

# THE NEW DAGUERREIAN JOURNAL:

Devoted to the Daguerreian and Photogenic Art  
Also embracing the Sciences, Arts, and Literature



*Daguerre*



**LET THOSE CRY FOR "MORE LIGHT"**  
 who need it; but we have one of the largest and best lights in the West, by which we can take a likeness in one half of the time required by *any other artist*. Having visited the "Eastern cities" but a few weeks since, where we visited a great many of the best Daguerrean Galleries, but we did not see one sky light among them all. About three years since, there was considerable excitement in the East about sky lights, but they are now being abandoned entirely, as a perfect humbug, except by a few who are about a year behind the times. Any one wishing to prove the truth of these facts, let them get a likeness taken by the "sky light process," then come to *our gallery*, and get one taken by a superior light, and they may see the difference, in curs being at least fifty per cent. better.

Likenesses taken of children in one second of time, from 10 A. M. to 2 P. M., in pleasant weather. Light blue and white dresses should be avoided for daguerreotypes. We have an assortment of new styles of cases, a splendid article. Those wishing for something nice, please give us a call.

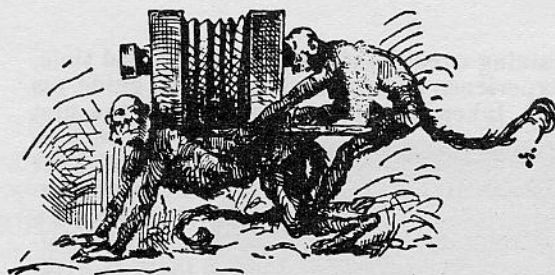
#### **To Artists.**

Daguerreotype Apparatus and materials of every description, constantly on hand and for sale. A new lot of plates and cases, (about \$2000 worth,) expected in a few days — French Star Plates at \$2.00 per doz.

Room, a few doors south of the Telegraph Office, near the Exchange Bank.

A. BISBEE.

Columbus, July 19, 1849.



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## THE NEW DAGUERREIAN JOURNAL

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# UNITED STATES PATENT OFFICE.

WILLIAM YARNALL, OF NEWARK, OHIO.

## IMPROVEMENT IN DAQUERREOTYPING.

Specification forming part of Letters Patent No. 9,511, dated December 29, 1852.

*To all whom it may concern:*

Be it known that I, WILLIAM YARNALL, of the town of Newark, in the county of Lick-

ing and State of Ohio

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A "quarter size" vignette daguerreotype c. 1855, probably done by the William Yarnall process. Daguerreotypist unknown.

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## THE DEVELOPMENT OF THE VIGNETTE-STYLE PORTRAIT

# THE PRISMATIC DAGUERREOTYPING PROCESS

By Floyd & Marion Rinhart

The William Yarnall process for "Improvement in Daguerreotyping" came as the last of the four processes designed to effect bust or vignette-style portraits. In a way, Yarnall went back to a basic premise—to control photo-sensitizing by the layering of iodine, bromine, or any other accelerating agents in the preparatory coating of a daguerreotype plate.

The first bust or vignette-style daguerreotyping process was invented by John Whipple, of Boston, who was issued a patent Jan. 23, 1849 (6,056). Whipple's "crayon" portraits utilized a mechanical device which was put in motion between the camera and the sitter at the time of exposure. The "magic background process," invented by Charles Anthony, of Pittsburg, Pa., and patented Jan. 1, 1851 (7,865), first photographed his subject in the normal way and then used a mechanical device in the camera after which he exposed his daguerreotype plate a second time to achieve the desired effect. Henry Insley's patent of Jan. 6, 1851 (8,633) used a plate-shielding apparatus in conjunction with the operator's manipulation during the mercury bath process to achieve a bust or vignette-style portrait which in the final result was similar to John Whipple's crayon portrait.

William Yarnall, of Newark, Ohio, patented his process on Dec. 28, 1852 (9,511). He called his improvements "chromo-photographic painting" or the "prismatic daguerreotyping process."

In detail, Yarnall's process required the daguerreotype plate to be cleaned, buffed, and polished in the usual manner. The invention used a plate holder with a number of pattern slides of graduated size. (See illustration, Figs. 2, 3, and 4.) Yarnall suggested that

the shape of the central opening be the same as the framing mat shape selected for the final casing of the portrait. On the rear of the plate slide-holder was a locking cover which was used to hold the daguerreotype plate to the rear of the pattern slide (see Fig. 6).

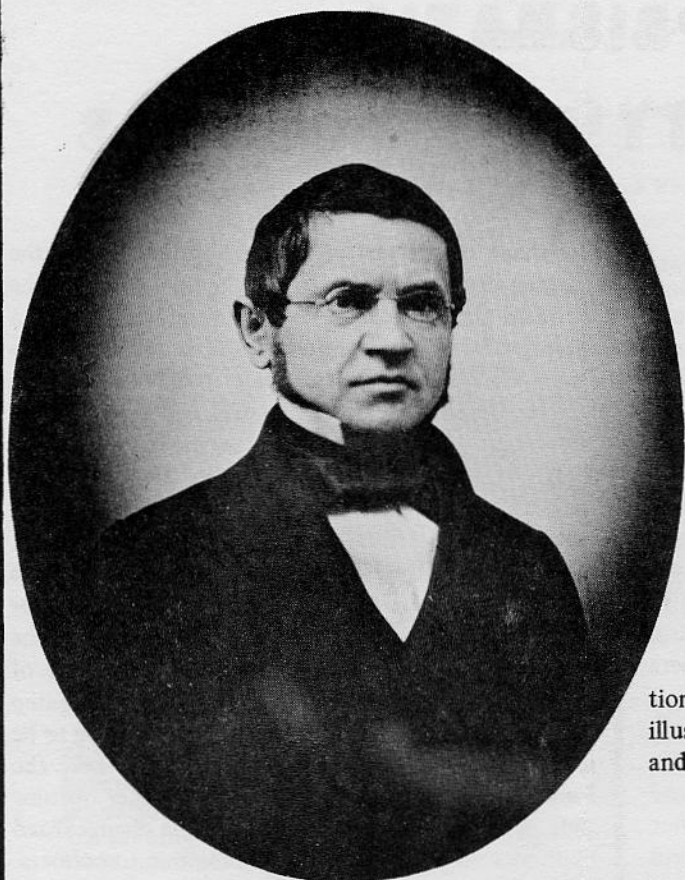
Yarnall prepared his plate over a coating box in the "noctus, or dark-closet." After the daguerreotype had been placed in the holder with the slide which had the smallest pattern-opening, it was held over the diffused fumes of iodine or other chemical agents. (The length of time only practice and experience could determine.) After the first coating, another slide with a larger center opening was inserted in the holder, and it was then exposed to the fumes of bromine or other accelerating agents. The next step required a third slide with a still larger opening to be inserted in the slide-holder and was held over the fumes of iodine once again. A fourth larger opening slide could be used if desired. Thus the chemicalized plate was now ready for exposure within the camera.

Yarnall stated: "The light, operating with varied degrees of decomposing power, and in proportion to the thickness or volume of chemicalization of the plate, produces the required effect, is not developed in full until...the plate is withdrawn from the camera and carried to...the dark chamber...and deposited over the mercury-bath...which developing the image, develops also the various borders or ornamental circles." The daguerreotype after coming from the mercury bath was finished in the usual manner.

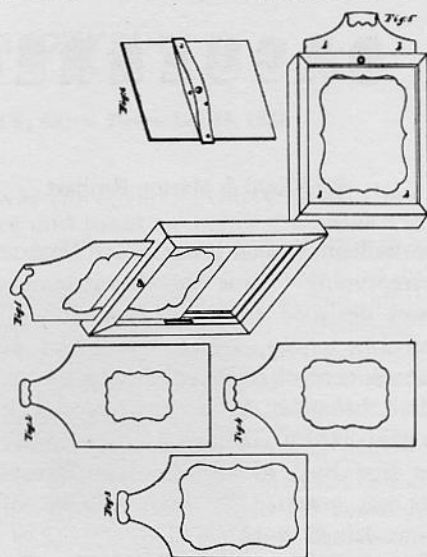
A daguerreotype done by this method, it was declared in the patent, would produce a clear, fully developed, declared well defined, sharp circle, design, or border to highlight the image.

It appears that Mr. Yarnall's process was not

generally used by the daguerreian artists. However, it is believed to have been used sometimes by G. M. Howe of Portland, Maine (see illustration).



*W. Yarnall,  
Daguerreotyping Process,  
No. 511, Patented Dec. 23, 1852.*



tion, and any design fancy may suggest." The patent illustration (above) shows plate holder (Figs. 1 & 5) and rear cover with locking device (Fig. 6).

A vignette daguerreotype portrait c. 1855, by the daguerreian George M. Howe, of Portland, Maine. The portrait is believed to be (or a variation of) the William Yarnall "prismatic daguerreotyping process." The original daguerreotype plate shows different shadings around the photogenic image which continues to the outer edge of the "ninth size" plate.

William Yarnall stated in his patent: "Any number of pattern slides or designs may be used that is deemed requisite, and according to fancy, producing increased or diminished borders, circles, rings, halves, irradia-

### What's Ahead?

In addition to our regularly featured pages, we'll have a special report on "Today's Daguerreotypes", an index of the facsimile photographic reprints and sources; the third of the series of articles by the Rinsharts; The Daguerreotype Advertising, and many other items of interest.

# THE MIRROR IMAGE REVIEWED

## Mirror Image, The Influence of the Daguerreotype on American Society

by

Richard Rudisill

Albuquerque, University of New Mexico Press: \$30.00

**Mirror Image** by Richard Rudisill can be considered a landmark book in both the fields of history and photography. The book, which in manuscript version was originally submitted as a doctoral dissertation in American Studies, explores the adoption of the daguerreotype as America's national art form during the middle years of the 19th century along with the ramifications of this love affair. Rudisill works from three basic premises. The first contention is that the daguerreotype directly encouraged American cultural nationalism. The second premise states that the invention of photography helped American adjust themselves intuitively to the transition from an agrarian to a technological society in that the images were reproduced with a reliable mechanical tool. Thirdly, Rudisill feels that the daguerreotype reflected and activated national faith in spiritual insight and truth obtained from the works of God in nature. **Mirror Image** explores these issues by chapters, taking the development of the daguerreotype in a somewhat chronological manner.

Rudisill begins by writing about the fertile visual atmosphere that existed in the U.S. before the invention of the daguerreotype. He traces the popular growth of both the physionotrace and the camera lucida in America. The first chapters discuss literary men such as Thoreau and Emerson in relation to their conception of the need to retain images of the wilderness that man's technology was bound to destroy. The daguerreotype provided the country with the precise medium for the job of recording visually the objects of the national character. The **Mirror Image** covers the daguerreotypists, such as Morse, Bemis and Whipple, who took a French

invention refined and remade it to the point that some people thought the American sun must have some unique feature to give the American image an added advantage over the Europeans. The book goes on to discuss the use of the daguerreotype as the method of recording the booming American West. Americans looked forward to seeing the reproductions of the images of Catherwood, Stephens and Carvallo. A boundrey dispute between the United States and Canada was settled with the aid of the invention of Daguerre. From all sections of the country the image brought Americans closer to their God-given heritage of natural beauty and purity.

Rudisill presents the daguerreotypist as a universal American. The wandering operator was the true synthesis of pioneer and technological engineer. Holgrave, the fictional daguerreotypist of Hawthorne's **House of Seven Gables** is compared to real life Anson Clark, a New England jack-of-all-trades. The camera operator was so much part of American life that even the verb: to daguerreotype, meaning to imprint on one's mind, was popular in American literature during the 19th century.

The daguerreotype provided Americans with the symbols they needed to develop a national identity. This silver halide image provided Americans with their instant reflections of their society with a rapid reality that the painters of the time were unable to provide. The American daguerreotypist was an artist, not a visual aid as in Europe. Emerson called the daguerreotype, "... the true Republican style of painting." Brady in the Eastern cities and Jones in the West were artists in their own right contributing images of lasting impact.

Finally, Rudisill insists that the daguerreotype provides Americans with the most accurate record of the years from 1840 to 1860, a time when the growing urbanization was increasingly changing agrarian America. By 1860 there were over 3,000 photographers in the country. Images from across the nation enables people to see all sorts of Americans in their natural setting. Image makers like John Fitzgibbon in the South and Southworth and Hawes in Boston leave



a marvelous pictorial representation of the city and country in American life.

I have only two objections to voice about Rudisill's account of the daguerreotype in America, both of them relatively minor. First, the author makes references to Edward Weston and his ideas on photography. These little asides would be best put in the notes at the end, for it is confusing for the reader to make the switch from 1850 to 1930 and back to the 19th century in just a few lines. Rudisill, furthermore, waits until he is three-quarters of the way through the book to explain to the reader why quoting Weston's *Day Books* is important. Secondly, it would have been much easier to understand some of the author's examples if the sample daguerreotypes would have been on the pages where he gave the story of the picture rather than at the back of the book.

*Mirror Image*, however, remains important for both the historian and the antiquarian. The book is worth the price for the annotated bibliography and notes alone. The bibliography provides sources that span 125 years of writings on both photography and American life not readily accessible to many people. The notes are incredibly complete providing a perfect compliment to the bibliography. Both sections are a must for any serious student's library. The book moreover, supplies the collector with many images never before published.

I hope that this book will spawn more investigations into the relationship of the image and American life. The subjects available for investigation are incredible, varied and numerous. One might explore the influence of George Eastman and the development of roll film on the conception of American life that existed at that time, or perhaps an exploration of the images of Americans presented on the television and motion pictures could provide a new look at the American scene today. *Mirror Image*, however, exists as an example of how a book on images and their contemporaneous civilization should be written.

Mark E. Goodman  
Ohio State University



## THE DAGUERRETYPE

One great obstacle to the use of M. Daguerre's photogenic process, is the difficulty of preserving the pictures when completed, because they are of so delicate a nature, and so easily injured, that the slightest touch effaces them — even M. Daguerre himself has always found it necessary to protect them with a plate of glass, which is both inconvenient and troublesome; and it has, in consequence, been suggested, that if a varnish could be discovered which might be easily applied to the surface of the plates after the completion of the pictures, and which, whilst it protected them from injury, should not impair their delicacy, it would considerably add to the value and usefulness of the process: — we are happy, therefore, to hear, that M. Dumas has discovered, that a liquid, composed of one part of *dextrine* and five parts of water, forms a varnish of the desired nature. It is said to be well adapted for the purpose, and further possesses the advantage of being easily removed from the surface of the picture, by immersing the whole in boiling water. Time, however, will be required to ascertain whether this varnish has any action on the peculiar mercurial compound of which the image is formed.

Athenaeum.

From: the Journal of the Franklin  
Institute of the State of Pa. and  
Mechanics Register  
Feb. 1840

## PRACTICAL HINTS

ON

# THE DAGUERRETYPE:

BY J. H. CROUCHER.

### COLOURED DAGUERREOTYPES

DAGUERRETYPE Portraits are now commonly met with beautifully coloured; but the colouring is a process requiring great care and judgment, and many good pictures are spoilt in fruitless experiments. Several different methods of colouring have been proposed. The simplest mode appears to be that of using dry colours prepared in the following manner. A little of the colour required, very finely ground, is thrown into a glass containing water, in which a few grains of gum arabic have been dissolved. After standing a few moments, the mixture may be passed through bibulous paper, and the residue perfectly dried for use. The principal colours used are carmine, chrome yellow, burnt sienna, ultra marine, and white. Boxes fitted with sets of colours properly prepared, may be obtained, and include carmine, white, lilac, sky blue, pink, yellow, flesh colour, orange, brown, purple, light green, dark green, and blue. With a few colours, however, all the rest may be made, thus: orange, by yellow and red; purple, with blue and red; green, blue and yellow; brown, with umber, carmine, and lamp black; scarlet, carmine and light red. While it is true that a little colour may relieve the dark metallic look of some daguerreotypes, it must not be concealed that the covering of the fine delicate outlines and exquisite gradations of tone of a good picture with such a coating, is barbarous and inartistic. The prevailing taste is, however, decidedly for coloured proofs, and the following directions will assist the amateur in ministering to this perverted taste, should he be so inclined. The colouring should commence with the face, and the flesh tint must be stippled on (not rubbed) with a small camel's-hair

brush, beginning from the centre of the cheek, taking great care not to go over the outline of the face, and also not to have too much colour in the brush. The eyes and eyebrows must not be touched with colour: after the flesh colour is applied, take a piece of very soft cotton, and pass it very gently backwards and forwards over the face, so as to soften down the colour, and then apply the carmine, to give the required tint. For men the darker tints should predominate, and for women the warmer. Very light hair may be improved by a slight tint of brown, or yellow and brown, according to the colour. In colouring the drapery the same care must be used; no rules can be laid down for all the different colours required, and the amateur had better obtain the assistance or advice of some one accustomed to the use of colours. A little white, with a dash of blue, or a little silver, will improve white linen, lace, &c. The jewellery may be touched with gold or silver from the shells, moistened with distilled water, and laid on with a fine-pointed sable hair brush.

Some artists use an uniform colour for the back of the picture, generally blue or purple; others make it to represent clouds, sea, &c., and this plan is very effective.

Mr. Claudet's method is to dip a finely-pointed pencil in spirits of wine, and taking a little of the colour, which must have been pounded with spirits of wine, and again pulverized in a glass mortar, to apply it upon the plate. This coating must be slight, and may be repeated if necessary; but if too much is put on, it is difficult to remove: the dry colour is applied on this coating, to which it will be found to adhere.

Mr. Chevallier's plan is to trace on the glass, which is intended to protect it, the outline of the picture, and then to tint it with the colours used for painting the dissolving views, so as to correspond with the picture underneath. When dry, the tracing may be effaced, the glass fixed, and the picture will then appear through, something in the style of a coloured lithograph.

M. Leotard de Seuze covers the plate with a transparent membrane, or vegetable paper, which he attaches by a solution of gum or size, heated in a water bath; on this membrane he applies colours, mixed with spirits of wine and gum, or with white

varnish and alum.\*

Mr. Page, whose new method of fixing the Daguerreotype proofs is given, has thrown out the following suggestions on the subject of Colouring:

As copper assumes various colours, according to the depth of oxidation upon its surface, it follows, that if a thicker coating than the first mentioned can be put upon the plate, without impairing the impression, various colours may be obtained during the fixation. It is impossible for me to give any definite rules concerning this last process; but I will state, in a general way, that my best results were obtained by giving the plate such a coating of copper as to change the tone of the picture; that is, give it a coppery colour; and then heating it over a spirit lamp until it assumes the colour desired. I have now an exposed picture treated in this way, at the same time with the two above mentioned, and it remains unchanged. It is of a beautiful green colour, and the impression has not suffered in the least by the oxidation. Should this process be perfected, so as to render it generally available, it will be greatly superior to the present inartistical mode of stippling dry colours upon the impression, for the colour here is due to the surface of the picture itself. For pure landscapes it has a pleasing effect; and by adopting some of the recent inventions for stopping out the deposit of copper, the green colour may be had wherever desired. In some pictures, a curious variety of colours is obtained, owing to the thickness of the deposit of copper, which is governed by the thickness of the deposit of mercury forming the picture. In one instance, a clear and beautiful ruby colour was produced, limited in a well-defined manner to the drapery, while all the other parts were green.

\* These three receipts are condensed from Mr. Lerebour's excellent *Traite de Photographie*, from which other valuable suggestions are taken.

### CAUTIONS.

1st. Never use the same accelerating liquid more than once or twice, and only at short intervals. It is better to throw it away after preparing such plates as can be prepared at the same time. The solid accelera-

tor does not require this precaution; it may be retained as long as any colour remains in it.

2d. Be sure to replace the plate on the accelerating liquid for a moment or two after having observed the colour, and before putting it in the camera.

3d. Wipe the lens, and remove all dust and dampness from the camera before using.

4th. Keep the camera and mercury-box perfectly free from the vapour of iodine, bromine, & c.

5th. Frequently brush the top and sides of the mercurybox, to remove any particles which may adhere to them, and which would be likely to settle on the plate. A small painter's tool will do well for this purpose. Filter the mercury through a piece of chamois leather, if it should have film or dust collected upon it; the hyposulphite solution, used to remove the colour of the plate in setting, must also be filtered before using.

6th. Never use the gold solution after it has changed colour, or thrown down a precipitate. This solution is better filtered before pouring on the plate.

7th. Do not make the mercury too hot, it will spot the plate, and spoil the picture.

8th. The direct rays of light must not enter the camera in conjunction with those reflected from the object.

9th. If the picture appear clouded, it is probably either because the plate has not been thoroughly cleansed, or has absorbed too much bromine; in the former case, the plate must be cleaned more carefully; in the latter, the accelerating liquid must be changed, or its strength reduced. If it be covered with a white film, the plate has been exposed to light before putting into the camera, or too much light has entered the camera, which may be remedied by using a smaller diaphragm. If the whites have become blue, or the picture is thin and poor, it has not become sufficiently deep in colour over the iodine; if browned, it is solarized.

From: Practical Hints on the  
Daguerreotype  
by J. H. Crouchers

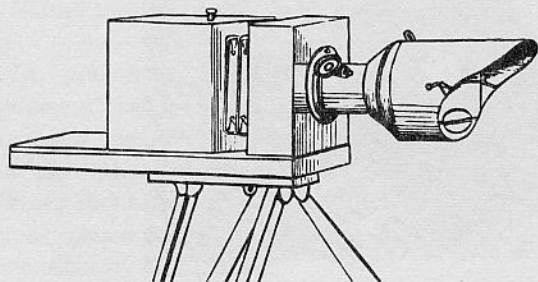




The George Eastman House of Rochester, New York has on display eight daguerreotype cameras plus processing apparatus. They have already started the installation of a daguerreotype wagon in the Mees Gallery, a project that will require several months, but it should be an attractive display when completed.

Mr. E. McCann, 427 St. Caude, Apt. 3, Montreal 127, PQ, Canada, has an unusual problem. He has a Daguerreotype camera body without a lens. Obviously, he wants a lens of the 1840's to match the age of the body, if he can get it. So if you have an extra lens of the period, why not help Mr. McCann out. His camera with or without a lens will be featured in a future issue of the Journal.

Several persons and firms are releasing facimile editions of Daguerre's original instructions for the Daguerreotype process, one of which is produced by Robert W. Lisle, Photographic Antiquity, 4235-C-FCN, McGuire AFB, N.J. 08641. You may order your copy direct or write to the Journal, the cost \$5.00 postpaid.



NOW AVAILABLE: A beautiful facsimile edition of A Treatise on Heliography by L. L. Hill. The original 1856, was the first book ever produced on color photography. His claims (Color Daguerreotypes) caused a storm of controversy in photographic circles, and his own version of events is of great interest to historians and collectors. The book is approximately 175 pages, hard bound, with diestamping similar to those on the original. Order from the Carnation Press, P.O. Box 101, State College, Pennsylvania 16801; the cost \$8.50 plus 25¢ postage and handling.

The Midwest Photographic Historical Society will host its first Antique and Classic Camera Collectors Trade-Fair & Show, April 8-9, 1972 at the Downtowner Motor-Inn, Columbia, Missouri. All Collectors of Photographica and the general public are invited to attend. For more information write: Midwest Photographic Historical Society, P.O. Box 882, Columbia Missouri 65201.

The Ohio Camera Collectors' Society invites all collectors of photographica to visit Columbus this May and attend the nation's oldest and most copied Photographic Workshop and Trade Fair, with space for 45 exhibit tables. Speakers will include Mr. Eaton Lothrop Jr. (Editor of Photographic Collectors Newsletter), Mr. John Craig (Classic Photographic Apparatus) and Mr. Jack Price, Vice-President of O.C.C.S. and Universal Camera Collector. This meeting has the earmarks of being the best yet for O.C.C.S. For more information write O.C.C.S., P.O. Box 4614, Columbus, Ohio 43212.



# DA GUERREAN

## EQUIPMENT

## GALLERY

The Ernest Conover Collection  
Photographs by W. A. Johnson

All early Daguerreotypes were produced as reversed images, as you viewed them they were left to right and right to left, just as you see yourself in the mirror. The portrait business was unaltered by the reverse effect but landscape and commercial assignments were a problem, with unreadable backward signs and the like. Our problem solver, "The Cathan's Reflector and Lens" is this month's gallery show-piece.

The instructions for use are clearly written on the blue and gold trimmed cardboard box, we quote:

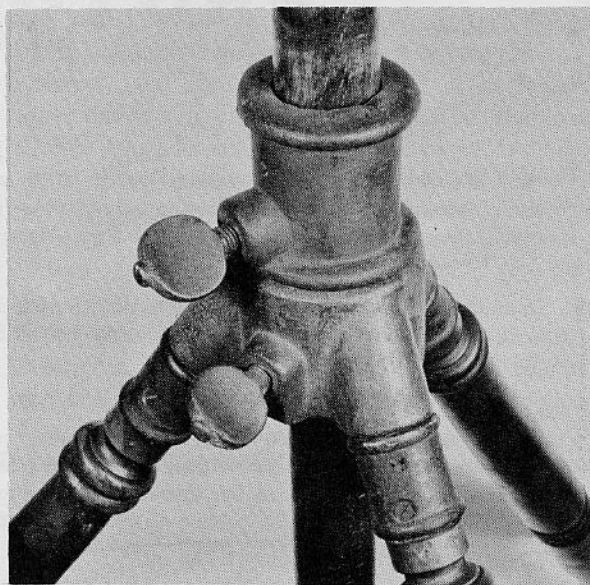
"Is used by taking off the focus wheel, then the tube out of the band, and put the socket of the reflector into the band as evenly as possible, and draw the ground glass back until you get a focus.

Time of exposure in sunlight, 40 to 90 seconds."

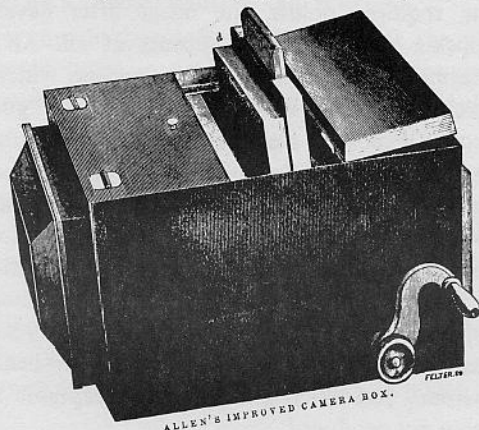
The over all size of the lens is height, 7.6 cm., flange width, 10.8 cm., and the swing-open door, 3.8 cm. A mirror has been placed at a 45° angle inside the brass housing to correct the reverse image. The lower photograph shows the lens generally used, but on the box cover is another simple one element lens of a longer focal length that could be used instead of the one in the unit.

We are again indebted to Mr. Ernest Conover, Chillicothe Rd., Aurora, Ohio 44202 for allowing us to feature another item from his collection.

Do you have in your collection Daguerreian equipment that we could feature in the Journal? If so, please send photographs, a general description, and any other information you feel would be of interest about the item. In addition to the photographs, please sketch the item and indicate all of its dimensions by metric scale.



This recent addition to Stanley Clark's collection is an 1850's tripod along with a bellows camera book of instructions, and other incidentals found in a antique shop recently. The bellows camera will be next issues Daguerreian Equipment Gallery feature.





SOME IMPROVEMENTS ON THE

# DAGUERREOTYPE

## Process of PHOTOGRAPHY

by O. Sherwood Poppe\*

\* An abstract from a thesis presented to the Graduate Division, Reed College, Portland, Oregon, August 1955, in partial fulfillment of the requirements for the degree Masters of Arts. Received 30 November, 1955.

A reprint from the PSA Technical Quarterly, a publication of the Photographic Society of America, Mr. Robert L. McIntyre, FPSA, Editor.

#### Editor's Note:

As introduction Mr. Poppe outlined the Daguerreotype procedure as suggested by Daguerre. Since these procedures have already been presented in the previous issues of the Journal, we shall begin Mr. Poppe's paper with his experiments with the Daguerreotype process.

### Experiments With Daguerre's Procedure

Producing an acceptable Daguerreotype which even remotely resembles an image of some object is not an easy task to accomplish because of the number of variables involved. If the silver plate does not have the required polish, the image after development appears clouded, if it appears at all. An uneven coating of iodine vapor or a coating which is too thick or too thin makes it impossible to "guess" the proper exposure resulting in a solarized, blurred or extremely faint image. If during development, the mercury is raised to too high a temperature, large globules of mercury condense on the entire surface of the silver plate making the image indistinct and lacking in contrast. If the mercury is not heated to a sufficient temperature, the image appears so slowly that the operator becomes impatient, heating the mercury too much and thus an acceptable image is again not produced.

In order to overcome these difficulties, the following variations of Daguerre's original process were devised.

Preliminary experiments were carried out utilizing several different silver cyanide complex and silver iodide complex electroplating baths<sup>3</sup> with a copper sheet as the anode. Electroplating had to be abandoned because great difficulty was encountered in polishing the silver even when using a buffing wheel and a fine grade of jeweler's rouge. Also, the polishing operations took a great deal of time. Pits, smudges, and scratches almost always appeared in the finished plate. It was decided to produce a silvered surface on a material which itself was extremely smooth and would require little if any polishing. Glass appeared to be the answer.

Several methods of producing mirrors on glass supports were investigated and it was decided that the mirrors which best suited Daguerreotyping were produced by the Rochelle salt process as outlined by Hiscox.<sup>4</sup> It was discovered that the glass surfaces to be used to produce *perfect* mirrors must be absolutely free from grease, finger prints, dust specks, etc. Ordinary 3.25" x 4" lantern slide plates were cleaned according to the method which follows.

### CLEANING THE GLASS SURFACES

#### Cleaning The Glass Surfaces

Each piece of glass and the treating equipment were soaked in regular cleaning solution composed of

concentrated sulfuric acid C.P. and potassium dichromate, and after this treatment the glass ware was thoroughly rinsed to insure the removal (as completely as possible) of any ions which may have become absorbed during cleaning. Where water was used as the solvent for chemicals, ordinary Portland, Oregon, tap water was used except in the case of the silvering solutions where the tap water was the first passed through an ion-exchange resin column.

Before replating the glass plates which had previously been used for Daguerreotype plates, the silver and mercury on the glass were removed by soaking the plates in concentrated nitric acid until all visible traces of the silver and mercury disappeared; after this the plates were rinsed in water, rubbed with paper towels, and then soaked in 1 molar sodium hydroxide solution. It was hoped that this treatment would successfully remove all traces of silver and mercury from the glass surface, and evidently it did, though no chemical tests were made. Perfect mirrors were made on the glass surfaces thus treated.

The plates were next cleaned with gray Lava soap, being especially careful to rub over the entire surface with paper towels. The plates were next carried through the following cleansing steps: (a) rinsed under flowing water, (b) cleaned in a solution of Joy, (c) rinsed thoroughly in flowing water again, and (d) transferred and stored until needed in a solution made up from one part cleaning solution to sixty parts water.

From the dilute cleaning solution one plate was placed into a previously cleaned 600 ml beaker, the transfer being completed with the fingers making this the last time that any of the plates came into contact with the fingers until the silvered plates were dry. This beaker was filled with cleaning solution, and the plate was soaked for ten minutes. The cleaning solution was then decanted into another 600 ml beaker containing another glass plate. The plate just removed from the cleaning solution was washed in the beaker with three successive changes of water being careful not to allow the water to flow directly from the tap on to the side of the glass plate which was to be mirrored. In all following steps this washing procedure was strictly adhered to, for it was found

that by washing in any other manner streaks frequently appeared on the finished mirror, and, of course, streaks were *not* desired.

With the washing of the plate accomplished, a solution of 0.01 molar salicylic acid<sup>5</sup> was poured into the beaker containing the glass plate and allowed to remain in contact for ten minutes. Since the mirror-ing time required ten minutes, a ten minute cleaning time seemed a good standard and thus kept things rolling assembly-line style. After the salicylic acid treatment, the glass plate was rinsed in its beaker three times and then transferred to a stannous chloride solution<sup>6</sup>, approximately 0.1 molar.

The stannous chloride stock solution was prepared by boiling together 238 grams of stannous chloride and water and then adding sufficient hydrochloric acid to dissolve the hydrolyzed stannous chloride. The entire volume was adjusted to 200 ml by evaporation or addition of water as was necessary. Experience showed that if the molarity of the stannous chloride solution in contact with the glass plate were reduced to 0.05 molar and the glass plate treated subsequently in hydrochloric acid, the mirrored surface did not appear for about seven minutes and even so it was characterized by surface irregularities in plating. Omitting the hydrochloric acid rinse after the 0.05 molar stannous chloride treatment permitted the silver to plate out fairly rapidly, but streaks appeared which were probably due to non-uniform removal of the hydrolyzed stannous chloride. For this reason a 0.1 molar stannous chloride solution was used and followed directly without washing by a 1 molar hydrochloric acid bath.

After the hydrochloric acid treatment the plate was rinsed twice in cold water, twice in hot water once more in cold water, and twice in de-ionized water.

At times the plates were left to soak in the de-ionized water until needed, and at other times the plates were transferred directly to the silvering solutions.

*Silvering Solutions.* Hiscox's silvering solutions, converted to metric units, were made in the following manner. *Solution I, Reducing Solution:* 946 ml de-ionized water was heated to boiling to which 3.1

grams of silver nitrate was added and after this dissolved 3.1 grams Rochelle salt were added. The mixture boiled for seven minutes and then was filtered twice while still hot. *Solution II, Silvering Solution:* in 473 ml de-ionized water 4.9 grams of silver nitrate were dissolved and sufficient ammonium hydroxide was added drop by drop until the precipitate formed by the addition of the ammonium hydroxide just cleared. The solution was diluted to 946 ml by adding de-ionized water.

The cleaned glass plate was transferred to a beaker containing the *Reducing Solution* at 60 C and allowed to remain for about one minute. The plate was then placed in the silvering pan which consisted of a 25¢ plastic sandwich box, the transfer being accomplished without having the fingers touch the glass plate. Twenty milliliters of the *Silvering Solution* were flowed over the surface of the glass plate being careful not to pour *Silvering Solution* directly from the graduated cylinder on to the glass surface, but rather pouring the solution into one side of the silvering pan and then tilting the pan to allow the solution to flow over the glass evenly.

As a brownish deposit began to appear on the glass surface, usually within ten seconds, 20 ml of *Reducing Solution* (equal in volume to the silvering solution) was flowed into the silvering pan in the same manner as described above. The entire solution was rocked gently throughout the duration of the plating process of three minutes or until specks of a black flocculent precipitate appeared in the solution.

The used solution was poured into dilute hydrochloric and nitric acids to prevent the formation of silver fulminate<sup>7</sup>, and the plating operation was repeated two more times.

If at any time during the plating operation, the silver appeared to be plating out unevenly, or if blemishes or pock marks appeared on the silver surface, the mirroring of that plate was suspended and the plate recleaned to be mirrored again.

To be positive that the *Silvering Solution* contained the excess of silver necessary to the plating operation, a small amount of silver nitrate solution was kept handy and from time to time as the plating proceeded too slowly, three or four drops of the silver nitrate solution were added to the *Silvering*

*Solution*. It was found that if too much silver nitrate were added, the mirror plated out from the silvering bath appeared golden in color and this golden color did not disappear completely upon drying; in addition the golden mirrors did not produce excellent Daguerreotypes. It was essential to have the proper amount of excess silver.

The completely silvered plate was rinsed in water and then by means of a glass fork removed from the silvering tray and placed on paper towels to dry. Some plates were dried in the air by allowing air currents in the room to evaporate the water and at other times by using warm air from a hair drier. No difference was noticed in the finished Daguerreotypes when either method was used though one small streak did appear close to the bottom of the plates dried with air currents, a procedure which always leaves the last droplet of water at the bottom.

The mirrored plates were stored in an air-tight container until ready for iodine sensitization.

## SENSITIZATION

By the historical method the plates were sensitized by iodine in the form of vapor. Fuming by iodine produced uneven sensitization which resulted in poorly defined pictures, and, too, fuming exposed the writer to iodine vapors. In an effort to produce more evenly sensitized plates, it was decided to attempt iodizing with a solution of iodine in the organic solvent carbon tetrachloride.

Recalling the fact that during sensitization of the silver plate by iodine vapors the plate passed through a definite series of color changes as the iodizing proceeded; pale straw, light yellow, gold yellow, orange, red, blue, purple, white, pale straw, etc., it was not difficult to determine the proper time to leave the silvered plates in contact with the iodine solution. The gold yellow color produced the most sensitive Daguerreotype plate.

By experimentation it would found that if a solution composed of 0.00007 molar iodine and 0.00002 bromine in carbon tetrachloride were allowed to remain in contact with a mirrored glass plate, the optimum sensitivity was approached in about fifteen seconds immersion; this sensitized



surface appeared dull gold in color. At the end of 15 seconds the plate was removed from the iodine-bromine solution and fanned dry; the sensitizing was accomplished in the dark room under the light of the yellow safe-light. The sensitive plates were immediately placed in their holders and exposed as quickly as possible.

For proper exposure it was found that light colored objects were reproduced best at an exposure of 45 seconds, and extremely dark subjects at 90 seconds at an aperture of  $f/4.5$  in full sunlight.

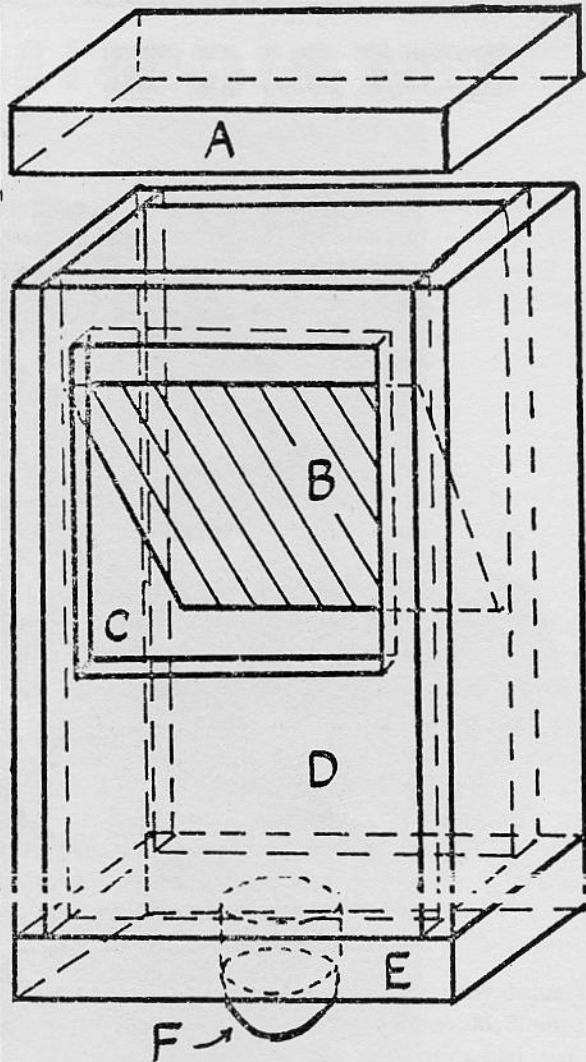
## DEVELOPMENT AND FIXING

Immediately after exposure the plates were developed in a mercury fuming box as shown in Figure 1, and the method followed was essentially that of Daguerre. The progress of the development of the image was watched through the glass window on the side of the developing box. It usually appeared within six minutes, providing the exposure was sufficient. If the exposure was not sufficient to produce an acceptable image within six minutes of mercury development, that particular Daguerreotype was considered a failure and its image was promptly removed with nitric acid.

The developed Daguerreotype was placed immediately after its development into a solution of 0.5 molar sodium thiosulfate until the yellowish cast disappeared. Extreme care was necessary in removing the Daguerreotype from the sodium thiosulfate solution since at the slightest touch the silver would leave the glass support removing the image along with it. The transfer of the plate was accomplished with the fingers, and the plate was rinsed in water at room temperatures. If the wash water was too cold, a reticulated surface appeared and while this reticulation did disappear upon drying, it was not considered good technique to allow it to occur.

With the described process it was possible to achieve about 90% perfection.

Fig. 1. Developing box for fuming exposed daguerreotype plates. A and E are the removable top and bottom, respectively. B is the exposed plate, held at a  $45^\circ$  angle for fuming. C is the glass window allowing inspection during the process. D is the fuming chamber. F is the iron dish containing mercury.



## References

- Alpern, D.K., & Toporek, S., "Silver Plating from Acid Complex Iodide Baths," Transactions of the American Electrochemical Society, Preprint 74, No. 14 (1938).
- Hiscox, Gardner D., Henley's Twentieth Century Home & Workshop Formulas, Recipes & Processes, The Norman W. Henley Publishing Co., New York, 1924, p. 476.
- Adapted from a suggested procedure by Bovie, E., & Unger, P., "The Preparation of Pin-hole Free Silver Mirrors," Journal of Scientific Instruments, Vol. 28 pp. 68-70 (1951), C.A. 46, p. 6354.
- Adapted from Strong, John, Procedures in Experimental Physics, Prentice-Hall, Inc., New York, 1945, p. 154 and Sen. P., & Rao, P.S., "Silvering on Glass," Journal of the Indian Chemical Society, Ind. & News Ed., Vol. 14, pp. 153-158 (1951), C.A. 46, p. 6354.
- The Bureau of Standards reports that silver fulminate is less likely to occur when using a silvering solution which does not contain potassium hydroxide as one of its constituents, but the writer did not wish to take any chances. viz., Bureau of Standards Circular No. 389, p. 2 (1931).

# IMAGE GALLERY



During the 1840's and 50's the Daguerreotype Portrait became the mirror of America. Millions of persons sat before the camera to have their likeness made. The quality varied then just as it does today, from very poor to excellent. The photographer's attention to detail was the mark of excellence and the image above illustrates the ultimate in pose, setting, and natural expression. The viewer might ask: "I wonder what she could have been thinking?"

A half-plate Daguerreotype from the W. A. Johnson Collection.

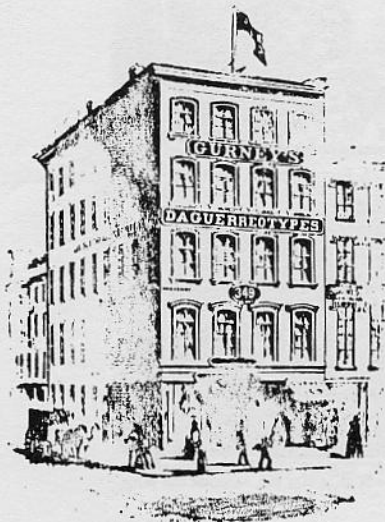
# THE DAGUERREIAN ARTIST

## Jeremiah Gurney, Photographer

The portrait of Mr. Jeremiah Gurney is a woodcut from a photograph, it was the most common method of reproduction of images in the 1860's.

Jeremiah Gurney started his photographic career as a student of Professor Samuel Morse, and was one of the first persons to successfully practice the art of Daguerreotyping. In 1840 he opened what was to become his first studio at 189 Broadway, New York City. Business flourished and 1852 he purchased the Whitehurst Gallery at 349 Broadway (recently destroyed by fire). Rebuilt it and operated it as a branch gallery.

Among the broadway operators the competition was keen, with Brady, Fredricks, Bogardus, Anson, Williamson, and Lawrance, for customers and awards. In 1853, Gurney was awarded the Anthony Cup valued at \$500.00, for the best whole plate daguerreotype made between July 1 and November 1. It was because of these awards he became known as "The foremost Daguerrean Artist".



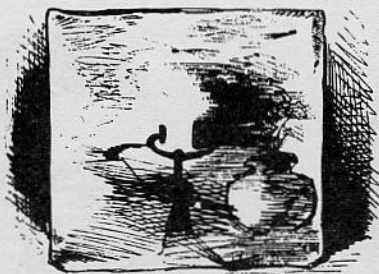
J. GURNEY, ESQ., PHOTOGRAPHER.

Abraham Lincoln was the subject of many daguerreian cameras, Alex Hesler, Alex Gardner, M. Brady, and many others to numerous to mention had tried their hand. But it was Gurney who was the last to secure photographs of Lincoln while alive. He also took negatives of President Lincoln while he laid in state in New York City. Other New York photographers were not allowed similar privileges and appealed to Secretary Stanton. Stanton thought the Gurney photographs to be of bad taste and confiscated all the negatives. Gurney followed his negatives to Washington, but whether or not he recovered them is still unknown.

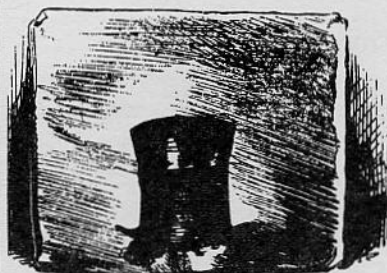


# Experiments in Photography.

MR. N. BONAPARTE STUBBS *wishing his Daguerreotype, the Operator being out, his Boy tries his hand.*



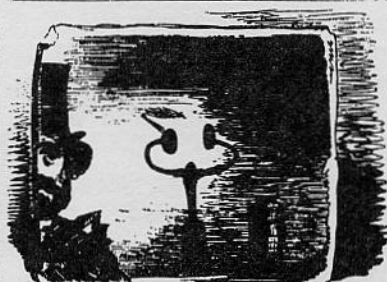
*First Trial.*—Boy doesn't hit Stubbs at all.



*Second Trial.*—Hits Stubbs's Hat.



*Third Trial.*—Stubbs's Cravat in Focus.



*Fourth Trial.*—Half of Stubbs's Body in Focus.



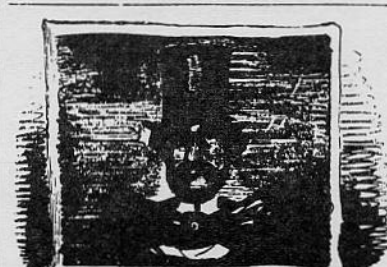
*Fifth Trial.*—Body in Focus—Head out.



*Sixth Trial.*—A Fly alights on Stubbs's Nose.



*Seventh Trial.*—A Spot in the Plate.



*Eighth Trial.*—Stubbs sits ten seconds too long.

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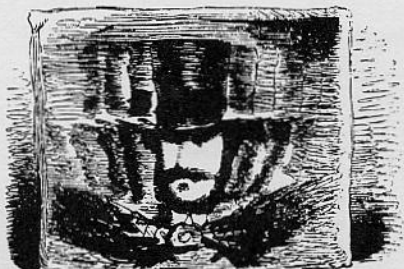
*Ninth Trial.*—Pretty Girl over the Way throws a light on Stubbs's nose with Mirror.



*Tenth Trial.*—Stubbs sees Pretty Girl over the Way, and nods at her.



*Eleventh Trial.*—Stubbs turns to look at Pretty Girl, but recovers his position.



*Twelfth Trial.*—Pretty Girl smiles at Stubbs. He chuckles, and moves his Head.



*Thirteenth Trial.*—Stubbs arranges his Cravat to Captivate Pretty Girl.



*Fourteenth Trial.*—Pretty Girl goes away. Stubbs begins to grow tired, and Yawns.

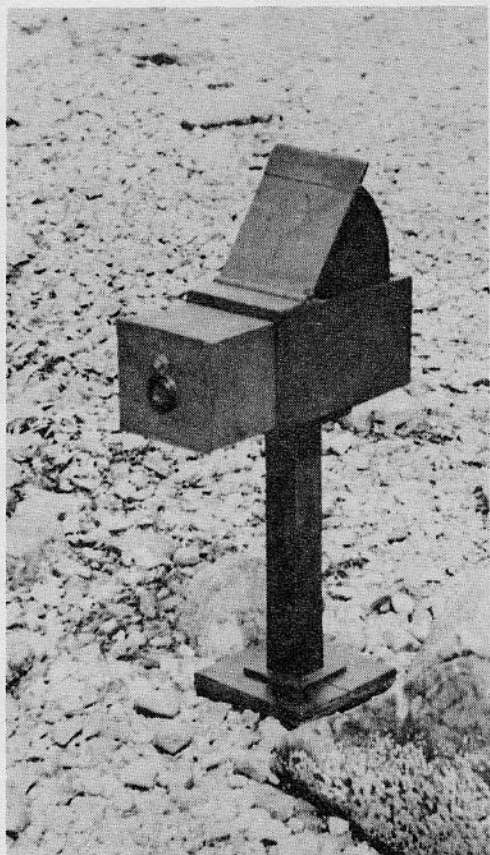


*Fifteenth Trial.*—Boy forgets, and lets Stubbs sit Ten Minutes.



*Sixteenth Trial.*—JONES, the Great Operator, returns, and takes Stubbs's Picture at once.

# SHOW & TELL



From Robert Lisle's collection: A Camera Obscura made by C. N. Robinson of Philadelphia, Pa. Mr. Robinson owned and operated a Lens Shop during the years 1820 to 1830.



The Daguerreian image collection of Cliff Krainik also includes this quarter plate tin type of a Daguerrean artist with his camera and tripod.





# ANSWERS TO CORRESPONDENTS

Hardy congratulations for No. 3, the quality and content of the Journal grows in giant step fashion with each issue — Keep it up. I like the idea of a question and answer page and look forward to it. There is so much to “Show and Tell”, time and money permitting.

Must comment on how much I enjoyed Edward Lentz’s article — very fine.

Photographic Antiquity  
R. W. Lisle, New Jersey.

The new Daguerreian Journal continues to look good. I just hope those who have an interest in that sort of thing will have enough interest to help you keep going. I know from experience that many of those who profess the greatest interest in the subject of photographic history and collecting are often reluctant to take an active part or make any great effort to support even those projects which might benefit them most.

Graphic Antiquarian  
Don Blake, Editor

I liked very much the new Daguerreian Journal you have published. It looks excellent and your idea of documenting the various cameras will be a help in later life as a record.

Ernest Conover  
Aurora, Ohio

Congratulations on the new Daguerreian Journal. Here’s my subscription, plus \$2 for an 8 x 10 of the splendid daguerreotype of L. J. Phillips Daguerrian Gallery.

Beaumont Newhall  
The Univ. of New Mexico

I so much enjoyed the new Daguerreian Journal, Vol. 1, No. 3, that I am enclosing a check for \$10.00 for a subscription. (Are the two earlier issues available?)

Please keep up the good work. It is such a pleasure to read your interesting periodical.

Locare Motion Picture Research Group  
Kemp R. Niver, Los Angeles

Congratulations on the publication of the new Daguerreian Journal. Both my staff and myself welcome this addition to the wealthier photographic literature that has sprung up within the last three years, indeed so much stimulated by your own efforts in this field.

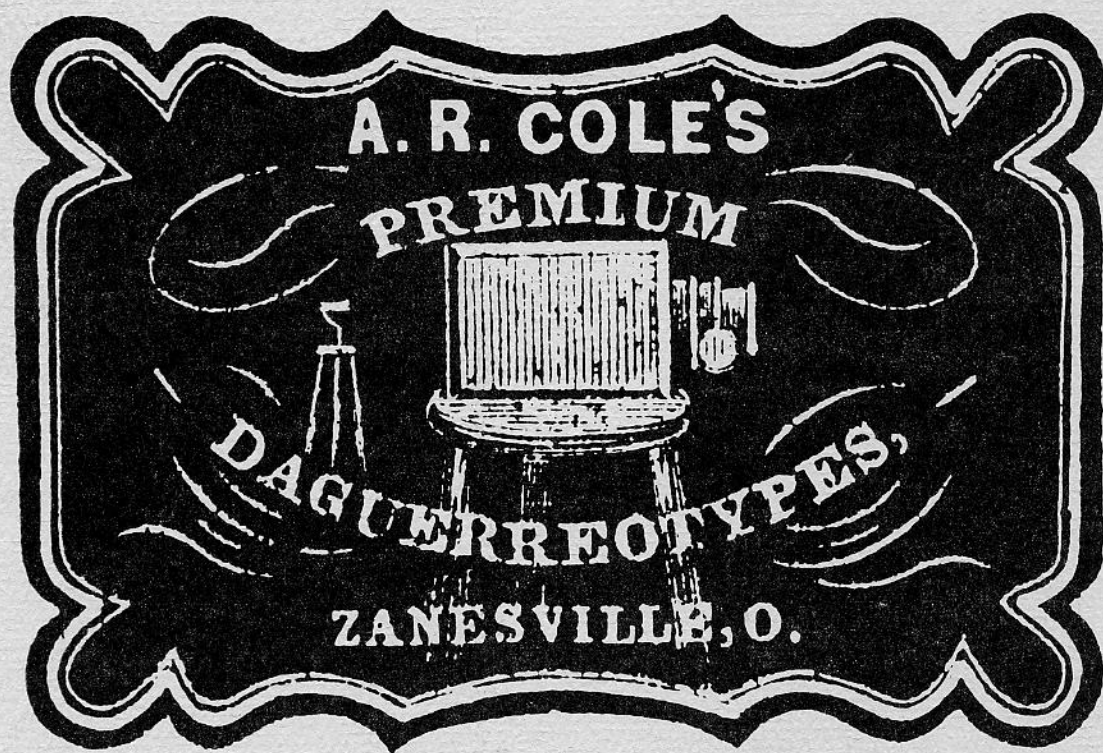
We have read the articles in the new Daguerrian Journal with great interest and have found them most informative, bringing us up to date on the history of the daguerreotype in North America. We certainly hope that the journal will continue to maintain the same level of good scholarship, clarity, and evident enthusiasm of the various authors.

Public Archives of Canada  
Richard Hayda, Historical Photo. Section

I have just recently become acquainted with your new endeavor, the new Daguerreian Journal, and I would like to become a regular subscriber.

May I wish you the very best in your work in the coming years.

Reese V. Jenkins  
History of Science &  
Technology  
Case Western Reserve Uni.



The new Daguerreian is published by Walter A. Johnson and The Daguerrean Society, 1360 Haines Ave., Columbus, Ohio 43212, for the information and pleasure of its members and friends. Published bi-monthly at an annual rate of \$10.00, single copies \$1.50 each, and \$15.00 foreign subscription (excluding Canada).