THE NEW

DAGUERREIAN JOURNAL:

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

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Watch for our 2nd anniversary issue, July, 1974. In it, we shall explore the various customs and images of 19th century death.

The New Daguerreian Journal

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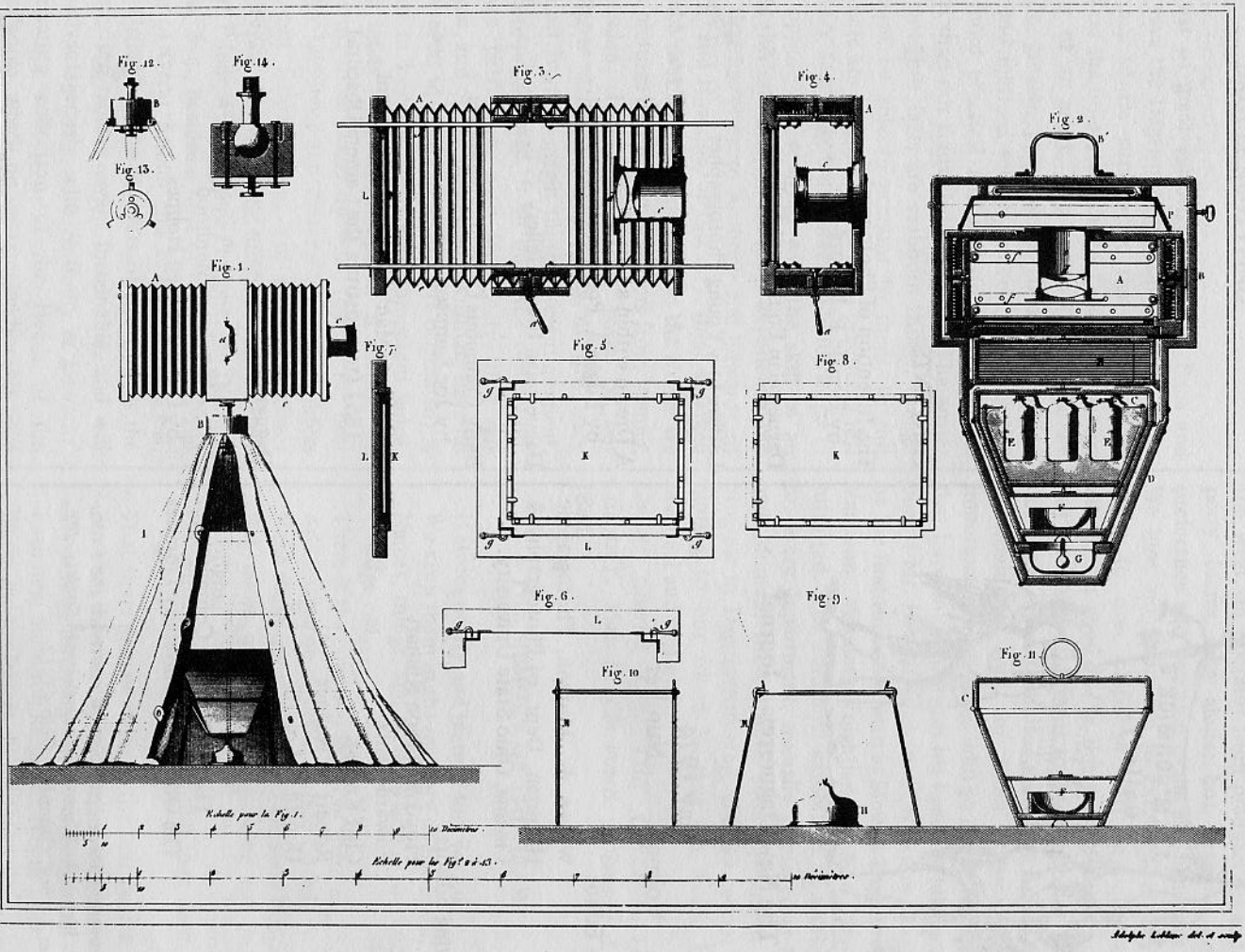

APPAREIL PHOTOGRAPHIQUE SIMPLIFIÉ ET PORTATIF, PAR M.r LE BARON SÉGUIER.

THE INVENTION OF PHOTOGRAPHY –

A discussion of the technological, scientific, and social conditions which led to the invention of photography.

By Donald Peter Lokuta
March 3, 1974

The invention of photography does not appear to be the revolutionary discovery that many of the early writings indicate. At closer analysis it is clearly evolutionary. Photography, from its early experimentation with optics, chemical compounds, and their later refinement and final combination utilizing the modified camera obscura is clearly a sequential development.

Upon closer examination, we find that it is a field in which many persons contributed a little; rather than the conception and invention of one individual. In this sense there is no one inventor of photography. The invention is popularly attributed to Joseph Nicephore Niepce only because of our definition of the concept photography in terms of a permanent image. If we were concerned with the combination of optical and chemical compounds to form and image-the camera and light sensitive substance, we would give the honor of the invention to Thomas Wedgewood. Or, if we were just concerned with producing an image by the action of light on a sensitized material we would agree with Prof. Eder who called Schulze the inventor of photography. This assignment of who was first matters little with respect to the more important implication concerning the origin of the photographic process.

This question can not be answered with the study of one individual, but rather through a SEQUENCE of events, and a complex of technological and sociological considerations. As Robert L. Heilbroner states, "I believe there is such a sequence-that the steam-mill follows the hand-mill not by chance but because it is the next 'stage' in a technical conquest of nature that follows one and only one grand avenue of advance."[1]

The announcement in 1839 of the invention of the photographic process (or the fixation of an image formed by light on a sensitized material) generated a great deal of social comment. Although surprising the general public of the time period; to the informed sicentist it would have been the next logical step. The works of Schulze, Scheele, and Wedgwood and Davy were well published in European journals, and the basic knowledge of chemistry and optics were known centuries before.

Therefore, photography was not the brain-child of one inventor but rather an innovation resulting in the combination of basicly two SEQUENTIAL and almost simultaneous developments in optics and chemistry.

The basic optical principle of the camera obscura was observed by Aristotle more than 300 years B.C. Later, references also appear in the writings of Alhazen, Leonardo Da Vinci, Della Porta, Barbaro and many others. By the 1600's as its popularity increased, the camera obscura not only became a curious optical toy, being concealed in goblets and books, but became an artist's aid and means by which travelers could make sketches during their journey.

The effect light has upon certain materials, causing some to fade and others to darken is a long known fact. In 1614 the first photographically practical observation was noted by Angelo Sala who attributed the darkening of silver nitrate to the action of light. He wrote, "When you expose powdered silver nitrate to the sun, it turns black as ink."[2] Later Schulze, Scheele, Senebier and others added to the knowledge of their predecessors in a sequence of scientific discoveries.

One discovery led to another. The result in optics was a portable camera obscura capable of focusing an image on a translucent piece of paper using a fairly sophisticated lens system. In chemistry, not only was silver nitrate and silver chloride discovered as being light sensitive, but color sensitivity was also discovered, the reduction principle of the metalic silver image, the invisible infra-red and ultra-violet rays of the spectrum, etc. All of this information was acquired before the "invention" of photography, and approx.

40 years or more before its announcement in Paris.

Taking this into consideration the next logical step would surely be the combination of these two fields, optics and chemistry, to produce the first photographic image with the use of a camera.

This was later attempted by Wedgwood and Davy. Although unsuccessful, these men were innovators in the sense that they did move one step closer by being responsible for a technological convergence in the area of photography by applying two basic discoveries for a totally new purpose, the making of "images from nature" as it was later called. An account of their experimentation was published in 1802 in The Journal of the Royal Institution of Great Britain.

> *The images formed by means of a camera obscura, have been found to be too faint to produce, in any moderate time, an effect upon the nitrate of silver. To copy these images, was the first object of Mr. Wedgwood, in his researches on the subject, and for this purpose he first used the nitrate of silver, which was mentioned to him by a friend, as a substance very sensible to the influence of light; but all his numerous experiments as to their primary end proved unsuccessful.*[3]

Refering to the line in the above paragraph, stating, "...,and for this purpose he first used the nitrate of silver, which was mentioned to his friend, as a substance very sensible to the influence of light;..." we again find support for the supposition that this basic knowledge was common among the scientific community of Europe, and further proof of the complex sequential development of the field.

If we, on the other hand, approach photography in light of the Heroic Theory of Invention[4], explaining important developments in terms of a single genius, we are living in a vacuum and will simply reduce photography to a serios of names and dates, presenting a sterile, superficial and incomplete interpretation of the story history has to tell. Therefore, just as the steam engine was not the creation of one single inventor (certainly Hero, Savery, Newcomen, Watt and others must all be given credit), photography too was an evolutionary development to which many men contributed.

This theory of sequencing and evolution may find further support if we consider the phenomenon of the simultaneity of invention. In photography the most striking examples are that of Talbot, Daguerre and Bayard, all claiming priority to the invention of photography. If these pioneers each developed an autonomous invention, it would be difficult to justify how they arrived at a similar outcome. The simultaneous inventions of the Bessemer process, explosives, flight, and photography, to mention but a few, all appear to support the theory that discovery occurs along a definite sequence of knowledge rather than the result of the naive intuition of one individual. Reviewing the state of the Daguerreotype art in 1845 Claudet writes:

> *It is curious to observe how rapidly sometimes new discoveries are followed by other important discoveries, forming the links of a mysterious and infinite chain, one end of which approaches the great Creator of all things.*[5]

With this realization then, one may ask why photography was not an earlier invention. The technological and material competence was present. So, for photography to have existed, if only in an experimental state in the 17th century may have been possible. It would appear, all that was necessary would be an innovative individual to successfully "fix" a silhouette image, if only with salt water, paving the way for the later combination of the camera and light sensitive material. This certainly would not have constituted a technological leap (if there is such a thing), all components were present including the smaller and more portable camera obscura. Then why not photography in the 1600's or at least in the early 1700's?

Let us first attempt to deal with the question of whether photography was an early or late invention. Let us begin by making a series of broad and sweeping comments. It appears that in one sense photography is a late invention. The technology of the 18th century was sufficiently advanced and the

scientific knowledge was adequate for its existance during that time period. But, on the other hand, if we believe the old adage, "Necessity is the mother of invention" we may argue that the social need for such a discovery was not present until the very late 18th century or early 19th century. So, as the need developed, so did photography evolve.

In essence this is the test all inventions must face, and their ultimate fate is decided by the technological competence, scientific knowledge, and the present needs of society. In the case of the steam engine or the hologram; technology was lacking, in early metallurgical and tanning processes; scientific information was lacking, and in photography there was a lack of need by society until the time of the American industrial revolution. The absence of one of three key factors could either seriously inhibit the progress of an invention, if not totally deter its existance other than on paper.

Looking at the world situation during the late 18th and early 19th century it is no surprise that the invention of photography developed where it did. Western Europe, its birthplace, was at this time not only the most powerful and wealthy area of the world but also the most progressive in-so-far as art, science, and technology.

America on the other hand, was a developing nation with all of the troubles, frustrations and anxiety of a new society. At the time of serious photo-chemical investigation in Europe, (at the beginning of the 1800's) the United States was still a very young country and much of its territory was frontier. The American libraries were few and far between and leisure was not adaquate, thus allowing few the luxury of personal scientific investigation. Also, few educational institutions were devoted to the study of science and therefore few scientific societies existed which would have permitted a broader dispersion of knowledge and exchange of views. The United States too, was in need of money, and among other resources, serious scientific or technological investigation requires capital.

Therefore, although many American pursued science, few understood science. The American experimentors who tried to formulate an effective permanent image through photographic means at the beginning of the 19th century, if indeed any existed, were clearly at a disadvantage. It was not until the 1820's that any considerable amount of technical knowledge existed. It was also not until this time that meaningful publications began to appear in this country (The Journal of the Franklin Institute; 1824 and the American edition of Abraham Rees' English Cyclopaedia; 1823).[6]

Therefore the United States was suffering in part from an information gap which seriously limited the inventive minds of this country. From the colonial period through much of the 19th century up to approx. 1845, American scientific accomplishments may also be described as colonial in comparison to the sophisticated European approach. Science in America was mainly concerned with the collection of specimens or data which was eventually sent back to Europe, mainly England.

As previously mentioned, European technology was superior to that of America during the beginning of the 19th century. American industrialists, to a great extent, looked to Europe as a source of technical information which this country was seriously lacking. The Watt steam engine was imported from England, Lowell copied English designs for machinery in his New England textile mills, DuPont was aided by the French government in the establishment of his gun powder works at Brandywine Creek, and French designs were models for American arms manufacturers for decades. As can be seen by these and many other accomplishments, the technology in Europe was certainly well advanced. This competence is not only a prerequisite for the wide-spread success of an invention such as photography, but it existed for some time in Europe prior to 1839.

To prove this point we need only look at the rapid innovations during the first years after the announcement of the invention and the ingenious devices employed by the inventors themselves.

Niepce, in the 1820's proved to be an innovator with respect to camera design. Not only did he successfully adapt the camera obscura for photo-

graphic use, but he employed the use of a bellows. Commonly used for air compression at the time, he was first to adapt it as a flexible means of connecting the front and rear elements of the camera, the distance between which was adjusted during focusing. Niepce also used an adjustable metal diaphragm to sharpen the image. Although this was a technique which was incorporated in telescope design of the late 18th century, he was again first to realize its application in photography.

The introduction of the all metal camera at the outset of photography is further proof of the advanced European machine technology and the technical competence of the time. The best example of this, although not the first[7], is the Voigtlander conical metal camera, marketed on January 1, 1841, which produced photographs 3½ inches in diameter. This advance should come as no surprise. It has been estimated that by 1831, many of the basic machine tools were already invented, if not perfected.[8] The early introduction of the all metal camera was not caused by shortages of other materials, public demand, and by no means resulted in a reduction of cost. It was an innovation introduced because manufacturing technology was well advanced, and it was the next logical step in the design of a camera specifically suited to the existing Voigtlander lens. After all, what would be more natural than a company in the lens manufacturing business producing an all metal conical brass camera?

Many references are made in the historic photographic literature pertaining to the rapid spread of photography to every corner of the civilized world. Were it not for the technology of the time, photography would have been only a curious laboratory experiment and the plaything of a few wealthy individuals. But because the various photographic processes had few patent restrictions (making them free to the world) and the already developed manufacturing competence of Western Europe, both the technical information and photographic materials were available to virtually anyone desiring to experiment with the new discovery.

The rapid advance of this new art form, partially due to the technical competence of the time, can be vividly illustrated by examining the accomplishments of Baron Pierre-Armand Seguier. In November 1839 he displayed his conception of a portable photographic outfit for the traveling photographer. Later the next month, he revised his design by proposing the use of bellows on the camera (see illustration).

His design was a major innovation, only occuring three months after the release of the technical process of the Daguerreotype in Paris. M. Seguier's camera produced photographs the same size as Daguerre's, incorporated the use of bellows, and introduced to photography; the tripod, ball and socket head, and darkroom tent for processing purposes.

It should be noted that this design bears striking resemblence to that of the portable periscopic camera obscura, both having a tripod support and a tent-like enclosure. We again see prior design ideas being adapted to photography from earlier optical devices (technological convergence), and observe another autonomous discovery of the bellows for photographic use (it is assumed that M. Seguier knew nothing of Niepce's earlier use of the bellows).

Additional proof that photography is a late invention may lie in the further consideration of the state of science prior to the announcement of the art. As with technology, the competence of the Western European scientist was more than adequate with respect to the information needed to support the invention of photography at least in the 18th century.

In a review of the experiments of Wedgwood, it should be noted that the production of light sensitive paper simply involved the coating of a silver nitrate solution on paper. The direct action of the sun was responsible for the darkening or printing of the image which resulted in a contact print. (as previously mentioned, this darkening of silver nitrate was first noted in the early 1600's). All that remained for Wedgwood was to fix the image on the paper in a manner that would inhibit further darkening upon re-exposure to light. Although their experiments ended in failure, little did Wedgwood and Davy realize that the simple washing of the paper with salt

water would have stabilized the image, retarding its immediate detoriation by the sun, and given them the recognition as the inventors of photography.

In this light it can clearly be seen that the simple use of salt water was one of the key missing ingredients in the prior invention of photography. This fact is startling, when upon close inspection there appears to be an abundance of chemical knowledge in Europe around 1839. Not only was salt water, potassium iodide and other fixing or stabilizing agents known for some time, but in 1819 the description of a new chemical, hyposulphite of soda, was first announced by Herschel in Brewster's Edinburgh Philosophical Magazine. Renamed sodium thiosulfate, this is the same chemical which is used at the present to fix photographic images. It appears then, that although these compounds were available, no serious attempt was made to seek them out for a new application, photography.

Prior to 1839, not only were the infra-red and ultra-violet rays of the spectrum discovered, but the scientific journals of the time were filled with the optical and chemical experiments of such men as William H. Wollaston, Thomas Wedgwood, Sir Humphry Davy, John F. W. Herschel, and others.

The sequencing of the chemical theory basic to photography progressed to such a point in the 1800's that simultaneity of invention proves to be no surprise. The dispersion of scientific information grew to the point that once knowing about the basic description of the Photogenic Drawings of Talbot, many were able to duplicate the process, claiming priority for themselves.

By this discussion it is not the intent to lead the reader to believe that many experiments in photographic chemistry were being carried out in the years prior to 1839, quite the contrary. But the basic scientific information did exist. Talbot, when attempting his photographic experiments, although knowing nothing of the work of Wedgwood and Davy, relied upon prior information. He wrote:

> *And since, according to chemical writers, the nitrate of silver is a substance peculiarly sensitive to the action of light, I resolved to make a trial of it, in the first instance, whenever occasion permited on my return to England.*[9]

Further evidence of the scientific competence of the time resulting in simultaneity of discovery may be seen in Talbot's and Daguerre's experimentation using silver plates sensitized with iodine. In an account dated December 21, 1842, he recalls:

> *Having in the year 1834 discovered the principles of Photography on paper, I sometime afterwards made experiments on metal plates; and in the year 1838 I discovered the methods of rendering a silver plate sensitive to light by exposing it to iodine vapors. I was at that time therefore treading in the steps of Daguerre, without knowing that he, or indeed any other person, was persuing, or had even commenced or thought of, the art which we now term Photography.*[10]

In much the same manner, many of the discoveries in the development of photography occurred simultaneously or proceeded along similar lines ending with similar results; following what Heilbroner called the "One grand avenue of advance."

It was not until January 31, 1839 that Talbot's paper, "Some Account of the Art of Photogenci Drawing...." was read before the Royal Society. This eleven page statement contained a short history of his experimentation and an account of the varied applications of the process. This initial paper contained little technical information, and it was not until the following month, February 20th, that he fully revealed the process in a letter to the Royal Society.

During the month of January the priority of the invention of photography was claimed by both Talbot and Daguerre, but the technical nature of their process remained a secret. Curious about this invention, John F. W. Herschel began a series of experiments with the intent of learning more about the nature of this new process (not then divulged). Within a few days during the latter part of January, as his notebook indicates, he succeeded in producing permanent images on paper. This incredible accomplish-

ment not only proves the genius of Herschel, but again indicates that the scientific information was well developed, waiting only to be applied to this new process; photography. Herschel later published a full account of his experimentation the following year in the Pholosophical Transactions of the Royal Society.

It is the belief of this author, that although technology and science were sufficiently well developed to allow the introduction of photography more than a century before its announcement, European society did not realize a need for its invention until the late 1700's.

The 18th century in Europe marked a period of transition from the old system of values centered around an agrarian economy to one which was based upon industry and trade.

Prior to the mid-1700's the towns and villages of Western Europe were virtually isolated. These communities were self-existing and home-ruled, in much the same manner as the feudal estate of the not-so-distant past. Success or failure depended upon the land, upon nature, and upon the ability of the human being to effectively meet the challanges of this environment.

With increased colonization and a growning population, an evolution soon began. Survival, instead of mere existance, came to mean a better way of life. Trade, and thereby interdependence became necessary. In the past a villager rarely traveled from his area of residence, and when he did, poor roads and the slow packhorse made his journey less than a pleasure. With the advent of industrialization the necessity of rapid and fairly inexpensive transportation led to improved roads, and later, more sophisticated water and rail transportation.

This new way of life not only created an awareness in technology, but also science, government, banking, art, philosphy, etc. Much of Western Europe had now emerged from the Middle Ages. A rising middle class demanded more from life. Leisure, a belief in a better tomorrow, and security had never been experienced by a larger mass of people in the history of man.

The success of Photography was therefore an outgrowth of this change and emotional climate in Western Europe. Possibly it was an expression of pride in "self", an affirmation that the value of the human being along with the value of his likeness had risen. Man had therefore arrived, no longer the subservient and humble servant of his land and nature, but the master, the one who should be looked up to- and the one to be REMEMBERED. In this way, the desire of the common individual to be rememberd (pictured through art, then through photography) marks the arrival of man, the rise of a new middle class, and a transition from the dosile servant of nature to a more dominant and secure role.

It is believed that this social change and the need for the development of such an invention as photography was also an evolutionary one. When an increased demand existed for the mass distribution of imagery, the only effective means available were very laborious, time consuming and expensive. Only by the use of the artist's pencil or brush, or the tools of the engraver was this task accomplished.

Books containing engravings were far too costly for the common man, and to commission a portrait to be painted was out of the relm of reality. For those who could afford the cost, paintings which took the form of minerature portraits were in vogue, but these expensive and often extravagent images were only enjoyed by few.

To overcome these difficulties, several inventions of the late 18th and early 19th century attempted to make use of the ingenuity of man thereby substituting mechanical and optical principles for artistic talent. Wolston's camera lucida (1807) became a popular method of recording a scene while traveling. But even with this prismatic optical device, considerable talent was needed to make a sketch: as Talbot noted while attempting to capture the beauty of the Italian country-side at Lake Como. The quest for quick and inexpensive portraiture was certainly a motivating factor in the development of the Silhouette Machine and the Physionotrace, their acceptance as methods of reproducing the human likeness paved the way for almost universal acceptance of photography and no doubt were partially responsible for the rapid advances in the art which later led to

portrait photography.

Thus by the early 1800's the need for photography was certainly obvious, and the technological and scientific competence long existed. Looking back we can see that the stage was set and the road quite clear, waiting only for the first adventuresome traveler. Wedgwood did not succeed, but Niepce did. If this were not the case, there would have been another, possibly as many as a half-dozen inventors of photography by the 1840's. The direction was set by history and the demands of man - the outcome was inevitable.

NOTES

1 Robert L. Heilbroner, "Do Machines Make History?" **Technology and Culture**, Chicago, 1967, p. 336.

2 Helmut and Alison Gernsheim, **The History of Photography**, New York, 1969, p. 30.

3 T. Wedgwood and H. Davy, "An Account of a method of copying Paintings upon Glass, and of making Profiles, by the agency of Light upon Nitrate of Silver", **The Journal of the Royal Institution of Great Britain**, vol. i, London, 1802, p. 172

4 Louis C. Hunter, "The Heroic Theory of Invention", **Technology and Social Change in America**, edited by Edwin T. Layton, Jr., New York 1973.

5 M. Claudet, "The progress and Present State of the Daguerreotype Art", **The Journal of The Franklin Institute**, Vol. X. 3rd series.-No. 1 - July, 1845, p. 45.

6 Eugene S. Furguson, "Techology as Knowledge", **Technology and Social Change in America**, edited by Edwin T. Layton, Jr., New York 1973, p. 16.

7 Helmut and Alison Gernsheim, **L. J. M. Daguerre**, New York, 1968, p. 68.
The first all metal camera (Zinc) was the one given to Niepce by Daguerre, it measures 65cm long x 36cm high, x 36cm wide.

8 Carroll W. Pursell, Jr., "Machines and Machine Tools, 1830-1880", **Technology in Western Civilization**, edited by Kranzberg and Pursell, New York, 1967, p. 396.

9 W. H. F. Talbot, **The Pencil of Nature**, London, 1844.

10 W. H. F. Talbot, "On the coloured Rings produced by Iodine on Silver, with Remarks on the History of Photography" **The London and Edinburgh Journal**, February 1843, p. 96.

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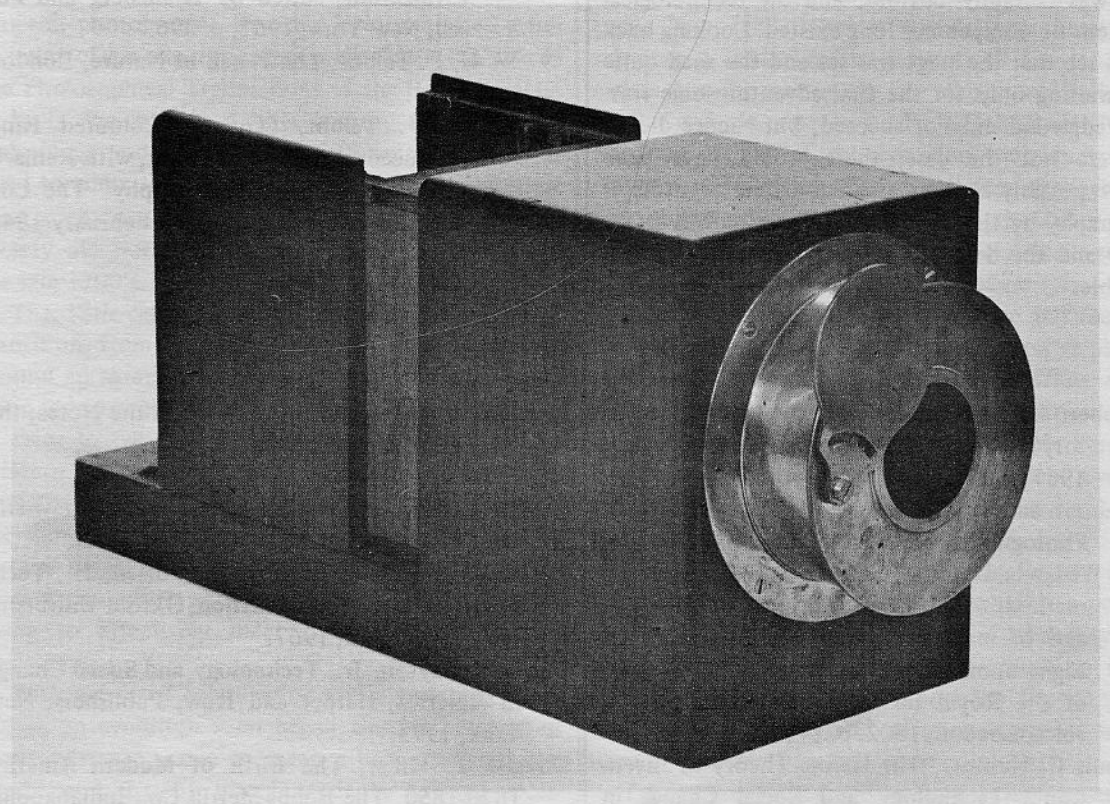
Douglas T. Miller, **The Birth of Modern America 1820-1850**, The Bobbs-Merrill Co., Indianapolis, 1970.

John W. Osborne, **The Silent Revolution**, Charles Scribner's Sons, New York, 1970.

Charles L. Sanford, **The Quest for Paradise**, The University of Illinois Press, Illinois, 1961.

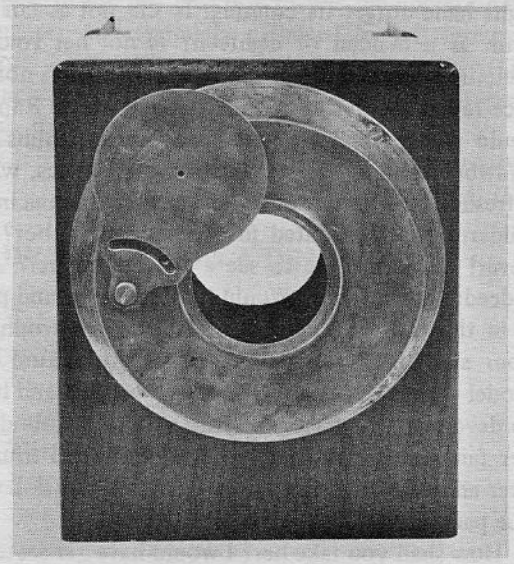
Bulletin De La Societe D'Encouragement Pour L'Industrie Nationale, Paris, 1839.

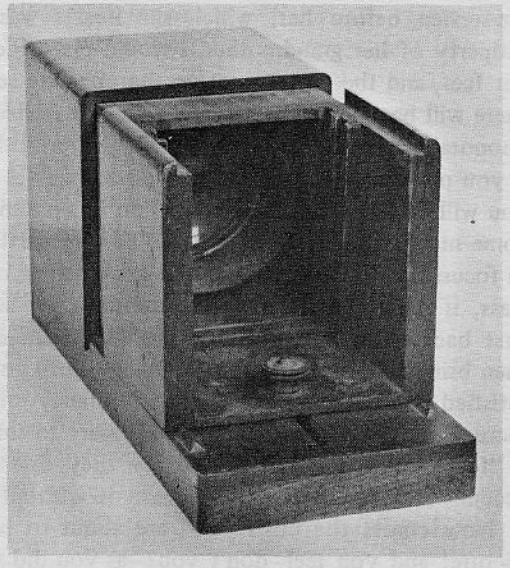
Philosphical Transactions of the Royal Society of London, London, 1840.
"On the Chemical Action of the Rays of the Solar Spectrum on Preaprations of Silver and other Substances, both metallic and non-metallic, and on some Photographic Processes." Received and read Feb. 20, 1840, Sir John Herschel.



We wish to thank Donald P. Lokuta for allowing us to feature this Daguerreotype camera from his collection. This camera is a rigid-bodied quarter plate camera having characteristics of European design. Manufacturer unknown.

DAGUERREIAN EQUIPMENT GALLERY





Being of rigid external construction, this camera has an internal sliding "box within a box" system which contains the plate holders or ground glass focusing screen. The camera is loaded by means of a single hinged door located at the top (missing). The lens is not adjustable, but focus is obtained by moving the inner box to create the proper image clarity on the ground glass screen.

This camera is of simple design measuring 35.0 cm long, 18.5 cm high, and 15.0 cm wide. The woodwork is of solid Mahogany construction fitted with dovetail jointery.

The lens is of brass construction and three element design. Its overall diameter is 10.5 cm and has an approx. focal length of 12 cm. The lens being a total of 17.5 cm long is also fitted with a paper diaphragm having an opening of 5 cm.

A metal plate mounted on the front of the lens tube pivots to open or close for control of exposure in much the same manner as the giroux camera.

Do you have a camera that could be featured in the N.D.J.? If so, please send two or more photographs of it and as much information as you have, including measurements taken with a metic scale.

LETTERS TO A YOUNG PHOTOGRAPHER NO. 9

My dear Eusebius:

Do I remember your grandmother? That dear delightful old lady, to whom we paid a flying visit on our way to the Lakes? When I forget her, may my right hand forget its cunning. Is she not as fair and prim as a maiden of eighteen? Is not her voice as melodious as the note of the blackbird? and is not her face radiant with smiles, such a one as only a Raphael could paint? Shall I forget her whipt syllabubs–her strawberries and cream, and those tea-cakes, which refreshed us after our dusty journey like manna in the wilderness, while seated in the jessamine arbor? No, never! Should I like to see a portrait of her? Aye, indeed; should I not? Would I not frame it, and place it in the post of honor in my studio, as a trophy of your skill in photography, and as the picture of a model woman. It is an honor to your head and heart to devote the first essay of your skill to the obtaining her fair counterfeit; and you cannot fail to triumph over all difficulties, if you but exercise your skill with due patience and deliberation.

How shall you take her? I would have her seated in the jessamine arbor, with that quaint old-fashioned tea-service before her, which she boasts was the property of **her** grandmother. I would place Fido at her feet, and the favorite cat on the opposite seat – there will be a picture which will gain you a prize and "honorable mention" at the next Exhibition. I think, if you plant your camera under the great walnut tree, you will find the jessamine arbor and its contents to come nicely into a 8½ x 6½ plate. Be very particular in focussing. When the image appears on the ground-glass, if it be indistinct, you must move the screen first backwards, and if the indistinctness increases, then bring the screen nearer to the lens, until you are satisfied with the sharpness and brillancy of the picture. Many operators think it necessary to employ a "focussing glass" and I dare say they find their account it it; for my own part, I can do without one.

Now comes the crisis! You are about to take a picture! and you feel–don't you?–as you did when you first pulled the trigger of that confounded old blunderbuss, that kicked and knocked you over last Guy Fawkes' day. Never fear, your camera won't kick, although it may capsize some windy day, and cause you to find your level prone on mother earth.

Now, I suppose you have a collodioned plate all ready in the dark slide. You place the cap on the lens, withdraw the focussing screen, and put the collodion slide in its place, having coaxed dear old granny to "sit still for just half a second." She does her best, but not being used to pose to artists she soon forgets the injunction, and just as your place your finger on the trigger (I mean the cap), she enters into confidential intercourse with Tabby, nodding her head and smiling all over her face. You pause, this will never do! You do not wish her to look like a Chinese mandarin, and so wait till the sentimental fit is over, and mildly repeat your warning gently insinuating that "the operation is going on;" to which she promptly replies: "Yes, I know. I feel it going all over me like a cold chill!" You argue – it is nothing, it will soon be over, and with this assurance a mesmeric influence is established, and you get sufficient time to remove the cap, and, lo! the picture is taken.

Of course the dear old lady wants to see how she looks and coaxes you to open the slide, as she has to go to see about dinner and cannot wait. You expostulate, and urge that nothing can be seen of the picture until after it is "developed." She urges: "she is not particular, she had rather not, it will do as it is;" but your remonstrances prevail, and you make good your retreat to your dark-room.

I cannot give you any precise instructions as to the time of exposure which will secure a good pciture; there are many things to be taken into consideration which I will briefly enumerate. First, there is the power of the lens, dependant on its length of focus, and on the principles upon which the "objectif" is constructed; secondly, there is the degree of illumination of the object, and its tone of color; and lastly, there is the sensitiveness of the collodion, to be taken into account. Now, it is impossible you can work by fixed rules amid these variable controlling influences. An inch or two of difference in the focus

of a lens will effect a second or two difference in the time of exposure, other things remaining the same. As a general rule, the shorter the focus the quicker the picture is taken. As the collodion is affected in proportion to the amount of light reflected from a given object, this latter must, of course, always form a variable quantity in operating with the same lens; and this again is governed by the quality of the collodion employed, some being much more sensitive than others. Therefore, if two of your elements of operating are constant, you may, by one experiment, arrive quickly at a knowledge of the unknown quantity of the third. For example, you first wish to ascertain if you are working with a quick lens or a slow one. To establish this regorously you experiment with the same collodion, upon the same object, the camera at the same distance from it, and at the same hour of the day, when the amount of illumination is identically, or nearly the same. If you move your camera, or change your collodion, or repeat your experiment in the afternoon instead of the morning, you will not be able to tell which influences the result, whether it be distance, light or collodion; and in this state of confusion your lens, which you think you are testing, is–nowhere.

Suppose you wish to test a sample of collodion, you must change only this one element of the operation; the camera, the distance, and the amount of light must be fixed elements. You will know by the result whether your picture has been over-exposed or under; if the latter, there is no remedy for it; but do not give way to the weakness so many photographers indulge in – that of seeking to obtain pictures in less than no time. In the majority of such abortions all the qualities that constitute a really good picture are absent. There are no half tones; the shadows are dry and opaque, instead of being clear and transparent; the lights look abrupt and glaring, as if they had run away from the shadows; there is, in fact, a total absence of what painters call breadth, and a want of harmony of tone, which places such productions out of the pale of art altogether. Yet you will see such things held up for admiration, on the sole plea of having been taken in nineteen-twentieths of a second. Much better is it to take fifteen or twenty seconds, if they be required to take a good picture. Why, when I first began to take daguerreotype portraits, my sitters thought themselves lucky if they could get off with a five minutes' pose; a pretty severe trial this for fixed attention. As soon as the cap was removed, I used to sit down and read a chapter in the last new novel while the operation was going on, and generally managed to get through it before I considered my picture *done*; but, as the French say, *nous avons change lout clea.* –Liverpool Phot. Jour.

Humphrey's Journal of the Daguerreotype and Photographic Arts, June 1, 1859

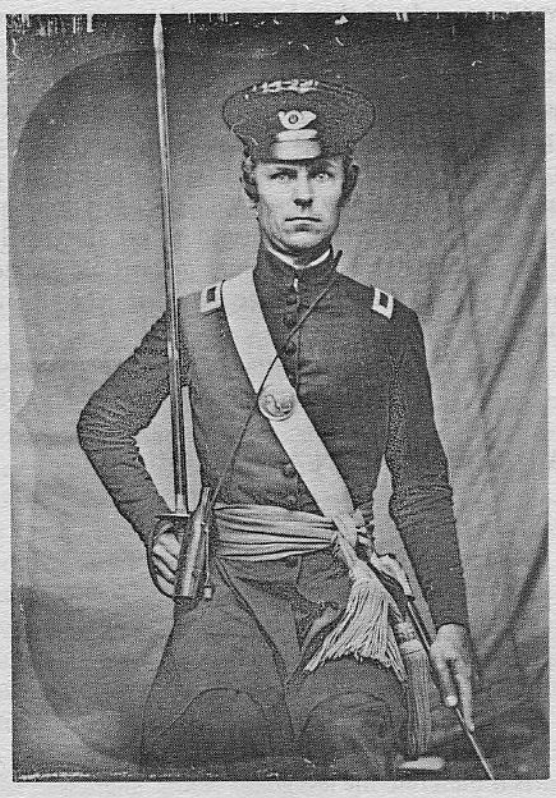
A DREAM WITHIN A DREAM

Take this kiss upon the brow!
And, in parting from you now,
Thus much let me avow:
You are not wrong, who deem
That my days have been a dream;
Yet if Hope has flown away
IN a night, or in a day,
In a vision, or in none,
Is it therefore the less *gone?*
All that we see or seem
Is but a dream within a dream.

I stand amid the roar
Of a surf-tormented shore,
And I hold within my hand
Grains of the golden sand:
How few! yet how they creep
Through my fingers to the deep,
While I weep,–while I weep!
Oh, God! can I not grasp
Them with a tighter clasp?
Oh, God! can I not save
One from the pitiless wave?
Is *all* that we see or seem
But a dream within a dream?

Edgar A. Poe

DAGUERREIAN



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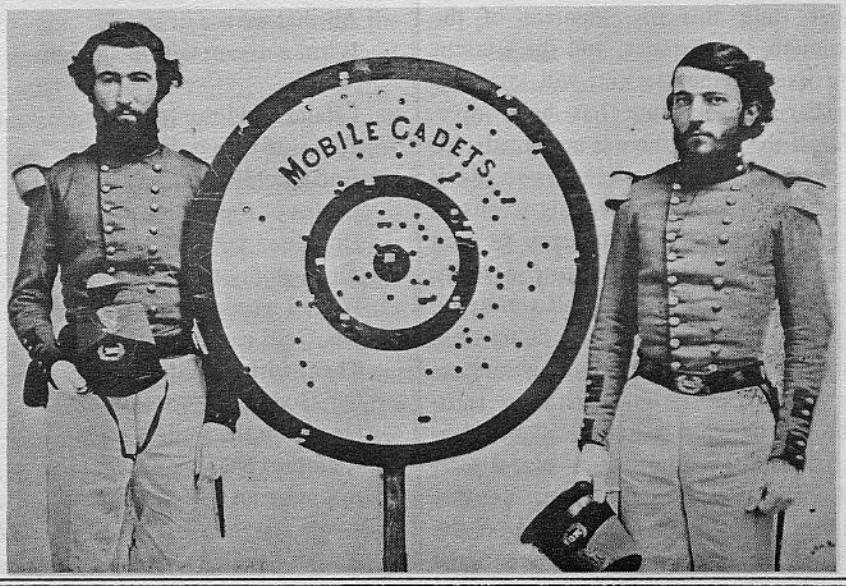
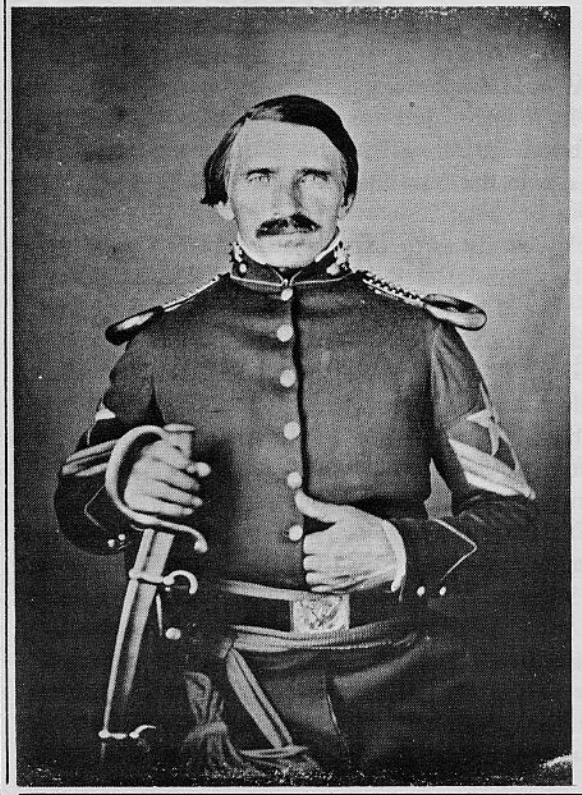


3

IMAGE GALLERY

These 19th century portraits of military men were selected from the Photographic collection of Herb Peck. Our thanks to Herb for sharing this portion of his collection with us, and to other collectors of early photographic images, our pages are open to all who are willing to share their collections.

4



1) Daguerreotype; Lieutenant, U.S. Army.
2) Daguerreotype; Midshipman, U.S. Navy
3) Ambrotype; Militia unit from Mobile Alabama.
4) Daguerreotype; Dragoon, U.S. Army.
5) Daguerreotype; Ordinance Sergeant, U.S. Army.

EARLY COLUMBUS OHIO PHOTOGRAPHERS

by Joe Sampson

This article deals with photographers in Columbus, Ohio from the birth of photography until 1860. The data comes largely from Columbus city directories, and in some cases more data can be found in newspaper advertisements. In this study the Ohio State Journal is the only newspaper researched because of the availability of a complete set. The city directories seemed to list photographers who were in town at the time the directory was compiled so many listed were itenerant photographers. They stayed at boarding houses and were only listed one year.

For those who might wish to do similar research, the following steps of gathering data that seemed to work best:

1. City directory-list of occupations
2. City directory-advertisements
3. City directory-list of residents
4. Newspaper-advertisements

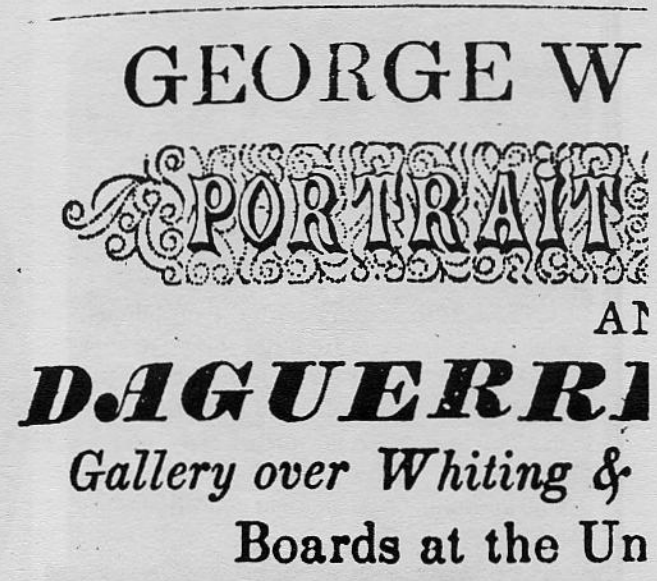
In many cases not all of the photographers are listed under the occupations list in the directories but they are listed individually under their name. Because of this it is necessary to go through each individual name in the directory and note occupations.

Advertisements that were run in the newspapers were usually in for a month so it is not necessary to go through every newspaper but only at intervals.

By an analysis of the data of when certain photographers were in (and out of) Columbus (or any other city) it is possible to list the photographers of that period and gain information on how the early photographers operated.

The first daguerreian artist listed in Columbus was a Mr. Perley from the Photographic Institute in Boston. His ad was in the Ohio State Journal November 10, 1841. He charged between four and seven dollars.

Mr. Brannan first ran an advertisement in the September 8, 1842, Ohio State Journal. He worked out of the American Hotel and charged $4.

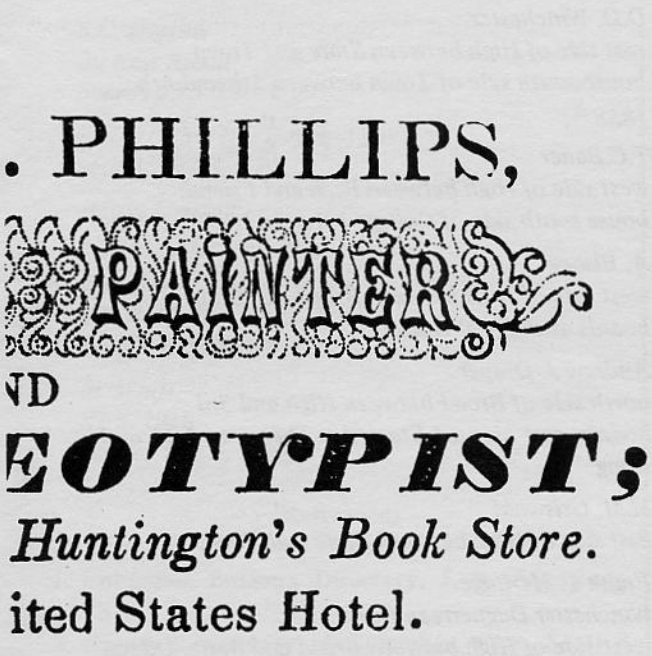


A Mr. Humphrey was in Columbus in 1846 and 1847. When he left for the East he advertised his establishment along with his German made camera for sale in the Ohio State Journal in October, 1846. "Four or five months will enable one to pay for the whole concern as there is no business more profitable in the hands of a skillful operator... Wanted, a first rate pair of horses, or a horse and buggy, which will be taken in exchange, if desirable."

George W. Phillips seems to be the first Columbus resident to become a professional photographer. He established a reputation as a portrait painter in Columbus in 1842, and later bought out the Humphrey Daguerreotype Studio.

The first studios to use the ambrotype and melainotype processes in 1856 were D. D. Winchester and T. C. Bauer.

Lyndall and Winchester are the only two photographers to stay any period of time in Columbus, they were here at least seven and six years respectively. Bisbee was in Columbus in 1846 and 1847. He returned again in 1856 and was here until 1858.



In 1856 Bisbee advertised Sphereo types. According to notes in the Rinhart Collection Albert Bisbee and Y. Day patented it on May 27, 1856. It was "improved photographs on glass."

Advertisements in the Ohio State Journal newspaper stated that in 1842 Mr. Brannan photographed in the American Hotel and Mr. Perley worked in the Buckeye Building. In 1846 Humphrey and Bisbee were the only photographers listed. In 1847 Humphrey (who left in March), Bisbee (who left in May), G. W. Phillips, and E. A. Stoughton are listed in advertisements.

The following is a list of photographers taken from the city directories that were available.

1843 [1]

George Phillips (portrait painter)
residence east side of 7th, near Town

1845 [2]

George Phillips (portrait painter)
boards at the City House

1848 [3]

I. Barnet
resides at A. C. Hanes, south side of Gay between High & 3rd

H. Lyndall
Armstrong Building opposite the Capitol House
boards at Mrs. Maers

G.W. Phillips (Portrait painter and daguerreotype room)
over Whiting's Bookstore, 129 High St., next to Clinton Bank
boards U. S. Hotel, northwest corner of High and Town

N.D. Stanwood
boards with Esquire Cherry

E.A. Stoughton
Ambo's block, High St., opposite the state buildings (formerly operator at Mr. Haas, lately proprietor Daguerrean Gallery in Hartford, Connecticut)

1850 [4]

Henry Trevitt
Ambo's Block
boards with Dr. William Trevitt, Broad St. 4th door west of High on the north side.

D.D. Winchester
one door north of the Exchange Bank
boards at the Capitol House, west side of High St. between State and Town

H. Lyndall (advertised but not listed in directory)

1852 [5]

H. Lyndall
High St. opposite the Capitol House

A. P. Mason
Whiting's Building on High Street
resides Gooseberry Alley between 3rd and 4th and Friend and Mound

D.D. Winchester
first door north of the Exchange Bank
boards at Dr. Coulter's, corner of 4th and State

1855 [6]

A.L. Fellers
west side of High between State and Town
resides east side of 5th between Rich and Friend

H. Lyndall
east side of High between Town and State
boards at the Capitol House

D.D. Winchester
east side of High between Exchange and City Banks
Boards with F. Drake

E.S. Wykes
Penniman block and High Street
boards at the U.S. Hotel

1856 [7]

George Armitage
boards between 7th and Washington Ave.

G.W. Armstead
works for A.L. Feller & Co.
boards south side of Twon between Front and High

T.C. Bauer
southwest corner of Rich and High

A. Bisbee
west side of High between Broad and State

A.L. Feller & Co. (A.L. Feller)
north side of Broad between 3rd and High
resides south side of Oak between 7th and Washington Ave.

R.F. Lumley
east side of High between State and Town
house at east side of High between Town and Rich

Clarence Noel
boards east side of High between Town and Rich

Theo. Parker
west side of High between Town and Rich
boards south side of Town between High and Front

William Stoner
boards American House

D.D. Winchester
east side of High between State and Town
house-south side of Town between 5th and 6th

1858 [8]

T.C.Bauer
west side of High between Rich and Friend
house south side of College between High and New

A. Bisbee
west side of High between Broad and State
boards at the Neil House

Andrew J. Draper
north side of Broad between High and 3rd
boards east side of State Ave. between Gay and Long

M.M. Griswold
east side of High between State and Town

Frank C. Heritage
Winchester Daguerrean Rooms
west side of High between Broad and State, Odeon Bldg.
resides State between 5th and 6th

A.J. Savage
west side of High between State and Town
resides north east corner of Town and 6th

W.A. Sprague
west side of High between Town and Rich
resides north side of Gay between High and 3rd

1860 [9]

Isaac Barnett
resides 394 S. Fair Alley

T.C. Bauer
151 S. High
resides 133 E. College

John Bisbee
resides 246 E. Friend

M.M. Griswold
101 S. High
resides 185 E. Rich

S.C. Higgins
20 East Broad
boards 63 S. Front

Robert Linn (photograph painter)
resides 170 S. High

Henry Lyndall
resides 254 South 6th

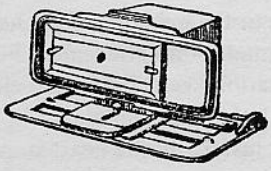
Joel Reeve
101 S. High
boards U.S. Hotel

M. Whitt
81 S. High
resides 163 E. Rich

References

1. **Columbus Business Directory**, J. R. Armstrong, 1843.
2. **Kinney's Directory of Columbus**, Chas. Scott & Co., 1845.
3. **Directory of the City of Columbus**, John Siebert, 1848.
4. **Directory of the City of Columbus**, E. Glover & Wm. Henderson, 1850.
5. **Columbus Directory for the Year 1852**, E. Glover, 1852.
6. **Columbus Business Directory**, Ohio State Journal Co. 1855.
7. **Williams' Columbus Directory**, J. H. Riley & Co., 1856.
8. **Williams' Columbus Directory**, J. H. Riley & Co., 1858.
9. **Lathrop's Columbus Directory**, Richard Nevins, 1860.

All published in Columbus, Ohio.



THE YOUNG MAN'S BOOK OF AMUSEMENT' 1851

To construct the Camera Obscura

Make a circular hole in the shutter of a window, from whence there is a prospect of some distance; in this hole place a magnifying glass, either double or single, whose focus is at the distance of five or six feet; no light must enter the room but through this glass. At a distance from it, equal to its focus, place a very white pasteboard, (what is called a Bristol board, if you can procure one large enough, will answer extremely well;) this board must be two feet and a half long, and eighteen or twenty inches high, with a black border round it: bend the length of it inward to the form of part of a circle, whose diameter is equal to double the focal distance of the glass. Fix it on a frame of the same figure, and put it on a moveable foot, that it may be easily placed at that distance from the glass, where the objects appear to the greatest perfection. When it is thus placed, all the objects in front of the window will be painted on the paper in an inverted position, with the greatest regularity, and in the most natural colours, If you place a swing looking glass outside the window, by turning it more or less, you will have on the paper all the objects on each side the window.

If, instead of placing the looking-glass outside the window, you place it in the room above the hole, (which must then be made near the top of the shutter) you may have the representation on a paper placed horizontally on a table, and draw at your leisure all the objects reflected.

Observe, the best situation is directly north; and the best time of day is noon.

DAGUERREOTYPING

An artist of great celebrity, just from Paris and London, says the Dageurreotypes on this side of the Atlantic are so far superior to the best of those produced on the other, that the fact could not escape the notice of an artist. This cannot be because we have made greater progress in chemistry, optics, electrics, and metrical science generally. Then why? Are we more practical and experimental, and less theoretical than our transatlantic friends? The writer imagines not–but facts are stubborn things, though we may not be able to account fo them. In this country there are a great many persons practicing this art, but very few who unite practical knowledge in chemics, optics, and electrics with the skill of an artist. It is this rare merit, with great experience and patience, that has given to Anthony and Edwards, of New York, and Hawkins, of this city, their deserved preeminence over all other operators in the world. We have seen pictures by the best operators from Vienna, Paris, Dresden, London, and all parts of our country–have watched the progress of this truly delightful art from its origin till the present moment, and feel proud to agree, from impartial conviction, rather than patriotism, with Mr. Healy, that our countrymen, and one of them our townsman, have no rivals–not even in Paris, when the art originated. A friend now in London, and a very competent judge, writes us lately that he compared a picture by Hawkins with those taken by Bain, (by far the best operator in London,) and that he decidedly prefers those of our fellow-citizen. Yet Bain is a clever Daguerreotypist, having taken those of Her Majesty the Queen, Prince Albert, Louis Philippe, the Duke of Wellington, & c., besides a host of minor nobles and great men of Great Britain and France. The fact is, Hawkins' Gallery of the Pioneers of this City, is the most interesting tableau vivant imaginable, and will compare advantageously with Anthony & Edwards' very interesting collection of the Heads of the American People, which no other collection we have before seen, will. One reason is, Mr. H. is at once an artist and a daguerreotypist–the father of the art in the West, an operator from predilection and not for petty lucres sake alone; but, from a passionate preference and devotion to the art–hence his success. We have no dispositon to extol Mr. H. beyond his merit–to over praise or puff any one or lessen others–for good arts in this way abound in our city; but we wish our citizens to be aware that they need not cross the Atlantic for the finest daguerreotypes. It would be well for those of our merchants, importers, tourists, & c., who go abroad annually, and that have any doubts on his head, to take with them one of Mr. H.'s latest pictures. We know it would not be the first time such men as Messrs. Daguerre, Arago, Vanheim, Plaudet, Voightlander, & c., have been surprised. The continual exhibition of works of art for every department, annually displayed at Dresden and Munich, should have some specimens of our progress in Daguerreotyping; and we cannot forbear hinting to our friend H. that this would be both practical and desirable.

Credit: Charles Cist. THE CINCINNATI MISCELANY. Vol. II. Cincinnati: Robinson & Jones, 1846.

THE MEMORY OF THE HEART

If stores of dry and learned lore we gain,
We keep them in the memory of the brain;
Names, things, and facts–Whate'er, we knowledge call,
There is the common ledger of them all;
And images on this cold surface traced,
Make slight impressions, and are soon effaced!
But we've a page more glowing and more bright,
On which our friendship and our love to write;
That these may never from the soul depart,
We trust them to the memory of the heart.
There is no dimming–no effacement here!
Each new pulsation keeps the record clear;
Warm, golden letters, all the tablet fill,
Nor lose their luster 'till the heart stands still.

Daniel Webster

"Let him who wishes to know what war is look at this series of illustrations. These wrecks of manhood thrown together in careless heaps or ranged in ghastly rows for burial were alive but yesterday. How dear to their little circles far away most of them! – how little cared for here by the tired party whose office it is to consign them to earth! An officer, here and there, may be recognized; but for the rest – if enemies, they will be counted, and that is all. . . . It was so nearly like visiting the battlefield to look over these views, that all the emotions excited by the actual sight of the stained and sordid scene, strewed with rags and wrecks, came back to us, and we buried them in the recesses of our cabinet as we would have buried the mutilated remains of the dead they too vividly represented. . . . The sight of these pictures is a commentary on civilization such as the savage might well triumph to show its missionaries."

Oliver Wendell Holmes
Atlantic Monthly, 1863

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