

"History of Photography in America, with Pen Portraits of Prominent Workers," April, May 1872

(keywords: Louis Jacques Mandé Daguerre, Joseph Nicéphore Niépce, Thomas Wedgewood, Sir Humphry Davy, William Henry Fox Talbot, Charles R. Meade, Frederick Scott Archer, François Gouraud, John William Draper, Alexander Simon Wolcott, John Johnson, Paul Beck Goddard, Edward Anthony, Henry T. Anthony, 591 Broadway, Albert Sands Southworth, Josiah Johnson Hawes, Mathew B. Brady, Frederick L. Langenheim, Abraham Bogardus, John Adams Whipple, William B. Jones, James A. Cutting, George G. Rockwood, Frederick A. Wenderoth, William Kurtz, William Nottman, Lewis M. Rutherford, D. C. Chapman, William H. Badeau, Vincent M. Wilcox, Marcus Aurelius Root, history of the daguerreotype, history of photography)

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Two-part article published in:

Phrenological Journal and Life Illustrated (New York) 54:4 (April 1872): 250–58; 54:5 (May 1872): 296–303.

[54:4 (April 1872): 250–58:]

**HISTORY OF PHOTOGRAPHY IN AMERICA,
WITH PEN PORTRAITS OF PROMINENT WORKERS.**

CONTENTS.—History of Photography—Niepce, Daguerre, Talbot—John W. Draper—Samuel F. B. Morse—Alexander S. Wolcott—Edward Anthony—Henry T. Anthony—Albert S. Southworth and Josiah J. Hawes—M. B. Brady—Abraham Bogardus—John A. Whipple—George O. Rockwood—F. A. Wenderoth—William Kurtz—William Nottman—Lewis M. Rutherford and D. C. Chapman—E. and H. T. Anthony & Co.—A few Hints to the Public—Appropriate Costume—The Gem of a Photograph—The Future of Photography.

HISTORY OF PHOTOGRAPHY.

THE sun is a fervid, assiduous artist, and has for countless ages photographed beauty on the face of nature. The bloom on the maiden's cheek and the gorgeous radiancy of the tropical scene are alike the product of his pencil. Doubtless Old Sol would have continued to practice his art to suit his own fancy had not Prometheus Niepce rudely snatched his implements. Two centuries ago Giovanni Baptiste Porta, a Neapolitan physician, invented the camera-obscura. But this valuable instrument was regarded as nothing but an ingenious toy until about 1814. The peculiar effect of light on a combination of silver with chlorine is one among the precious discoveries made by the alchemists, who, though they failed in finding the key to the mystery of transmuting the base metals, did find philosopher's stones of greater value. The Swedish chemist Scheele, born in 1742, demonstrated, by means of the spectrum, that the violet ray had the greatest power in decomposing the chloride of silver. The attention of the prominent scientists of Europe was directed toward the effect of light on this substance, but their investigations were fruitless. Several years prior to Daguerre's discovery, Hoffmeister suggested that the sun might be made to act as an engraver, but he merely announced it as a fancy. The first vigorous effort to create a sun-painting was made by Josiah Wedgwood and Sir Humphrey Davy. These gentlemen applied a coating of nitrate of silver to paper or leather, which was spread on a frame. By means of the solar microscope they were

enabled to obtain faint images on this receptacle, which soon vanished, as they had no means to render them permanent. Their process was published in the journal of the Royal Institute in 1803. In 1812 Courtois, a chemical manufacturer in Paris, discovered iodine, the agent which was all-essential to the attainment of permanent sun-pictures. But it was reserved for Niepce to be the first to use it. Joseph Nicépore [Nicéphore—ed.] Niepce was a French merchant who had acquired a competency and resolved to devote himself to experimenting on the properties of light in order to obtain permanent photographs. After many trials his labor was rewarded with success, and in 1814 he accomplished the grand result—he made the first permanent photograph! He then demonstrated the value of the camera, for it was through its instrumentality that lie made his pictures. He also utilized iodine as a developer. Niepce's process was to coat a glass or metal plate with a species of asphaltum known as the “bitumen of Judea,” instead of the salts of silver. This he placed in the camera, and in five or six hours the action of light caused the bitumen to dissolve so as to delineate an object, and the image was fixed by oil of lavender. Some specimens of Niepce's work are preserved in the British Museum. They are of an exceedingly rude character, but resemble the daguerreotype. Niepce named his process Heliography.

In 1819 Sir John Herschel discovered the hyposulphite of soda, a substance which was destined to exercise a potential influence on heliography. In 1826 Niepce became acquainted with Daguerre, who had for many years previously directed his energies in the same direction as himself, but had met with indifferent success. Louis Jacques Maude [Mandé_ed.] Daguerre was born at Corneilles, in France, in 1787. He was by profession a painter, but had acquired considerable distinction as a scientist. He was a prominent member of the French Academy of Fine Arts. In order to promote their investigations they resolved to unite their efforts, and they accordingly entered into a formal copartnership.

In 1829 the partners conceived the idea of using iodine in the form of vapor. This they applied to a highly polished surface of silver, and the iodide of silver thus formed was exceedingly sensitive to the action of light. By this means the time of exposure was reduced from hours to minutes. In 1833 Niepce passed away, and his son Isidore succeeded him as Daguerre's partner. In 1839 an arrangement was effected with the French Government, by the terms of which the process was to be given to the world, in consideration of an annual life-pension of six thousand francs given to Daguerre, and of four thousand francs to Niepce, with reversions of one-half those sums to their widows. By universal consent the title of “daguerreotypy” was given to the new art, but perhaps with as little justice as the name of Americus was bestowed on the New World. The honor of making the first permanent picture most certainly belongs to Niepce. But it is not the writer's intention to detract from the actual credit which is due to Daguerre. For fourteen years he strove to attain the grand result. So devoted was he to his purpose, to the exclusion of all other concerns, that, in common with many other eminent inventors, he incurred the reproach of insanity. Even his own wife was induced to share the general belief. M. Dumas, the distinguished French chemist, narrates that Madame Daguerre, in 1825, urged by anxiety for her husband, approached him, at the close of a lecture, and said, “Monsieur Dumas, as a scientific man I have a question of vital importance to myself to ask you. I am the wife of Daguerre, the painter. For some time he has let the idea seize him that he can fix the image of the camera. Do you think it possible? He is always at the thought; he can't sleep at night for it. I am afraid he is out of his mind. Do you think, as a man of science, it can ever be done? or is he mad?” “In the present state of knowledge,” replied Dumas, “it can not be done; but I can not say it will always remain impossible, nor set the man down as mad who seeks for it.”

It is a singular fact that Daguerre was opposed to sitting for his portrait, and obstinately refused to be daguerreotyped except in one instance. Mr. Charles R. Meade, of New York city, enjoys this distinction. Aided by the advocacy of the wife and niece of Daguerre, Mr. Meade prevailed on him to sit for his portrait, and numerous copies were afterward produced.

We will now compare the processes of Daguerre and Niepce. Both used the camera. Daguerre's receptacle was iodide of silver on a metal plate; that of Niepce was bitumen on a metal plate. Daguerre used the vapor of mercury as a developer; Niepce employed iodine for the same office. Daguerre used the hyposulphite of soda as a fixing agent, while Niepce made the oil of lavender answer the same purpose. When first Daguerre subjected the iodidized plates to the action of mercury he failed to develop the image. But during one of his trials he accidentally discerned a dim image on that portion of the plate which had been least exposed to the heat. This discovery induced him to reduce the temperature, and his triumph was at once assured.

Totally ignorant of the experiments of Niepce and Daguerre, Henry Fox Talbot was silently pursuing the same object in England. Six months before the publication of daguerreotypy, on January 31st, 1839, Mr. Talbot addressed a paper to the Royal Society announcing a photographic process of his own discovery. The method practiced by him was to immerse paper in a solution of common salt, and afterward in one of nitrate of silver. This produced a film of chloride of silver, which is more sensitive to the influence of light than is the nitrate. On this surface was applied the object to be imaged, which was of course to be transparent. When subjected to the rays of a blazing sun for a period of half a second, an inverted image was produced. This, the negative, was again copied by the same process, and a positive print was obtained. To Talbot, then, belongs the glory of first printing from a negative, and of devising a method to multiply copies of pictures. In 1842 he substituted iodide of silver as his receptacle, and used hyposulphite of soda as a developer. All that was now necessary to render photography a truly magic art was the discovery of some material which would produce an instantaneous image.

In 1851 Frederick Scott Archer, an Englishman, discovered collodion—a preparation of gun-cotton. Collodion is the photographer's sublime elixir. Nature in all her moods can be photographed by its agency. The collodion process is almost instantaneous, sufficiently so to image the flowing water, the vagaries of the atmosphere, and the ever-changing expression of the features. Itself the offspring of science, photography has become its most useful ally, and it would be impossible to estimate its precious services. Aside from its application to depicting animated scenes, it has rendered inestimable aid to chemistry, to geological investigation, to medical and surgical science, and in the service of architecture and many branches of manufacture. In fact, it would require the space of a large volume to properly describe its efficiency. All honor be, then, to the grand trio, Niepce, Daguerre, and Talbot, who, impelled by the same divine impulse, independently solved the same great problem by different methods. Doubtless philosophy will yet recognize those subtle, mysterious laws which control the human mind and banish forever the word "accident" from its vocabulary.

PHOTOGRAPHY IN AMERICA.

Hardly more than a quarter of a century has elapsed since Professor Gouraud visited America in order to lecture on Daguerre's new art. He exhibited specimens of sun-painting made in the presence of his audience; but beyond the manipulation and exposure of the sensitized plates, he had nothing to teach. In 1839 sun-painting was practiced as a business by but two individuals in the United States. Now, it is computed that photography in America, in all its ramifications, furnishes employment for not less than

fifty thousand persons, and a capital of not far from five millions of dollars is active in its service. It has steadily advanced from a rude mechanical operation until it has attained the dignity of a fine art. Although great improvement has been made in apparatus and material through the characteristic ingenuity of our countrymen, yet the improvement in the instruments of photography is proportionately insignificant to the advance made in the development of the art itself. In fact, esthetics have received from photography new laws of surpassing exquisiteness. Thirty years ago the apparatus of the photographer mingled insignificantly among the stock of the hardware merchant. To-day, immense capitals, large factories, and extensive warehouses are set apart for the manufacture and sale of photographic stock. Thirty years ago the camera rudely painted an insensate image. To-day, it is taught to reflect the soul's secret emotion, and to portray vividly, not the mere outlines of form and feature, but the subject as he is, and introduces him for the first time to an intimate acquaintance with his own lineaments. The story of this eventful thirty years may best be told in narratives of the lives of those workers whose labors most largely contributed to promote progress. We begin with a sketch of

PROFESSOR JOHN W. DRAPER.

This gentleman claims the honor of having made the first sun-portrait of the human face. For several years prior to the discovery of Daguerre, Professor Draper had been engaged in investigating the chemical effects of light. When Talbot's process was published, Mr. Draper commenced a series of experiments with the view of reducing the time of exposure, in order to apply it to the portrayal of animated objects; for the time required was too long to permit the sitter to retain a rigid posture throughout the operation. He thought that by using lenses of larger diameter and shorter focus he might succeed in reducing the time. He used lenses of five inches diameter and seven inches focus, and succeeded. His first attempt at human portraiture was made in an ordinary room, and the sitter's face was dusted with flour, as he supposed that the shadows on the face could not be imaged. But observing that the dark spots of the dress were imprinted, he removed the flour and solved the problem which even Daguerre despaired of seeing accomplished—he had daguerreotyped the human face! Professor Draper subsequently associated himself in business with Professor Morse, and they fitted up a studio in a glass structure on the roof of the New York University. Here they did a flourishing business. Sir David Brewster, in an article which appeared in the *Edinburg Review* for January, 1843, gracefully refers to Dr. Draper as being the first to make sun-paintings of the human face. Dr. Draper soon dissolved his business connection with the art, but has ever devoted himself to its interests. He has written many valuable essays and treatises on photography, many of which have been translated into the languages of Europe. He was chosen the first President of the New York Photographical Society. If photography was invented in the old world, it was in America that its capacity for usefulness was developed. Next in honor to the name of the inventors of daguerreotypy should be placed that of Dr. Draper.

PROFESSOR SAMUEL F. B. MORSE.

It is not our purpose to give an extended sketch of this distinguished scientist, but merely to confine our attention to his connection with photography. In the spring of 1839 Professor Morse, being in Paris, was invited by Daguerre to inspect the result of his experiments. Professor Morse was at this period the President of the Academy of Fine Arts in New York. Daguerre was then waiting for the French Government to secure him a pension before he published his process. The specimens shown to Morse by Daguerre were some delineations of inanimate objects. Professor Morse suggested to Daguerre the

feasibility of taking portraits of living subjects. As the time required for portraying varied from fifteen to twenty minutes, Daguerre declared that in his opinion it would be impracticable for that purpose. After Professor Morse returned to America, still cherishing the belief that life-portraits could be produced, he constructed the necessary apparatus; and in order to experiment in that direction, owing to the rudeness of his instruments, he labored under many difficulties. He first daguerreotyped the Unitarian church in this city, in September, 1839. He next undertook to make portraits of his daughters. He improvised a studio on the roof of a house. After a sitting of ten or twenty minutes in the face of the sun, he was delighted to find that he produced excellent portraits. Professor Morse believed that he had made the first life-portrait, but the weight of evidence tips the scale in favor of Professor Draper. Between these two gentlemen, however, the honor lies divided. They associated themselves subsequently as partners, and engaged in the practice of photography. The partnership, however, was of brief duration, and Professor Morse continued the business alone in order to obtain the means necessary to accomplish the great purpose of his life—the consummation of the electric telegraph.

ALEXANDER S. WOLCOTT

lays claim to having been among the first to have made life-portraits. In 1840 he made an improvement in the apparatus by introducing into use a reflector of wider aperture and shorter focus. The improvement was recognized and adopted abroad. Mr. Wolcott, in connection with his partner, Mr. John Johnson, likewise discovered a valuable chemical combination known as "Wolcott's Mixture," which is peculiarly sensitive to the action of light.

Dr. Goddard, in 1840, being at the time engaged in the Pennsylvania University, introduced the use of bromine as an accelerator. He had made many experiments with bromine, and succeeded in obtaining instantaneous portraits and views in the open air.

EDWARD ANTHONY

inspected the specimens of Daguerre's work exhibited by Professor Gouraud on the corner of Broadway and Chambers Street in 1838 [1839—ed.], and conceived the notion of experimenting on his own account. He had then just graduated from Columbia College. His first effort was to secure a camera, but in those days there were no photographic stock dealers, and he had recourse to his own ingenuity to construct one. He procured a cigar-box, which cost him nothing, and made apertures in it for the insertion of an ordinary spectacle lens, which cost him twenty-five cents. With this primitive instrument he produced some excellent sun-paintings. He continued to practice the art as a dilettante during such leisure as his profession as civil engineer would permit. When Ashburton and Webster were appointed Commissioners by their respective Governments to settle the Northeast Boundary controversy, Mr. Anthony was invited by the American authorities to accompany the surveying expedition to act in the double capacity of civil engineer and photographer. The purpose of the expedition was to locate the boundary line of British and American territory. Mr. Anthony made several photographic views of the "Highlands" and other portions of the disputed territory, and which were estimated as invaluable aids in determining that vexed question. This is the first instance of the employment of photography in the service of nations. In 1842 Mr. Anthony entered into copartnership with his brother Henry, and they engaged in the practice of photography as a business. But the firm was dissolved before the expiration of the year, and Mr. Anthony continued the business in connection with a Mr. Edwards. In 1843 Messrs. Anthony and Edwards visited Washington and portrayed the members of the Senate, with the intention

of publishing the engraving known as "Clay's Farewell to the Senate." This engraving was regarded as a masterpiece of art, and the fidelity of the portraits evoked universal admiration. The Emperor of Austria and the King of Prussia, to whom copies were presented, bestowed gold medals on Mr. Anthony as tokens of merit. After the publication of this engraving, Mr. Anthony withdrew from the practice of photography and founded what has since grown to be the largest stock house in the world. He had begun the portrait business with a stock of materials of which the invoice value was less than a hundred dollars, having bought out Mr. S. Broadbent, formerly an operative in the employ of Morse, but who is now engaged in portrait painting. Mr. Anthony still retains the original invoice, as a record of his modest beginning. This gentleman is among those who have most contributed toward the advancement of photography in this country. Inspired by the enthusiasm of the artist, his connection with photography has not been of a mere mercenary character, but a labor of love.

HENRY T. ANTHONY.

The name of this gentleman is prominently identified with the history and progress of photography in this country. His connection with the art dates back to its introduction in the United States. He associated himself with his brother Edward in the portrait business, but subsequently withdrew and devoted his attention to other pursuits. After Mr. Edward Anthony had established the stock business, he was rejoined by his brother Henry, and the firm has been since known as E. & H. T. Anthony & Co. The subject of our sketch was the first to take instantaneous pictures, not only in the United States, but in the world. This is the highest attainment of the art. He also invented the valuable process of fuming sensitive paper with ammonia, thereby rendering the printing process much more certain and economical. He also recently introduced the use of alum as a component of the silver bath. This has reduced the printing of photographs on albumenized paper to almost absolute certainty, besides accomplishing greater economy in the use of gold and silver. This discovery he freely gave to the profession, who have repeatedly testified their grateful appreciation of this generous act by overwhelming him with thanks and written testimonials. The National Photographic Association of the United States also awarded him the silver medal for effecting the greatest improvement in the chemistry of photography for the year 1870. Mr. Anthony is constantly experimenting on his own suggestions, and likewise tests all innovations which are broached in the various European journals. He is an exceedingly close observer of minute chemical effects in connection with the photographic business, and has acquired a worldwide reputation for the acuteness of his judgment in this direction.

ALBERT S. SOUTHWORTH AND JOSIAH J. HAWES.

These gentlemen formed a copartnership in 1843 for the practice of photography. This union was productive of many valuable fruits. Among the more important may be mentioned the invention of the "swing-polishing-plate-holder." In the spring of 1846 they daguerreotyped the sun in the course of an eclipse, using the object-glass of a telescope as an aid; the pictures were pronounced of surpassing excellence. They also made some fine daguerreotypes of the moon. Another important contrivance invented by them was an arrangement of triple lenses by which straight lines could be copied, and which was of considerable service to engravers. In 1846-7 they, together, invented a camera by means of which several different pictures could be produced on the axis of the lens successively at different periods. In 1853 they discovered a method of making stereoscopic views so as to avoid all distortion. In 1853 they perfected a grand parlor stereoscope presenting pictures of the dimensions of life. In 1854 they secured a patent for a movable plate-

holder which they invented. They also devised a method for softening prints to any degree of mellowness. In 1857 Mr. Southworth originated a plan of photographing disputed handwriting so as to assist in its identification. The legal profession had frequent occasion to avail itself of Mr. Southworth's ingenuity in the settlement of vexed questions involving disputed, obscure, or partially obliterated handwriting. And in Massachusetts the efficacy of photography in dispelling doubts in such cases has been so fully demonstrated, that for several years post Mr. Southworth has devoted his almost exclusive attention in this direction. It is seldom that industry and ingenuity are so fruitful as to yield so many important results in a brief lifetime as it is our pleasure to record in this sketch.

M. B. BRADY.

The name of this gentleman is historic. For many years he stood at the head of his profession without a rival. Mr. Brady was the first who undertook to elevate heliography from a mere mechanical process to the graceful dignity of an art. Not only in his own country, but throughout the civilized world, was he recognized as having attained the highest excellence. At home, for seven consecutive years, he wrested the first prize from his struggling competitors at the exhibitions of the American Institute in this city. In 1851, at the World's Great Fair held in London, he achieved the culmination of triumphs and was proclaimed the best daguerreotypist on the planet, and was awarded the highest premium. But however lustrous may be his career as a photographist, and however enviable his position as an artist, it is as a national benefactor that Mr. Brady will live longest and brightest. For upward of twenty years he has maintained a studio at the national capital. He early conceived the idea of securing portraits of eminent Americans. For nearly twenty years he has, with this fixed purpose, portrayed all of our countrymen who have been distinguished in every career. His collection contains, among others, the portraits of the heroes of the Mexican war, of the great Rebellion, and of the departed statesmen who have adorned the past generation, and whose memory will be perpetuated in revered remembrance. To appreciate properly the benefit thus conferred on the nation, we have but to remember how all mankind deplore that there exists no accurate portrait of Washington. What a solace would our countrymen derive from gazing on the very expression worn by the features of the nation's "father" embalmed in living sunbeams! For years Mr. Brady has struggled on without any public recognition of his great services; but during the spring of the present year the Committee on the Library reported a bill in the House of Representatives urging the importance of securing to the country this collection of portraits of the illustrious dead. To use the appropriate phraseology of the Committee's report, "An historical album both of the living and the dead would be a constant source of national gratification, and its locality the very shrine of patriotism." But the services of Mr. Brady are far more comprehensive than in the portrayal of representative men; he has in the very din of battle, amid the carnage and the smoke, snatched the fading scenes of death, and preserved them in perpetual vividness. The prominent incidents of the battle-field, with its shifting scenery, its pomp and misery, now partially screened by the curtain of smoke, now revealed in all its naked horrors, are preserved as perennial pictures, painted by the same sun which gave reality to the original scene.

F. L. LANGENHEIM

is one of the most enterprising photographers in the country. He is the recipient of several gold medals from European potentates. In 1848 he introduced in the United States the talbotype made on paper prepared with the iodide of silver. In 1850 Mr. Langenheim

introduced the stereoscope into this country, and he likewise organized the American Stereoscopic Company. He is recognized as one of the most accomplished of artists. He applied the camera to the production of lantern slides with great effect. He also excels in mico-photography. He has selected Philadelphia for the field of his labors.

ABRAHAM BOGARDUS

is the popular President of the National Photographic Association of the United States. He has held this honorable position for four terms, and, in fact, has been the first and only presiding officer of the Association, his election and re-election not having been opposed by a dissenting voice. His courteous and dignified administration of the affairs of the Association invariably draws forth graceful acknowledgments from the members in the form of a vote of thanks. The formation of this society is mainly owing to the earnest endeavors of Mr. Bogardus. The object of the Association is to form a union of the brethren of the magic art, welded by bonds of mutual interest and amity. Annual conventions are held in some chief city of the Union for the discussing of photographic matters, and on these occasions a commendable rivalry is exhibited by each member in generously donating to the common fund what information he may have acquired beneficial to the art. By this means photography in the United States has become rapidly progressive. The career of Mr. Bogardus has been a successful one in a pecuniary aspect and otherwise. In 1846 he began his business life on the corner of Barclay and Greenwich streets in this city, with a capital of fifty dollars. He is an example of the successful photographer, having acquired a competency as the fruit of his business, and is now about to retire from the field of action, although not from a participation of the family joys and sorrows. He will still continue his public relations with photography. When he commenced business he employed one assistant, at a weekly salary of two dollars and a half. Now his pay-roll often foots up \$590 for a week. Mr. Bogardus has always stood ready, purse in hand, to aid the advancement of the art or in the protection of its interests. Animated by this spirit, he has on several occasions donated large sums of money for the benefit of photography. We regret that want of space restricts us to such a brief sketch of Mr. Bogardus, but he already enjoys a wide reputation, and has been sketched repeatedly.

JOHN A. WHIPPLE

was born in Grafton, Massachusetts, in 1823. In the spring of 1841 he was associated with Mr. Elias Howe (the inventor of the sewing machine) in the manufacturing of photographic chemicals, at Cambridgeport, Mass. But the enterprise was abandoned as unprofitable, as photography was too young at that time to sustain the business. Mr. Whipple next applied himself to sun-portraiture in Boston, and achieved a rapid success. In 1848, in connection with Mr. Wm. B. Jones, he discovered a process of making negatives on glass instead of on paper, which until then was the material used. The paper negative had many disadvantages, chief among which was that defects were copied on the print. By the new process a combination of iodide of potassa and milk was applied to a glass plate, which when dry was bathed in a solution of nitrate of silver. Messrs. Whipple and Jones are entitled to the credit, we believe, of making the first glass negative in the United States. When they published their method, they felicitated themselves on giving to the world an entirely novel process, but in this respect they were doomed to be sadly disappointed. They were greatly chagrined to learn that a method almost identical to their own had been published a year previous in *Silliman's Journal*, with the exception that albumen, having been found to be more efficacious than milk, had been substituted for it. They, however, practiced their method with signal success. They soon afterward introduced the use of honey to soften the albumen, which effected an important

improvement. In 1853, Mr. Cutting having secured letters patent for the invention of his collodion process, Mr. Whipple combined his patent with that of Mr. Cutting. In 1850 Mr. Whipple daguerreotyped the moon, using for this purpose the great telescope of Cambridge Observatory. This was the first application of the new art to the purposes of astronomy, and some specimens sent to Europe created a profound sensation in circles of science, and evoked the general admiration on account of their artistic beauty. At the World's Fair held in London, in 1851, their daguerreotypes secured a prize. In 1852 Mr. Whipple daguerreotyped the stars of all magnitudes, save those of the fifth. This was considered an extraordinary feat. Encouraged by this unexampled success, Mr. Whipple then sought for new worlds to conquer, and had the presumption to insist on imperial Old Sol making a picture of himself. He made some magnificent daguerreotypes of the sun and its spots. In 1857 he produced the first microscopic daguerreotype. In 1867 Mr. Whipple executed photographs of the solar eclipse at Shelbyville, Ky., under the supervision of Professor Menlock, of Harvard University. On this occasion he obtained one of the best images produced of the sun's corona. Mr. Whipple is established in Boston, where he transacts a most prosperous business. We shall make no comments on the services rendered by Mr. Whipple in promoting the advance of photography. The same display of genius and energy would have secured eminence in any sphere.

GEORGE G. ROCKWOOD.

This sun artist left the editorial profession for photography about sixteen years ago. His efforts have been supplemented by a familiarity with art and his portraiture characterized by a conformity to art principles in a process ordinarily practiced as purely mechanical. He was the first to introduce the *carte-de-visite* in this country, and various other improvements which have been generally adopted. For the past ten years he has had no rival as a landscape photographer —the American Institute awarding successive premiums at all of its recent exhibitions.

Mr. Rockwood has written some books upon the practical working of his art, and is a frequent contributor to the press. An enthusiast in his art, its advancement and development has been as earnestly sought as personal gain. His establishment, one of the largest and most complete in the country, is at 845 Broadway, and covers the upper floors of several buildings.

F. A. WENDEROTH.

The subject of this sketch is a native of Hesse Cassel, Electorate of Hesse. He received an artistic education, and studied painting with Professor Frederick Mueller at the Academy of Fine Arts in Hesse Cassel. In 1846 he was sent to Paris, under the auspices of this institution, in order to prosecute his studies in the higher branches of art. At Paris he received instruction from Leon Coignet, until the revolution of '48 suddenly compelled him to terminate his studies. In 1849 he came to the United States, and remained in New York city until 1851. During the intervening two years he was engaged in painting pictures for the Art Union. Influenced by a desire to acquaint himself with the resources of our country, he traveled through several States of the Union, and also of Central America, and extended his rambles to the South Sea Islands and Australia. In 1857 he returned to America and selected Philadelphia for his future home. Here he employed himself in painting photographs, and likewise prosecuted experiments in photography. While so engaged he originated the ivorytype, an exquisite style of portrait, which has since become a universal favorite. He subsequently introduced the photo-miniature. Mr. Wenderoth has also invented a photozincographic process, which he proposes soon to utilize. He has acquired considerable reputation as a painter, and one of

his best efforts is the painting known as the "Battle of Gettysburg," which has also been reproduced in photography. Perhaps the most important contribution made by Wenderoth to photography is the invention of a new style of picture during the last few months, and which is to be called the "Argento-picture." He has long sought for this result. The argento-picture combines the virtues of both the daguerreotype and paper photograph. It can be completed and ready for delivery within thirty minutes, whereas in unfavorable weather the daguerreotype may not be perfected in a week. But weather exercises no influence on this picture. It is probably the perfection of brilliancy in combination with delicacy and precision of detail. Brighter than the daguerreotype on account of the lights being formed on a polished metal surface, it is also, like the photograph, susceptible of infinite reproduction, being printed from a negative. It is as fadeless as the amaranth, can be retouched and tinted, and is not affected by contact with light or fluids. That this is no mean accomplishment is manifest, and entitles the inventor to a distinguished place on the roll of honor. Photography has enlisted in its services, in proportion to its age, a greater number of brilliant intellects than any of its sister arts.

[TO BE CONTINUED.]

[54:5 (May 1872): 296–303:]

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CONTENTS.—History of Photography—Niepce, Daguerre, Talbot—John W. Draper—Samuel F. B. Morse—Alexander S. Wolcott—Edward Anthony—Henry T. Anthony—Albert S. Southworth and Josiah J. Hawes—M. B. Brady—Abraham Bogardus—John A. Whipple—George O. Rockwood—F. A. Wenderoth—William Kurtz—William Nottman—Lewis M. Rutherford and D. C. Chapman—E. and H. T. Anthony & Co.—A few Hints to the Public—Appropriate Costume—The Gem of a Photograph—The Future of Photography.

WILLIAM KURTZ

is a native of Germany, and was born at a village near Frankfort-on-the-Main. At the age of fourteen he entered the Staedlishe Institute, an academy for artists in Frankfort, with the intention of becoming a painter. The death of his father deprived him of the means of pursuing his studies, and when sixteen years old he was compelled to relinquish his plan of education. Influenced by his love of art, he apprenticed himself to a lithographer in Offenbach, with whom he remained until, according to the requirements of the law of the land, he was summoned to serve as a soldier. After a service of two years in the army, he went to England, where he enlisted in the British-German Legion, then organizing for service in the Crimea. At the termination of the war with Russia, he returned to England, and endeavored to obtain employment as a lithographer, but unsuccessfully, as his ignorance of the English language was regarded an insuperable disability by employers. Despairing of finding a congenial engagement, in a sentimental fit of despondency he offered himself and was accepted as an ordinary seaman. Like Aeneas, of classic renown, his voyages were stormy ones, and he met with varied and perilous adventure. While on board the Oxnard, an American clipper, he was wrecked off Cape Horn, but was rescued by an English vessel, from which he was transferred to the Chariot of Fame (afterward destroyed by Semmes), which was bound for America. After being seven months and a

half afloat endeavoring to cross the Atlantic, he had the good fortune to find himself landed in New York. But his passion for roving was not diminished by disaster. While looking about for a vessel destined for California, a circumstance occurred which changed the entire complexion of his plans. He was seated in a restaurant, and listlessly glancing over the columns of a newspaper which happened to be near to him, when suddenly his attention was arrested by a photographer's advertisement for the services of an assistant. He was induced to apply for the situation, with not the remotest expectation of meeting with success. Greatly to his surprise, he found himself engaged at a very modest salary. He devoted himself assiduously to the duties of his new calling, and became ambitious to excel as a miniature-painter. But his first efforts in that direction were anything but encouraging. Rough usage had rendered his hands stiff and clumsy; but his resolution was not to be defeated—he persevered and his hands resumed their cunning. He made such rapid progress as a miniature-painter that his earnings soon amounted to fifty and even eighty dollars weekly. In 1866 he introduced the porcelain picture, which at once became a favorite. He soon afterward began to do business for himself. He fitted up a photographic establishment and employed two assistants. Five years have elapsed, and William Kurtz occupies one of the most elegant establishments in New York city, employs forty assistants, and is recognized as one of the most accomplished portraitists in the world. Nothing short of a high order of genius could effect such marvelous progress in so brief a period.

Mr. Kurtz has, perhaps, contributed more toward developing the *laws* of photographic art than any one, or perhaps any number of individuals. Ten years ago photography scorned all recognition of esthetics; and the rules applicable to ordinary painting were inapplicable to sun-painting. Mr. Kurtz, after diligent investigation, determined that the roving sunbeam was as tractable as the painter's pencil. He borrowed the art of contrasting light and shadow with effect from Rembrandt Van Ryn, the great master of light and shadow, and applied it to photography. Rembrandt, by skillfully mingling light and shadow, vividly imitated the play of the countenance, and made his portraits speak the sentiments of the soul. With no other colors than the black of ink and the white of paper, he is unrivaled as a colorist. Kurtz, like Rembrandt, employs no other colors than the white light and the opaque shadows; and he depicts not merely the substantial, but the spiritual likeness. The Rembrandt style of photographic portraiture realizes the artist's ideal conception of consummate beauty. Mr. Kurtz also introduced the practice of "retouching" negatives with a pencil, by which the harsh lines of contour are softened, and accidental or natural blemishes are meliorated. He made many improvements in photographic appliances, chief among which are the improved filter, the platform, the background, and counter-reflector. He has also invented several elegant mountings, which have been adopted by photographers everywhere. The background is an instrument of great value, and is almost ridiculous in its simplicity of structure. It presents the appearance of a great tea-cup, and in fact the idea of its contrivance was suggested to Mr. Kurtz while experimenting with a tea-cup, which was made to regulate the reflection of candlelight on his little daughter's doll. Mr. Kurtz makes a specialty of photographing busts; and in delineating the face with its varied expression, he is a master without a rival. In the world of art, Mr. Kurtz's merits are fully recognized, and in every country on the globe his work is sought for as models and master-pieces.

WILLIAM NOTTMAN.

This gentleman is the prominent photographer in the Canadas, and everywhere occupies a distinguished place among artists. He is a native of Renfrewshire, Scotland, and settled in Montreal in 1856. Several medals and prizes have been awarded to him at exhibitions in

both hemispheres for the excellence of his work. He carried away medals from the World's Fair, held in London, and from the French Exposition. Mr. Nottman is the originator of the method of producing illusive effects of out-door scenery, by means of machinery attached to the studio. Photographs representing hunting and fishing scenes have been so consummately executed by him, that the deceit wore the vividness and truthfulness of the reality. He has an extensive photographic establishment at Montreal, where he employs some fifty assistants; and he likewise maintains branch establishments at Ottawa, Toronto, and Halifax, all of which are pecuniarily successful. Mr. Nottman's first acquaintance with photography was made by him as an amateur. He inherited a taste for art from his father, who was a designer of patterns for the manufacture of the celebrated Paisley shawls. Through the favor of his father, he received a thorough education in the principles of art, which secured to him superior advantages in the practice of photography. Mr. Nottman has powerfully aided in the development of sun-painting to its present state of perfection. To him and a few others belong the credit of rescuing photography from the clutches of mere manipulators, actuated by no higher motive than a sordid one, and elevating it to its proper place among the fine arts. We anticipate that photography will receive further contributions from the genius of Mr. Nottman.

LEWIS M. RUTHERFORD AND D. C. CHAPMAN

have together attained remarkable results in astronomical photography. For a series of years past, these gentlemen have been engaged in correcting the object-glass of Mr. Rutherford's telescope in this city, for photographic purposes. The process has necessarily been slow and difficult, each imperfection in the image requiring a corresponding correction of the instrument. The ulterior design is to obtain an accurate map of the heavens, in which the fixed stars will occupy their precise positions. By a simple but ingenious contrivance, each star is photographed duplex, and the line of its path in the heavens is also traced on the photographic plate. This is done to insure accuracy. These gentlemen have executed some exquisite pictures of celestial objects, chief among which are a photograph of the solar disc and of the Pleiades, which evoked the unbounded admiration of the members of the Royal Astronomical Society. They have also made photographs of the moon in its various phases, which won the silver medal of merit at the French Exposition. The members of the world of science are eagerly watching the result of these gentlemen's experiments, and doubtless photography, under their guidance, will be made to solve many a sublime mystery.

We regret our inability to mention the names of others who have won a right to be remembered for their services in the cause of photography; but a magazine article is necessarily restricted. But our work would be incomplete were we to refrain from noticing the great reservoir of photographic supplies.

E. AND H. T. ANTHONY AND CO.

preside over the largest photographic stock establishment in the world. Nearly a quarter of a century ago, Mr. Edward Anthony began the business with a small capital. As the sphere of photography enlarged, so did this house, until it has grown to become prominent in the world of commerce in both hemispheres. The main establishment is at No. 591 Broadway; and the loiterer who leisurely promenades the great thoroughfare, to gaze listlessly at the novelties of fashion, little dreams, as he passes the portals of No. 591, that his curiosity is cheated, and that he has turned his back on a realm of beauty and of enchantment. This warehouse covers an area of 30 by 200 feet, and its interior is adapted to the complicated character of the business transacted there. Part of the first

floor is occupied as a salesroom for photographic materials, stereoscopic views, and photographs. On the second floor is the chromo gallery, where is displayed a brilliant collection of chromes from all countries. A selection of albums of great diversity and of rare and costly fabrication afford an additional feature of attractiveness. The third floor is set apart for the reception of wares, which are here inspected and distributed. The upper story is used as a storeroom. The packing and shipping department is located on Mercer Street. The number of assistants employed in this building exceeds forty. Several factories feed this emporium. One at Jersey City furnishes the supplies of chemicals; one at No. 65 Broadway, 40 by 200 feet, fabricates frames, albums, stereoscopes; and the upper part of the New Haven Depot is equipped with machinery, propelled by steam, which cuts cards and embosses. The stereoscopic department is a great center of attraction. Photography in all parts of the world has contributed to the collection of views, sketches of natural scenery, portraits of eminent persons, copies of gems of statuary, and stereographs of infinite variety. Specimens of the Dalmeyer lenses are also displayed. This is the best lens made. The cloud and atmospheric effects published by Robinson & Cherrill, England, are marvels of sun-painting. Nature is by them counterfeited so naturally that artists procure them for studies. It is interesting to observe the improvements made in the construction of the implements of photography. Many varieties of the camera exhibited in these sales-rooms are elaborately finished and appear as elegant ornaments. The resources of this establishment are such that a photographer can from the stock equip his gallery with all the requisite implements and appendages. A partner resides abroad whose occupation is to look out for novelties, and to watch the foreign markets. Mr. William H. Badeau represents the house in Europe; Mr. Edward Anthony manages the pecuniary concerns; Mr. Henry T. Anthony superintends the chemical department. Col. Vincent M. Wilcox, who gallantly served his country during the late war, has been recently admitted as a partner in this firm, together with Mr. Badeau. These gentlemen have grown into usefulness under the training of the Messrs. Anthony, and bring into the business large capitals of youthful enterprise and energy. An infusion of young blood works miracles in all systems. The *Photographic Bulletin*, a monthly periodical, is issued by this firm. It has a circulation of five thousand monthly. It is edited by Mr. H. T. Anthony. One can hardly repress a smile as he departs from this great establishment, when he considers that all this combination of money, brains, and labor, is to promote the traffic in captive sunbeams! Gulliver discovered a philosopher in Lagado who was endeavoring to extract sunbeams from cucumbers, but even this bold scientist never had the temerity to suggest a traffic in them. The fancy would have been too extravagant. Alas! the very elements are victims to rapacious commerce.

A FEW HINTS TO THE PUBLIC.

The sunbeam possesses three qualities—light, heat, and actinism. These qualities manifest their presence in connection with certain colored rays. The yellow rays are illuminating, the red are calorific, and the blue are chemical or actinic. It is the last mentioned which produces photographic effects. When in equal combination, these colors blend so as to lose their identity, and produce the perfectly white sunbeam. When the light is yellow, the illuminating power predominates and impedes the process of photographing. Hence it follows that the full glare of the sun is not most favorable for sun-painting. It is a popular belief that cloudy weather is unfavorable to the taking of portraits; this is erroneous, for, on the contrary, when the sky is overcast the yellow rays are obstructed, while the actinism is in freedom. All periods of the day are alike favorable to portraiture up to three o'clock in the afternoon. It has been demonstrated that the

presence of the sun's light and heat are entirely useless in photographing, for photographs have been produced in utter darkness, the actinic rays only being permitted to enter.

APPROPRIATE COSTUME.

The perfection of a portrait depends on many accessories, not least among which is that of costume. The sitter should be environed with a harmony of colors which should also harmonize with the complexion and character of the person. Every simple rustic maiden recognizes that she appears better to herself when arrayed in garments of certain colors. This is not owing to a caprice of fancy, but is in accordance with the dictates of propriety. Mr. M. A. Root, in his charming book, to which I am greatly indebted for varied and valuable information, makes the following suggestions on the subject of dress: A large, stout person should dress in black, as that tint apparently diminishes magnitude.

Inversely. a small person should garb herself in white; one favored with an excess of bloom on the cheeks, should environ them with materials of a deeper red; a lady of sallow complexion should wear a bonnet of transparent white; a pallid complexion is benefited by contrasts of pale green; a complexion like the peach appears best in company with light blue, light green, or transparent white. These effects are due to the "harmony of analogy" and "harmony of contrasts," which Dame Nature, the matchless *modiste*, so studiously observes when she invests her work with robes of grace. In those sombre precincts of gloom—the Arctic regions—every object is draped in subdued livery, as appropriate to the scene of mourning; but in the tropics, where the seasons hold a festival, everything is in gala array.

THE GEM OF A PHOTOGRAPH.

A gem of a photograph is as rare as a brilliant of the first water. The perfect photograph should possess the qualities of depth, breadth, solidity, transparency, delicacy, and precision of details. The tints should be softly and gradually graded, which gives brilliancy. The proper distribution of the lights and shades comprehended by the term *chiara-oscuro* requires the skill and taste of a consummate artist. All depends on the "poser" or the operant who postures the sitter. He must not only be an accomplished artist, but an excellent judge of human nature. Mr. Kurtz, who is perhaps the most perfect poser in the profession, invariably inquires of the person to be portrayed, "Which side of your face is the best?" for, to the astonishment of the multitude of persons, every face has its inequalities, and no two sides are alike. Mr. Kurtz likewise ascertains the vocation of the sitter, while his cultivated eye is quick to discern shades of character. His great aim is to invest the portrait with the individuality of the original, not merely to map the face, but to depict the lineaments of the soul within. The face is made up of hills and valleys, which are haunted by fleeting lights and shadows. It is these which create expression. A twist of the body controls the expression. The form may be imitated in the pictures, but the expression will be that of a caricature. The elevation of a hand, or a turn of the head, may change the appearance of the staid divine so that he will look like a highwayman. It is in the poser's power to make your portrait perfect as an image of the features; to distort you into a Caliban, or to render you as beautiful as an Apollo. His great aim is to make truth to tell "a flattering tale." Light coming from different directions, and striking the countenance at different angles, produces widely divergent facial effects. Light falling equally on the sides of the face will make it appear as round. When the light strikes the front and also the sides, the surface presents a flat appearance. For dark complexions, it is best to expose it to a full focus obtained from the concentrated bundle of rays. For blondes diffused light is preferable. Beauty, after all, is but a graceful blending of form and color, and the poser wields a magic wand which commands them both. But a mere

manipulator can not accomplish this feat; it requires an artistic genius, trained by study and strengthened by observation. This suggests the idea that an academy should be founded for the purpose of educating photographers. The accomplished photographer should be an expert chemist, a cultured artist, and a skillful mechanic. It is to be regretted that too often the title of photographer is obtained by the ownership of a camera and through the senility of Old Sol. A practice has recently been introduced of "retouching" or "finishing" with crayon, lead pencil, or india-ink. The touch of an expert's pencil may and often does improve a portrait, but too often the license is abused. The value of a portrait consists in its truthfulness. Beauty, however desirable, is not the desideratum in a portrait when it does not exist in the type. Faces, not masks, are wanted. Sometimes the image of a deformity is cherished as a fond memento, for love is proverbially blind to faults. The eccentricities of cast of countenance constitute the landmarks of identity, and the portrait which does not express them is not a true likeness. Would you have retouched the intellectual wrinkles of Plato, the frown of Nero, or the wart of Cromwell? No, emphatically no! we would preserve every furrow in its integrity as indices to character. This practice is more honorable in its breach than its observance, and hereafter no photographer should offer himself as a manufacturer of beauty and a hireling of falsehood.

THE FUTURE OF PHOTOGRAPHY.

Great as has been the progress made in the past, it is hoped that time will work new miracles. Although by means of collodion instantaneous pictures are obtained, yet a more sensitive agent is demanded, so as to keep pace with the very motion of life. That chemistry will reveal some of its servants as being capable for this employment, it is not unreasonable to expect. The great desideratum is to image motion, as the moving throng, the prancing steed, the dash of foam, and the rock-beaten surf. Thus far an approximation has been made in depicting instantaneous effects. Photographs have been made in the twentieth part of a second, but only with small instruments, because it is easier to make a small lens perfect than a large one. Mr. Henry T. Anthony has taken the picture of a man running across the field of the instrument, so that one foot was on the ground and the other in the act of descending, producing the effect of the man being poised in the air. But none but a consummate operant could accomplish this difficult feat. Although lenses can not be made of greater power, yet they can be made of greater perfection. Improvements are being rapidly made in the construction of lenses; in fact, to such an extent are lenses superseded, that a Philadelphia photographer suggests that all the old lenses be collected, melted, and made into a monument in honor of Daguerre. Another want generally felt is the reduction in the expense of material. In the carbon process, the cost of material is reduced, but that of labor is increased. The future may possibly afford the means to obtain permanent pictures of objects in their natural colors. Although natural colors can be photographed, they fade as soon as exposed to the action of light. The future may possibly furnish a "fixing" agent to render the colors enduring. It was for a long time doubtful whether photographs could be made by the moon's light, but it is now an accomplished fact. Photographs have been made by means of the moon's light, but of an inferior quality. A more sensitive agent may be revealed in the future which will permit improvements to be made in this direction.

Landscape photography in America has not advanced as much as the other branches of the art, and should be cultivated. Judging by the great progress made by this art since its invention, covering the brief period of thirty-two years, it is reasonable to expect that the future will enlarge its sphere of usefulness and extend its powers. Photography is still so youthful, and has achieved so much, that the prophet might be justified in predicting

extravagantly, and yet the realization of his wildest dreams might not compass the fulfillment of its destiny.

[End of text.]

EDITOR'S NOTES:

The author of this informative text is unknown. While acknowledging "varied and valuable information" drawn from M. A. Root's, *The Camera and the Pencil*, the text is not a reassembling of details from that single source.¹

This text, although not widely known, represent a useful, non-regional summary of influential photographers.

1. M. A. Root, *The Camera and the Pencil; or the Heliographic Art* (Philadelphia: M. A. Root, 1864).
Compare the present text with historical information provided in chapters twenty-nine and thirty.

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Document author: Gary W. Ewer

Creation date: 2010-07-28 / Last revision (proofread): 2010-08-09

Citation information: *Phrenological Journal and Life Illustrated* (New York) 54:4 (April 1872): 250–58; 54:5 (May 1872): 296–303.

Prepared from: original volume in the collection of Gary W. Ewer. Also available from *Google Books*. (<http://books.google.com/books?id=K5bNAAAAMAAJ>)

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