

Jabez Hughes, "The Discoverer of the Use of Bromine in Photography: a few facts and an Appeal," 15 December 1863

(keywords: John Frederick Goddard, Jabez Hughes, John Johnson, Alexander S. Wolcott, Samuel F. B. Morse, Richard Beard, William Carpmæl, Louis Jacques Mandé Daguerre, Armand Hippolyte Louis Fizeau, Antoine François Jean Claudet, history of the daguerreotype, history of photography.)

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Published in:

British Journal of Photography (London) (15 December 1863): 487–8.

THE DISCOVERER OF THE USE OF BROMINE IN PHOTOGRAPHY:
A FEW FACTS AND AN APPEAL.

By JABEZ HUGHES.

As the early history of photography is now engaging attention, a statement of the claims of a little-known discoverer will not be out of place.

To John Frederick Goddard we are indebted for the first discovery and publication of the use of bromine in photography. The interested circumstances attendant afford an opportunity of recording some facts connected with early photography, as illustrated in the Daguerreotype process. Daguerre, after many years of experimental labour, announced his discovery in January, 1839, and exhibited specimen pictures; but it was not till August in the same year that he disclosed the process itself, the French Government having in the interval purchased the secret "as an invention that did not admit of being patented," and they generously published it "for the glory of endowing the world of science and art with one of the most wonderful discoveries of our native land." Nevertheless, Daguerre, while negotiating with the French Government, secured a patent in England. Daguerre made few improvements; in his hands the process was only able to delineate still-life objects, for an exposure of twenty minutes or half-an-hour in bright sunshine was required. Enterprising individuals, however, immediately practised the art, and went forth armed with this new power to depict celebrated monuments and other objects. Many of these thin, filmy, shimmering pictures were exhibited in London and offered for sale at the Polytechnic Institution. They were taken on plates 8 ½ X 6 ½ inches; and, though wonderously admired as curiosities, found few purchasers. The prices ranged from one and a-half to two, or three guineas each.

Up to this point Daguerre's discovery remained as a scientific wonder, but with little commercial value. Improvements were required, so that impressions could be more quickly taken, and in a subdued light. The improvements were first made by Mr. Goddard.

The circumstances of his introduction to photography are curious. When the particulars of Daguerre's process were published, Professor Morse resided in Paris. He communicated the details to the scientific men of New York, many of whom immediately commenced experimenting, and among other Messrs. John Johnson and A. Woolcott [Wolcott—edit.], who worked together. Mr. Woolcott, with a view to take pictures quicker, devised a camera with a concave mirror instead of a lens, and the plate was put in the

focus of the mirror. by this means they were able, so early as October 1839, to take a profile portrait of Mr. Johnson with only *five minutes'* exposure in the bright sunshine, the plate being not quite three-eighths of an inch square. In January, 1840, Messrs. Johnson and Woolcott were so far satisfied with the improvements made in their reflecting camera (they were now able to take portraits 2 ½ by 2 inches) as "to entertain serious thoughts of making a business of taking portraits from life." Early in February, 1840, Mr. Johnson, sen., came to Europe with a few of the likenesses, with an intention of patenting the Reflecting Camera. Mr. Carpmael, the patent agent, being engaged with Mr. Beard on patent business, called Mr. Beard's attention to this subject, as likely to be a good speculation, and Mr. Beard united with Mr. Johnson in taking out letters patent for the reflecting camera. This is Mr. Beard's first introduction to photography. As neither Mr. Beard nor Mr. Johnson were men of science, but engaged in commerce, they felt it necessary to secure a competent person to bring out their new camera. They applied to Mr. Longbotham, of the Polytechnic Institution, to name a gentleman likely to aid them. He mentioned Mr. Goddard, then engaged as a lecturer on optics and natural philosophy at the Adelaide Gallery, as a gentleman exactly suited for them, if they could secure his services. Mr. Goddard, who was already familiar with the Daguerreotype process, entered into the project with zeal, engaging himself to undertake experiments to test the value of the new instrument, and also to endeavour to improve the process. This was about midsummer 1840, and although Daguerre's discovery had been nearly a year before the public, excepting this reflective camera no improvement whatever had been made.

Mr. Goddard soon found that, as all his pictures required continuous sunshine, even with his "quick-acting" camera—to use a modern phrase—he was often obliged to suspend his experiments for want of light (his premises were in Holborn); so he set to work to find a means of taking pictures without direct sunshine. In the autumn of 1840 he discovered the extreme sensitiveness attained by the use of bromine with iodine—a discovery which reduced the exposure from minutes to seconds, and permitted pictures being taken in a subdued light. This valuable discovery was published in the *Literary Gazette*, December 12th, 1840. Mr. Goddard saw at once the value of his discovery in a commercial sense, and recommended Mr. Beard to purchase the patent from Daguerreotype, in whose hands it still remained; and also to abandon his reflecting camera as no longer necessary, but to use lenses by which larger and better pictures could be obtained. Mr. Beard had the wisdom to avail himself of these suggestions, and from this time dates the commencement of a new industrial art—professional and commercial photography.

After this Mr. Goddard instituted an elaborate series of experiments on the haloid bodies—iodine, bromine, chlorine, and fluorine; and in February, 1841, he deposited a paper in the archives of the Royal Society detailing his sensitive process of bromine with iodine for taking portraits from life. A copy of this paper was given to each of the licenses of Mr. Beard as directions for making their sensitive solutions. With the exception of M. Fizeau's method gilding the plate no vital discovery was ever afterwards made in connection with the Daguerreotype; all the other improvements were matters of detail.

The introduction of bromine into photography enabled it to pass from a curiosity to the laboratory to be one of the proudest discoveries of the nineteenth century. It became immediately a new and unique source of happiness to mankind—a boon and a blessing to all brought within its influence. Due honour has been rendered to the great prime movers—Daguerre, Fox Talbot, Archer—but the claims of one living amongst us, who

found the art at a dead-lock, and who gave it an impetus it has never lost, are not so well known. They have never been so fully stated as in this paper, and perhaps would not have been so urgently made now but that the worst part of my story has to be told—this worthy man is in want! He is old and frail; he has well nigh reached the Palmist's limit of "three score years and ten;" and he is in penury—literally without means, and is living on charity.

It is proposed to raise a fund to relieve the necessities of this deserving gentleman; and I appeal to all photographers to honour themselves and their craft by rendering the few remaining years of this early father in photography at least free from the anxieties of physical want.

Mr. Goddard has spent the greater part of his life in scientific pursuits. In the Society of Arts' session 1837–8 he received the silver medal for his apparatus for experiments on polarized light; and at the same session he contributed a paper explaining the same subject. He was one of the earliest lecturers on the oxyhydrogen microscope, and was engaged lecturer at the Adelaide Gallery and Polytechnic Institution on optics and kindred subjects. He brought out the opaque microscope. He was the first to exhibit the screen of a lecture room a highly-magnified photographic image, the example being a Daguerreotype portrait of the Prince Consort, the late Prince himself having been present upon the occasion.

Fifteen years ago M. Claudet, in the *Philosophical Journal*, when discussing the priority of the discovery of the use of bromine, frankly conceded the honour to Mr. Goddard, and used these words:—"The name of Mr. Goddard should be honourable mentioned in the history of the progress of photography, not only for the discovery to which I have just alluded, but also for having been one of the first in England who investigated with zeal, enthusiasm, and scientific ability the phenomena connected with this admirable invention."

I have the matter now in the hands of the photographic public, confident that I have but to make the appeal to those who have profited by the practice of the art to give from their stores to solace the declining years of one who helped the art when it needed it. The gentlemen whose names are appended will thankfully receive contributions, and their names will be a guarantee for the accuracy of the statements made, and for the proper application of the funds.

All moneys collected will be duly acknowledged in the journals.

Donations will be received by

Dr. DIAMOND, Twickenham House, Twickenham, S. W.

G. SHADBOLT, Esq., 2, Upper Hornsey Rise, N.

G. W. SIMPSON, Esq., 18, Canonbury Park South, N.

T. R. WILLIAMS, Esq., 136, Regent-street, W.

Mr. JABEZ HUGHES, 379, Oxford-street, W.

[We need only here remark that we cordially endorse the able and earnest appeal made by Mr. Hughes on behalf of this suffering member of the scientific world.—ED.]

[End of text.]

EDITOR'S NOTES:

See also John F. Goddard, "Valuable Improvement in Daguerreotype," *Literary Gazette; and Journal of the Belles Lettres, Arts, Sciences, &c.* (London) No. 1247 (12 December

1840): 803¹; John F. Goddard, "Application of the Daguerreotype to the Taking of Likenesses from the Life," *Chemist; or, Reporter of Chemical Discoveries and Improvements* (London) 2:17 (May 1841): 142–3.²

For the referenced text by Claudet, see A. Claudet, "Question of Priority respecting the Discovery of the accelerating process in the Daguerreotype operation," *London, Edinburgh, and Dublin Philosophical Magazine and Journal of Science* (London) 32:214 (March 1848): 215–6.³

Regarding the first use of bromine in photography and the discussion of priority, see J. Waterhouse, "The First Use of Bromine in Daguerreotype," *Anthony's Photographic Bulletin* (New York) 30:11 (November 1899) 351–4. The article asserts priority for John F. Goddard in refutation of the argument for Paul Beck Goddard given in the article, Julius F. Sachse, "Early Daguerreotype Days," *American Journal of Photography* (New York) 13:150 (June 1892): 243.

Contrary to the statement by Hughes, Beard's use of the Wolcott and Johnson reflecting camera continued into 1841. Two reflecting cameras are depicted in the wood engraving illustration of Beard's studio in *George Cruikshank's Omnibus* (London) No. 1 (May 1841): 29.

This article is reprinted in *American Journal of Photography & the Allied Arts* (New York) 6:13 (15 January 1864): 323–27.

1. http://www.daguerreotypearchive.org/texts/P8400004_GODDARD_LIT_GAZETTE_1840-12-12.pdf
2. http://www.daguerreotypearchive.org/texts/P8410001_GODDARD_CHEMIST_1841-05.pdf
3. http://www.daguerreotypearchive.org/texts/P8480001_CLAUDET_LONDON_EDIN_JOURN_1848-03.pdf

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URL: http://www.daguerreotypearchive.org/texts/P8630001_HUGHES_BRIT_JOURN_PHOTOG_1863-12-15.pdf

Document author: Gary W. Ewer

Creation date: 2008-10-27 / Last revision: 2012-03-02

Citation information: *British Journal of Photography* (London) (15 December 1863): 487–8. (Volume and issue number information not available at the time of document preparation.)

Prepared from: photocopy from microfilm.

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