scientific Meeting [of the British Association for the Advancement of Science] at Birmingham or sooner. I wish to

²⁴ The text here is from Herschel's draft dated 9 February 1839 (Royal Society, Herschel Correspondence, HS 17.281bis). Herschel made some changes and additions to the text when he penned the letter to send to Talbot on the following day of 10 February. That letter as received by Talbot survives in the Talbot Collection, previously of the Science Museum, now at the National Media Museum, Bradford.

know if you do not think that the publication of the washing out, fixing, &c.&c. would prevent this, by putting it in the power of anyone either at home or abroad, to exhibit such a collection before we may be ready to do so? ²⁵

Talbot wrote the following letter to the Royal Society without dating it.²⁶ His reference in it to having received a letter from Sir David Brewster, who had written to Talbot on 4 February,²⁷ does provide some indication as to its date. Maybe Brewster's letter had taken a long time to reach London, for by comparison with another letter (quoted above) that Talbot had certainly addressed to the Royal Society on 5 February, it seems more likely that the following letter was written a considerable number of days later.

If the paper itself is printed in the proceedings, then I presume the Abstract will be cancelled. Some directions ought to be sent to Mr. Taylor about it, for his guidance. He has already set it up in a quarto page [*Philosophical Transactions*], & will therefore have no difficulty in transferring it to an octavo [*Proceedings of the Royal Society* and Taylor's own *Philosophical Magazine*]. I had a long letter from Sir D. Brewster this morning and what do you think he recommends? Keep it a secret, for the present: until circumstances permit me to bring it to perfection. Yet such is the difference of opinion in this world, that what is strongly recommended by some persons, is as strongly objected to by others.

At the next meeting of the Council of the Royal Society held the following Thursday, 14 February, the council considered that,

As it appears that since the last Meeting of the Council, the paper by Mr H. F. Talbot, lately read to the Society, and entitled "Some account of the Art of Photogenic Drawing, or the process by which natural objects may be made to delineate themselves without the aid of the Artist's pencil," has been published *verbatim* in the Athenaeum weekly newspaper, the Council do not deem it expedient that it should be republished in the Proceedings of the Society.²⁸

However, three weeks after his first generalised 'memoir', Talbot provided some chemical details of his 'Processes employed in Photogenic Drawing' for the Royal Society meeting of 21 February. He also sent a copy of that second paper to the weekly intellectual journals *The Literary Gazette* and *The Athenaeum* where it appeared on 23 February only two days after the meeting. However the Royal Society did still publish it in the next issue of its *Proceedings* (which covered the meetings of 14 February to 21 March), although not in their most prestigious half-yearly *Transactions*.²⁹

Talbot had penned the paper for the Royal Society the day before its meeting of 21 February 1839 and at the same time sent off the following note to Herschel:

²⁵ Talbot to Herschel dated Monday Feb 11, 1839: Royal Society, Herschel Correspondence HS17.282

²⁶ Royal Society, 'Miscellaneous Correspondence, vol 17, 1897-99 (and undated)', MC17.315. Talbot's undated letter is addressed from his London house at 44 Queen Ann St.

²⁷ Letter dated 4 February 1839, Sir David Brewster to Talbot, Lacock Abbey Collection, LA39.7: 'I hope you mean to pursue the subject and endeavour to perfect the process. You ought to keep it perfectly secret till you find you cannot advance further in the matter, and then it would be advisable to secure your right by a Patent'

²⁸ Royal Society, *Minutes of the Council*, Vol 1 (1832-46), 208-10. Six of the Council members (including Herschel), who had been at the previous meeting were absent on 14 February. The council members present were Lubbock (chairman), Baily, Children, Christie, Daniell, Galloway, Rennie, Roget, Smyth, Todd, and Wheatstone.

²⁹ For publication of 'An Account of the Processes employed in Photogenic Drawing' (letter dated 20 February, read at Royal Society meeting of 21 February 1839), see footnote 12.

If there is a meeting of the R. Society tomorrow, I intend to request Mr Christie to read a note, briefly mentioning the nature of my processes, which will then be free to all the world to adopt or to find out better ones for themselves.³⁰

Herschel himself had already worked out a better process, and as with so many of Talbot's letters, the tone is disingenuous and mealy-mouthed.

It would be valuable know more about the attitude of Dr. Roget to Talbot's demands on the Royal Society but little is known.³¹ Although there is a tantalising comment in the correspondence of Macvey Napier (editor of the *Edinburgh Review*) that suggests Roget might indeed have somewhere recorded more on the subject. For Thomas Spring-Rice wrote to Napier in 1843 with regard to Sir David Brewster's early review on photography in the *Edinburgh Review* of January 1843 that,

There will be an appeal to you from the Royal Society refuting some misapprehensions of fact made by Brewster on the subject of Daguerreotype & Photogenic proceedings; but I need not go into the question as Dr Roget or [William] Empson will write to you with some knowledge of the subject.³²

Related in several respects is a long unsigned article 'Physical Science in England' that appeared shortly after in *Blackwood's Edinburgh Magazine* in October 1843, containing comments about the same article by Brewster in respect of Talbot and the Royal Society – although more concerned with similar difficulties with Talbot's later Calotype :

We have observed recently a strong tendency in men of no mean scientific pretensions to patent the results of their labours. We blame them not: it is a matter of free election on their part, but we cannot praise them. A writer in a recent number of the *Edinburgh Review* (Edin. Rev. No. 150 [sic. 154].), has the following remarks on the subject of Mr Talbot's patented invention of the Calotype.

“Nor does the fate of the Calotype redeem the treatment of her sister art, (the Daguerreotype.) The Royal Society, the philosophical organ of the nation, has refused to publish its processes in her transactions. *** No representatives of the people unanimously recommended a national reward. *** It gives us great pleasure to learn, that though none of his (Mr Talbot's) photographic discoveries adorn the transactions of the Royal Society, yet the president and the council have adjudged him the Rumford medals for the last biennial period.”

The notion of a “national reward” for the Calotype scarcely requires a remark. If, after a discovery is once made and published, every subsequent new process in the same art is to be nationally rewarded, the income-tax must be at least quadrupled. The complaint, however, against the Royal Society, is not altogether groundless. **True it is that the first paper of Mr Talbot did not contain an account of the processes employed by him, and therefore should not have**

³⁰ Talbot to Herschel dated 20 February 1839: Royal Society, Herschel Correspondence HS17.285

³¹ Roget did some years later speak briefly to Michael Faraday about the problems that had come up about the publication of Talbot's papers, see L. Pearce Williams (edit), *Selected Correspondence of Michael Faraday*, Cambridge: CUP 1971, vol. 1, Faraday to J. B. Dumas and to A. De la Rive on pp.480–1 and 487. See also a letter of 19 Dec 1842 from W. R. Grove regarding the Royal Society, pp. 408.

³² Letter dated 27 February 1843 from Thomas Spring-Rice (Lord Monteagle) to Macvey Napier, British Museum Additional MSS 34,623, f454v. No letters of 1843 are in the Napier Correspondence from Roget and of the letters from William Empson and Brewster written in 1843 none clearly mention either photogenic drawing or the Royal Society except a letter from Brewster dated 20 January 1843 (BM Add. MSS 34623, f.361) in briefly speaking of 'the Medical Gentleman's criticism' probably relates to this subject.

been even read to the Society; but the paper on the Calotype did contain such description, and we see no reason why a society for the advancement of knowledge should not give publicity to a valuable process, though made the subject of a patent — but it certainly should not bestow an honorary reward upon an inventor who has withheld from the Royal Society and the public the practice of the invention whose processes he communicates. Mr Talbot had a perfect right to patent his invention, but has on that account no claim in respect of the same invention to an honorary reward. The Royal Society did not publish his paper, but awarded him a medal. In our opinion, they should have published his paper and not awarded him a medal.³³

Most significantly that anon commentator was indeed William Grove.³⁴ At that time he was Professor of Experimental Philosophy at the London Institution, before the steady advance of his legal career — a career that in 1854 included being one of the two barristers representing Talbot in the patent case *Talbot v. Laroche*.³⁵ Grove was writing in the context of his secondary discussion on patents and particularly because of his different views to Talbot is indeed of interest. However (as we have seen above), it was not entirely due to what he suggests was the attitude of the Royal Society towards patents that Talbot's paper on the Calotype was not published by them. For even in 1841 Talbot was practising multiple publication. Again the prior appearance of his first account of the Calotype process in the weekly public journals made re-publication in the Royal Society's peer-reviewed *Transactions* unacceptable.

So why did this keep happening to Talbot — can it really be an example of “everyone is out of step except our little Willy” (as the saying goes) as the advocates of Talbot's supreme status convince themselves?

Maybe it is understandable, especially in the light of Talbot's persistent self-driven desire to achieve priority of publication, that he should have wanted to cut corners in February 1839, but the way he published a general account of his work towards photogenic drawing without providing any actual information and which led him into problems of getting his work published by the Royal Society did not remain a unique situation with Talbot.

The way he released information about his work on the later calotype was something of a repeat performance. And undoubtedly relates to his prime concern being more with private patents than the respect of an academic community by publication of research in learned journals.

It is necessary here to explain the situation concerning patent applications at this period. Briefly Talbot used a similar technique when publishing a general account of the calotype without details followed 6 months later by the full paper. This relates to obtaining the

³³ ‘Physical Science in England’, anon article in *Blackwood's Edinburgh Magazine*, October 1843, Vol. LIV (No. CCCXXXVI), pp.514-525. The passage quoted is on p. 521 of *Blackwood's*, and on searching for the original source can be seen to have been put together from separate sentences on p. 344 and p. 328 of ‘Photogenic Drawing, or Drawing by the Agency of Light’, an unsigned review (by Sir David Brewster), *Edinburgh Review*, Jan 1843, Vol. LXXVI (No. CLIV), pp. 309-344.

³⁴ The writer of the unsigned article on ‘Physical Science in England’, in *Blackwood's Edinburgh Magazine*, Oct 1843, is identified as William R. Grove in W. E. Houghton (editor), *The Wellesley Index to Victorian Periodicals 1824-1900* (University of Toronto Press: 1966), Vol. 1, p. 72 (Blackwood's item No. 2292.)

³⁵ R. Derek Wood, *The Calotype Patent Lawsuit of Talbot v Laroche, 1854*, Privately published: Bromley (Kent) 1975, 32pp, 2 ills. ISBN 0-9504377-0-0. British Library shelf-mark X709/30084; Full text and the two illustrations (one being a rare calotype portrait of Grove) are also available online at the UK webarchive www.webarchive.org.uk/wayback/archive/20130311171751/http://www.midley.co.uk/laroche/TalbotvLaroche.htm

calotype patent (and other patents) by sealing the title only of the patent and then having up to six months to enroll the specification.

Patent titles were granted (sealed) with a common proviso that a full Specification be enrolled within six months. Generally patentees delayed the preparation of the specification for the full period, as it gave them a chance to incorporate development done during that time. A patent's sealed Title provided immediate commercial protection, but sale of contracts would need to wait for a Specification. Yet with Talbot it was not just a simple matter of pursuing the possession of commercial patents, but he felt the need for academic recognition as well. Thus at around the same time as sealing a title to a patent Talbot would aim to publish a general vague description of the work (as a way to provide a date for "priority of discovery"), but not expand on the details until about six months later. He then felt hurt when the academic community found this dual publication method was not acceptable.

III ('Priority of Discovery')

Talbot to Herschel. dated 12 September 1839:³⁶

I am much obliged to you for the description of your new method of making a picture on glass. Do not publish it at present, for the following reason. Some one has lately taken out a patent for improvements in photogenic drawing; I am not acquainted sufficiently with the facts, to be able to judge whether he has any fair right to do so, i.e. whether he has himself invented anything new, or only intends to reap what others have sown; but having conversed with a lawyer on the subject I find there is nothing to prevent him from monopolizing the Daguerreotype (in England) if he is so disposed. Now, until he enrolls his specification, which he may delay 5 months longer, he is at liberty to claim as his own any improvement that you or I or any one else may publish, and prevent us from employing it without his permission. Those things only are safe, which were published previously to the date of the patent.

Such is the state of the law at present, and there is no help for it, that I know of, it behooves us therefore to describe no new process, applicable to the art, before next year.

Talbot (writing from Munich mainly about priority of invention, specifically in making mirrors for reflecting telescopes) to Herschel dated 2 June 1842:³⁷

I find, from a conversation with Dr Steinheil, who very obligingly related his experiments to me, that he has recently written to you respecting his proposed method of constructing Reflecting Telescopes. I therefore beg to put you in possession of some facts regarding the priority of this discovery, for, as I observed to Mr S. himself today, Science is now cultivated by so many, that it is impossible that cases of simultaneous invention should not frequently arise.

About a year ago Mr Wheatstone & myself independently arrived at the idea or invention, of constructing telescope mirrors by taking electrotype copies... – I took out a patent for the invention, or rather I included it in patent for other things, of which the specification was published before I left England. My chief

³⁶ Talbot to Herschel. dated 12 Sept. 1839: Royal Society, Herschel Collection, HS 17:297

³⁷ Talbot to Herschel dated 2 June 1842: Royal Society, Herschel Collection, HS 17:312.

object in so including it, was to establish my claim to the invention, altho I was not aware that it had occurred to anyone else but Mr Wheatstone. Dr Steinheil's procedure is a good deal different... – The plan which I had formed ... closely resembles Dr Steinheil's, indeed that method of mounting a telescope occurred to me from 10 to 20 years ago, as being the only one which we could have recourse to, if our reflecting telescopes grew much larger – I have been often on the point of describing it in the *Phil. Mag.* but have always forgotten to do so, so I suppose I must be content to forego this part of the thing – .

So far from following Horace's precept of keeping things back for nine years & then reconsidering them, as to whether they deserve publication. I think that in the present universal impetus for discovery a delay of nine days is inadvisable, nine months very hazardous, nine years assuredly fatal to any claim of discovery.

Talbot's aghast reference to Horace is from Horace's advice in his *Ars Poetica* : "Yet if ever you do write anything, let it enter the ears of some critical Maecius, and your father's, and my own; then put your parchment in the closet and keep it back till the ninth year. What you have not published you can destroy; the word once sent forth can never come back".³⁸ The section of Horace within which those words appear has been paraphrased as saying that with poetry (and we should add, also in science) "we exact a higher standard of perfection than we would in something one might be obliged to do, like speaking in public in a lawsuit, and only publish then after long reflection and revision"³⁹: a comment that if applied to Talbot would become ironic due to his involvement in lawsuits.

Talbot wanted to be perceived as a scholarly contributor to universal knowledge, but at the same time be a patentee. He wanted the Royal Society to fit in publication of his work in their learned journals into the time scale required for his patenting activity. But those requirements were irreconcilable. The consequent difficulties were, in Talbot's mind, the fault of everybody except himself.

How much more sensible it would have been if Talbot in February 1839 could be content with a note in the *Literary Gazette* or *Athenæum*, speaking generally of what he had been pursuing in the last few years. It should have been obvious that such a premature note lacking any chemical details would not be acceptable for publication by the Royal Society in one of their peer-reviewed journals even without any additional problem due to multiple publication. He could then next, as happened, submit only to the Royal Society a proper technical paper in the same way as did John Herschel in March 1839. As with Herschel, it would have been soon published in the Proceedings of the Royal Society – which indeed would have been quickly republished in the routine reports of the Society meetings in the intellectual weeklies – and further fuller publication in the *Phil. Trans.* would have followed.

By contrast, in 1841 when Talbot was ready to make public his calotype technique (a true advance, unlike the earlier Photogenic Drawing under discussion here) he could have avoided a repeat of the conflict with the publication policy of the Royal Society by foregoing the status peer-acclaim and gone straight for the petit-bourgeois patent.

³⁸ Horace, *Satires, Epistles and Ars Poetica*, Latin text with an English Translation by H. R. Fairclough. Loeb Classical Library, 1926, lines 386-390.

³⁹ The paraphrase of this section of *Ars Poetica* (lines 366–390) is by D. A. Russell (his essay on 'Ars Poetica' in *Horace* edited by C. D. A. Costa, London, 1973, pp.124-5). Voltaire in *The World as it is* (1748), and in a letter to Le Fevre written around 1740 (*Select Letters of Voltaire* edited by T. Besterman, 1963, p.70-73), also made some amusing and relevant comments about ambitions of men of letters.

IV (The Royal Society v Académie des Sciences)

It can be seen above that the author concludes that the Royal Society's Committee of Papers was right to not fully accept Talbot's submitted papers on his Photogenic Drawing Technique for publication in *Phil.Trans.*, due to both to his prior publication elsewhere and lack of data on the chemistry.

It was a simple system of peer-review, one followed as an established principle of future academic publications. But that is not to say the Royal Society was perfect in its procedures at that period. Attention has already been drawn to some of the thoughts of William Grove, and it is worth looking further at his own general attitude to the Royal Society.

Grove himself had the experience of a paper being rejected for publication in the Royal Society's *Phil. Trans.* The way this had affected him can be judged from a letter he wrote in December 1842 to Michael Faraday.⁴⁰

...Having contributed one paper [to the Royal Society] which was not published & the reason of their rejection of which I cannot see [,] I do not wish this to happen a second time Unless I strangely misjudge myself it is no sudden vanity which renders this view My experience, such as it is, leads me to believe that had I contributed this paper even in an improved form it would have also been rejected unless I made interest for its insertion & this I will not do My contributions to science have spoken & shall speak for themselves, if this be pride it is at worst an honest pride. I have made no rash vow on the subject but my present feeling certainly is to have nothing to do with Scientific societies but to publish in periodicals ...

Grove had also, by contrast, found it easy to get a paper read at the Académie des Sciences when he visited Paris in 1839.

No doubt bearing in mind the lower academic status of his own position at the London Institution in Finsbury Circus, Grove had thoughts to share about the public standing and government support of scientific institutions: here is the passage on that subject that he sets out in his 1843 article already mentioned on 'Physical Science in England':

If we compare the proceedings, undoubtedly dignified and decorous, of our Royal Society with those of the French Academy, we fear the balance will be found to be in favour of the latter.

At Somerset House, after the list of donations and abstract of former proceedings, a paper, or a portion of a paper, is read upon some abstruse scientific subject, and the meeting is adjourned in solemn silence, no observation can be made upon it, no question asked, or explanation given. The public is excluded, * [Footnote on p.518:]* Each Fellow can, indeed, by express permission of the Society, take with him two friends.] and the greater part of the members generally exclude themselves, very few having resolution enough to leave a comfortable dinner-table to bear the solemn formalities of such an evening. The paper is next committed, it is not known to whom, reported on in private, and either published, or deposited in the *archives of the Society*, according to the judgment of the unknown irresponsible parties to whom it is committed.

⁴⁰ Pearce Williams (editor), op.cit. (31), letter No. 272 dated 19 Dec 1842 on p. 406

Let us now look at the proceedings of the French Academy; it is open to the public, and the public take so great an interest in it, that to secure a seat an early attendance is always requisite. Every scientific point of daily and passing interest is brought before it -- comments, such as occur at the time, are made upon various points by the secretary, or any other member who likes to make an observation -- the more elaborate memoirs are read by the authors themselves, and if any *quere* or suggestion occurs to a member present, he has an opportunity of being answered. The memoir is then committed to parties whose names are publicly mentioned, who bring out their report in public, which report is read in public, and may be answered by the author if he object to it. Lastly, the whole proceedings are printed and published verbatim, and circulated at the next weekly meeting, while, in the mean time, the public press notices them freely. That, with all these advantages, the French Academy is not free from faults, we are far from asserting; that there is as much unseen manoeuvring and petty tyranny in this as in most other institutions, is far from improbable; * [Footnote on p.519:][* An anonymous author, who has attracted some attention in France, in commenting on the rejection of Victor Hugo, and the election of a physician, says--that nothing could be more natural or proper, as the senility and feebleness of the Académie made it more in want of a physician than a poet.] but the effect upon the public, and the zest and vitality which its proceedings give to science, are undeniable, and it is also undeniable that we have no scientific institution approaching to it in interest or value.

The present perpetual secretary of the Academy, Arago, with much of prejudice, much of egotism, has talents most plastic, an energy of character, an indomitable will, a force and perspicuity of expression, which alone give to the sittings of the French Academy a peculiar and surpassing interest, but which, in the English Society, would be entirely lost...⁴¹

What can have been the paper that Grove expressed unhappiness about to Faraday? Surely it must have been one by him on chemical electrolysis that was, in fact, read on 4 Feb 1841 at the Royal Society, a summary of it appearing in the *Proceedings of the Royal Society*, early in 1841. To consider if the paper had merit enough to be published in *Phil. Trans.*, the next meeting on 11 March 1841 of the Committee of Papers decided it be "Referred". After it was refereed by the chemist Thomas Graham, the next committee meeting decided publication be "postponed", the manuscript simply placed in the Society's archives.⁴² Faraday was of the opinion that the paper was too concise, and indeed as it appears in the *Proceedings* it is more of a Lab report without the context and discussion expected of an academic paper.

It is left to the reader to judge if Grove was being entirely fair to conclude the fate of papers submitted to the Royal Society was "according to the judgment of the unknown irresponsible parties to whom it is committed."

Yet for Grove, in spite of his annoyance at not having work reaching publication in the prestigious *Phil. Trans.* (his next paper on the 'Gas Voltaic Battery' did get there!), it was not difficulties of publication that worried him most, but what he considered to be the inevitable exclusive social nature of learned societies.

⁴¹ Anon [by William R. Grove], 'Physical Science in England', Blackwood's Edinburgh Magazine, Oct 1843, pp. 514-525. (passage quoted is on pp. 518-519)

⁴² W. R. Grove 'On some Electro-nitrogurats', sources at Royal Society are: (a) *Proceedings of the Royal Society*, Vol 4 (No. 46, 10 Dec 1840-25 Feb 1841), pp. 286-287; (b) Grove's MSS in Royal Society's Archived Papers, AP25.8; (c) Committee of Papers meeting of 11 March 1841, CMB90.3.131; (d) review by Thomas Graham, Referees' Report RR1.82

Grove indeed was upset at his work not being fully appreciated – not an uncommon human emotion. But with Talbot the situation was on an entirely different level. It was also substantially self-inflicted, especially as he manipulated academic publication as part of his patenting activity.

Addendum. W. H. F. Talbot's publications in 1839

1. Letter dated 30 January 1839 to Editor of *Literary Gazette*, 'Photogenic Drawing', *Literary Gazette* No. 1150 (2 February 1839), 73–4;
2. (a) **Report** of Talbot's letter ('Some Account of the Art of Photogenic Drawing') read at Royal Society on 31 January 1839, *The Athenæum* No. 588 (2 February 1839), 97, and *Proceedings of the Royal Society* 4: 36 (6 December 1838 – 7 February 1839), 120–1. The manuscript is in the archives of the Royal Society - Archive Papers AP20.23bis.
(b) In addition a different and shorter report appeared in *The Literary Gazette* No. 1150 (2 February 1839), 75.
3. **Full text** of 'Some Account of the Art of Photogenic Drawing', *The Athenæum* No. 589 (9 February 1839), 114–17; also reprinted from *The Athenæum* in *Mechanics Magazine* 30:810 (16 February 1839), 345–51; *Philosophical Magazine* 3rd series, 14: 88 (March 1839), 196–208. These pages fully transcribe the manuscript of the paper preserved at Royal Society (Archive Papers, AP23.19)
4. 'An Account of the Processes employed in Photogenic Drawing' (letter dated 20 February, read at Royal Society meeting of 21 February 1839), *Literary Gazette* No. 1153 (23 February 1839), 123–4 (*The Literary Gazette* headed the letter with a different title, 'Photogenic Drawing (Further discoveries)'); *The Athenæum* No. 591 (23 February 1839), 156 (Two introductory paragraphs of general remarks by Talbot omitted); *Philosophical Magazine* 3rd series, 14: 88 (March 1839), 209–11; *Proceedings of the Royal Society* Vol. 4: No. 37 (14 February–21 March 1839), 124–6 (First two paragraphs of general remarks omitted). This Issue No. 37 of the *Proceedings* probably appeared in mid April. The manuscript of this paper is preserved at the Royal Society (Archive Papers 23.20 [not 23.20 bis]) and its text is closely transcribed in the *Literary Gazette* and *Philosophical Magazine*.
5. 'Note Respecting a new kind of Sensitive Paper' (read at Royal Society meeting of 21 March 1839), *The Athenæum* No. 597 (6 April 1839), 260; *Proceedings of the Royal Society* Vol. 4: No. 37 (14 February–21 March 1839), 134; *Philosophical Magazine* 3rd series, 14: 90 (May 1839), 368–9. Only an abbreviated version of Talbot's Note is printed.
The **full text** of Talbot's manuscript 'Note...' dated 19 March 1839 consists of three pages with an 'Addendum' also of three pages, has not been published, but does survive at the Royal Society, Archive Papers AP23.21. Although the minutes of the RS's Committee of Papers held on 11 April 1839 (CMB90.3.113) show it was due to be "Referred", no referees' report appears to have been done, and at following meetings was "postponed". Indeed the 'Note...' was a poor effort by Talbot to belatedly provide chemical data.

See also, with regard to the historiography of Photography, a follow-up note by the author – 'Thoughts on Talbot in 1839': a postscript to 'Accounting W. H. F. Talbot's Photogenic Drawing at the Royal Society in 1839'.

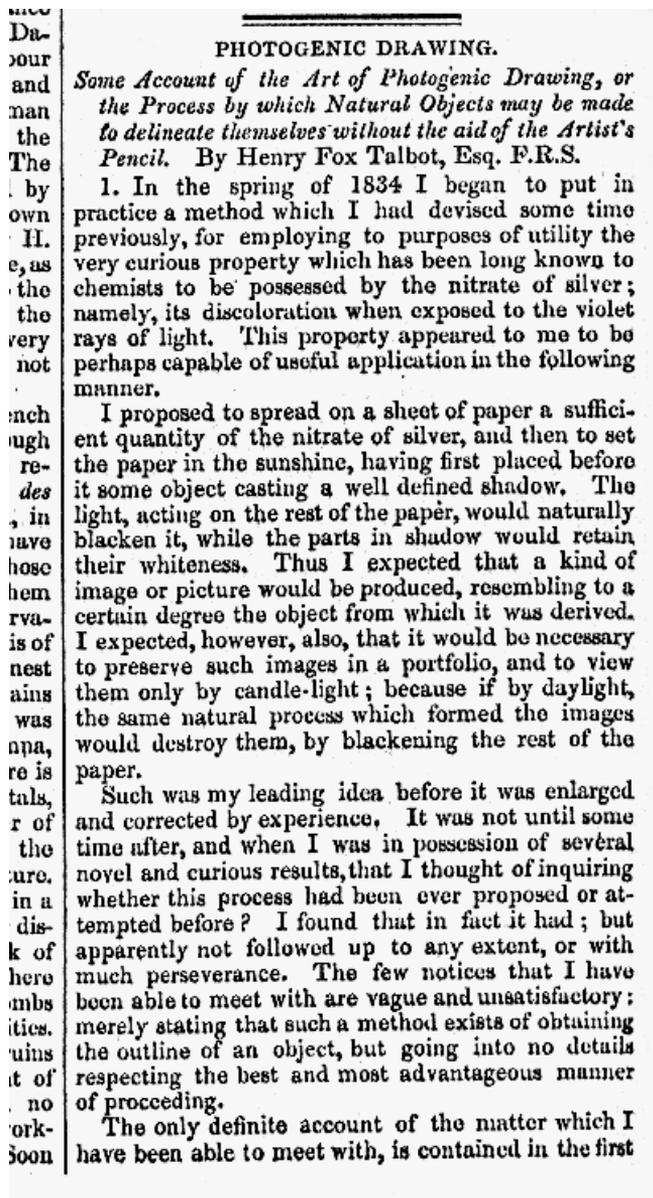


Figure 3. The Athenaeum (London), 9 February 1839. p. 114: first three paragraphs only of *Some Account of the Art of Photogenic Drawing...* by [W.] Henry Fox Talbot

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leaves no doubt that Hickey's original was derived from it. That no manuscript of this kind is to be found in the Public Library at Cambridge, where More's manuscripts after his death were deposited, and that the contents of the Harleian Manuscript agree with the Catalogue of 1697. It was therefore, probably, lent by Bishop More to Bishop Tanner; and not having been returned before the death of the former, or from some other unexplained cause, passed into the library of the Earl of Oxford. The circumstance of this very curious manuscript being mentioned, at nearly the same period, as in the possession of several individuals, induced the belief that two, or even three copies of it were in existence.

LITERARY AND SCIENTIFIC MEETINGS FOR THE ENSUING WEEK.

Monday.—Royal Geographical, 9 P.M.
 Tuesday.—Royal Medical and Chirurgical, 8½ P.M.; Civil Engineers, 8 P.M.; Zoological, 8½ P.M.
 Wednesday.—Society of Arts, 7½ P.M.; Geological, 8½ P.M.; Medical-Botanical, 8 P.M.
 Thursday.—Royal Society, 8½ P.M.; Antiquaries, 8 P.M.; Royal Society of Literature, 4 P.M.; Numismatic, 7 P.M.
 Friday.—Royal Institution, 8½ P.M.; Botanical, 8 P.M.
 Saturday.—Royal Asiatic, 2 P.M.

FINE ARTS. ROYAL SOCIETY. Feb 21

AFTER routine business, amongst which we noticed the election of Lieut. Col. Reid, the author of the very interesting "Thunder Storms," the following letter from Mr. Fox Talbot to the secretary, was read by Mr. Christie:—

PHOTOGENIC DRAWING. (Further discoveries.)

Dear Sir,—In compliance with the request of several scientific friends, who have been much interested with the account of the art of Photogenic Drawing, which I had the honour of presenting to the Royal Society on the 31st of last month, I will endeavour to explain, as briefly as I can, but at the same time without omitting anything essential, the methods which I have hitherto employed for the production of these pictures.

If this explanation, on my part, should have the effect of drawing new inquirers into the field, and if any new discoveries of importance should be the result, as I anticipate, and especially if any means should be discovered by which the sensitiveness of the paper can be materially increased, I shall be the first to rejoice at the success; and, in the meanwhile, I shall endeavour, as far as I may be able, to prosecute the inquiry myself.

The subject naturally divides itself into two heads; viz. the preparation of the paper, and the means of fixing the design.

(1.) Preparation of the paper.—In order to make what may be called ordinary photogenic paper, I select, in the first place, paper of a good firm quality and smooth surface. I do not know that any answers better than superfine writing paper. I dip it into a weak solution of common salt, and wipe it dry, by which the salt is uniformly distributed throughout its substance. I then spread a solution of nitrate of silver on one surface only, and dry it at the fire. The solution should not be saturated, but six or eight times diluted with water. When dry, the paper is fit for use.

I have found, by experiment, that there is a certain proportion between the quantity of salt and that of the solution of silver, which answers best and gives the maximum effect. If the

* We fancy, from the oversetting of a wagon-load of Bishop More's manuscripts at a ford, in consequence of a flood, in their transit to Cambridge.—Ed. L. G.

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strength of the salt is augmented beyond this point, the effect diminishes, and, in certain cases, becomes exceedingly small.

This paper, if properly made, is very useful for all ordinary photogenic purposes. For example, nothing can be more perfect than the images it gives of leaves and flowers, especially with a summer sun: the light passing through the leaves delineates every ramification of their nerves.

Now, suppose we take a sheet of paper thus prepared, and wash it with a saturated solution of salt, and then dry it. We shall find (especially if the paper has been kept some weeks before the trial is made) that its sensibility is greatly diminished, and, in some cases, seems quite extinct. But if it is again washed with a liberal quantity of the solution of silver, it becomes again sensible to light, and even more so than it was at first. In this way, by alternately washing the paper with salt and silver, and drying it between times, I have succeeded in increasing its sensibility to the degree that is requisite for receiving the images of the camera obscura.

In conducting this operation it will be found that the results are sometimes more and sometimes less satisfactory in consequence of small and accidental variations in the proportions employed. It happens sometimes that the chloride of silver is disposed to darken of itself, without any exposure to light, and I have tried the attempt to give it sensibility has been carried too far. The object is, to approach to this condition as near as possible without reaching it; so that the substance may be in a state ready to yield to the slightest extraneous force, such as the feeble impact of the violet rays when much attenuated. Having therefore prepared a number of sheets of paper with chemical proportions slightly different from one another, let a piece be cut from each, and, having been duly marked or numbered, let them be placed side by side in a very weak diffused light for about a quarter of an hour. Then, if any one of them, as frequently happens, exhibits a marked advantage over its competitors, I select the paper which bears the corresponding number to be placed in the camera obscura.

(2.) Method of fixing the images.—After having tried ammonia, and several other reagents, with very imperfect success, the first thing which gave me a successful result was the iodide of potassium, much diluted with water. If a photogenic picture is washed over with this liquid, an iodide of silver is formed which is absolutely unalterable by sunshine. This process requires precaution; for if the solution is too strong, it attacks the dark parts of the picture. It is requisite, therefore, to find by trial the proper proportions. The fixation of the pictures in this way, with proper management, is very beautiful and lasting. The specimen of *laee* which I exhibited to the Society, and which was made five years ago, was preserved in this manner.

But my usual method of fixing is different from this, and somewhat simpler, or at least requiring less nicety. It consists in immersing the picture in a strong solution of common salt, and then wiping off the superfluous moisture, and drying it. It is sufficiently singular that the same substance which is so useful in giving sensibility to the paper, should also be capable, under other circumstances, of destroying it; but such is, nevertheless, the fact.

Now, if the picture which has been thus washed and dried is placed in the sun, the white parts colour themselves of a pale lilac tint, after which they become insensible. Numerous

THE LITERARY GAZETTE, AND

experiments have shewn to me that the depth of this lilac tint varies according to the quantity of salt used, relatively to the quantity of silver. But, by properly adjusting these, the images may, if desired, be retained of an absolute whiteness. I find I have omitted to mention that those preserved by iodine are always of a very pale primrose yellow; which has the extraordinary and very remarkable property of turning to a full gawdy yellow whenever it is exposed to the heat of a fire, and recovering its former colour again when it is cold.—I am, &c.

H. FOX TALBOT.
 44 Queen Ann Street, Feb. 20th, 1839.

We are much pleased with the frank and ingenious manner in which our countryman has come forward to give publicity to his process, and state the results of his experiments. This is the way to promote the general benefit, and lead others into the method of pursuing similar inquiries, by which the discovery may be improved and perfected. In this class we rejoice to learn that Sir John Herschel has devoted his attention to the subject, and has already, we understand, made curious progress, inasmuch as he has obtained the pictures from the light of *Daniell's great galvanic battery*. Sir David Brewster too, we are informed, has taken up the investigation; and when such men set to work, we may look for much to follow.

Before laying down our pen, we should mention that, at the Royal Society, Mr. Talbot shewed us the perfect picture of a riband, some three inches broad, and of a ribbed and watered pattern, taken in this manner, but not by the sun, the only active agent being the common day light! and in a London atmosphere of the month of February too. After this, who can doubt the extreme sensibility of the prepared paper?—Ed. L. G.

GRAPHIC SOCIETY.

The second *conversazione* of this Society took place on Wednesday, when the largest assembly of members and visitors took place since its foundation; and we have never seen a more numerous or interesting display of drawings, sketches, and engravings, than were sent by the members for the gratification of their friends—among these, the principal contributors were Mr. T. Creswick, Mr. Evans, Mr. West, Mr. Cope, Mr. Pym, Mr. Cowen, Mr. S. Cousins, Mr. Doo, Mr. W. Finden, Mr. Corbould, Mr. Windus, and others. It is probable that the very numerous meeting arose from the expectation that some drawings, produced by the action of light, by Mr. Talbot, would be shewn, but they were not sent. Two small specimens, produced by Sir John Herschel, were exhibited, but they were feeble in effect, and said to be first attempts; but it was stated by a gentleman present, who had seen those prepared by Daguerre, in Paris, that his were so far superior, as to bear the character of a different process—still the most favourable report of the process relieved the anxiety of the artists. The painters were quieted that Daguerre could produce nothing in colour; and the engravers, that no impressions could be taken from the design effected by light on his coppers. The secret will soon arrive, and we shall then be able to follow up the early notices which we gave of this curious art, by a full disclosure. There were also shewn some prints of different sizes, taken from the same plate; this seemed to be even a greater puzzle than Daguerre's. It is said, however, that a mode of effecting this has suggested itself to Professor Wheatstone, who saw these prints at the Graphic; if so, we shall hear more about it. This invention is also French, and was dis-

Figure 4. Photogenic Drawing, *Literary Gazette* (London) No. 1153 (23 February 1839), 3 columns of pp. 123-4 (letter dated 20 February, read at Royal Society meeting of 21 February 1839),