

“The Daguerreotype Explained,” 25 September 1839

(keywords: William Henry Fox Talbot, Louis Jacques Mandé Daguerre, Joseph Nicéphore Niepce, history of the daguerreotype, history of photography)

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EWER ARCHIVE N8390017

Published in:

United States Gazette (Philadelphia) (25 September 1839).

The Daguerreotype Explained.

The Academies of Sciences and of Fine Arts of the Institute, met on the 19th of August last, to hear the explanation of the process of M. Daguerre, from the perpetual Secretary, M. Arago.

It appears that in the earlier attempts to form a permanent picture of external objects, by the aid of the camera obscura, chloride of silver was used as in the method of Photogenic Drawing of Mr. Talbot. In this case the light blackens the paper, the depth of the shade being proportionate to the intensity of the light: the lights are thus represented by dark parts of the picture, and vice versa. M. Niepce first ascertained that an effect the reverse of that just mentioned might be produced by using a particular kind of bitumen, dissolved in oil of lavender, and that this picture might be preserved. The picture formed upon the bitumen required, to render it fully visible, the use of petroleum, which acted upon the parts of the picture not affected by the light. This process was a very imperfect one, requiring a long time for its execution, and yielding but imperfect results. The invention had been brought to this stage, when M. Daguerre undertook to improve it; by many curious experiments, and much labor, he was gradually led to his present process, the details of which present some very strange, and so far, unexplained phenomena.

A sheet of copper, plated with silver, is carefully cleaned on the silvered side, by the aid of nitric acid. The cleansing requires great care and especial precaution, the plate requiring to be rubbed backwards and forwards in a fixed direction. Plated copper is found to answer better than silver. The plate thus prepared is exposed to the action of the vapour of iodine. For this purpose, it is placed in a box upon the bottom of which is a small quantity of iodine is strewed, separated from the plate by a gauze screen, so as to diffuse the vapour uniformly. The plate must be enclosed in a metallic frame, to prevent the vapour from acting more upon the edges than near the centre, the success of the whole operation depending essentially upon the uniformity of the coating of iodide of silver, which is formed upon the surface of the plate. A yellow tint indicates that the plate has been sufficiently long exposed to the action of the vapour. It is then transferred to the camera obscura carefully excluding it meanwhile from the light. M. Daguerre is understood to have made some improvements in this instrument; to understand the progress of the present operation, however, it is only necessary to observe, that a plate of ground glass having previously placed so as to receive a distinct image of the object to be delineated, the prepared silver plate is substituted for it. The effect is immediate, but is only very slightly perceptible. The plate is next exposed to the action of the vapour of mercury, and a condition stated to be essential is, that it shall be placed under a particular

angle. It is therefore placed in a second box, at the bottom of which is a small trough of mercury, heated to between 160° and 170 ° Fahrenheit, and if the picture is to viewed when hanging vertically, the inclination of the plate to the surface of the mercury must be 45°. The vapour of mercury appears to affect only the parts which have been already acted upon by the light, forming, probably, an amalgam of mercury and silver. After this operation the plate is dipped into a weak solution of hypo sulphite of soda, and then washed with distilled water. The process is now complete, and the plate presents a drawing in which the light and shade is truly represented, and which may be exposed, without change, to the action of light.

[End of text.]

EDITOR'S NOTES:

Information provided by the Library Company of Philadelphia indicates that University of Pennsylvania professor Alexander Dallas Bache was the author of this text.

Bache's source of information appears to be the text by Alfred Donné, "Exposition du Daguerreotype," *Journal des Débats: Politiques et Littéraires* (Paris) (20 August 1839): n.p. (first page of issue), or the derivative (in-part) translation, "The Daguerre Secret," *Literary Gazette; and Journal of the Belles Lettres, Arts, Sciences, &c.* (London) No. 1179 (Saturday, 24 August 1839): 538–39.¹ Donne's text is briefly discussed in R. Derek Wood, "The Daguerreotype and Development of the Latent Image: "Une Analogie Remarquable,"" *Journal of Photographic Science* (44:5) (September/October 1996): 165–67.²

1. http://www.daguerreotypearchive.org/texts/P8390006_DISCLOSURE_LIT_GAZETTE_1839-08-24.pdf

2. <http://www.midley.co.uk/articles/analogie.htm>

EWER ARCHIVE N8390017

URL: http://www.daguerreotypearchive.org/texts/N8390017_US-GAZETTE_1839-09-25.pdf

Document author: Gary W. Ewer

Creation date: 2010-10-19 / Last revision: 2010-10-25

Citation information: *United States Gazette* (Philadelphia) (25 September 1839).

Prepared from: imaged original text provided in the web site of the Library Company of Philadelphia, *Catching a Shadow: Daguerreotypes in Philadelphia, 1839–1860*. (<http://www.librarycompany.org/catchingashadow/>)

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