

Commercial Nineteenth-Century American Lithography:

An Economic History

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Writers on American prints generally have ignored the speculative and entrepreneurial aspect of printing and publishing. We tend to focus on individual prints and the stories that they present, either through their publication and distribution or through the subject matter of the image. When Cathy Matson invited me to participate in this conference, I suggested a look at some of the economic aspects of the lithographic industry as a whole. This is a story that is difficult to construct because so little primary material has survived. I have tried to stitch together information gathered from a variety of sources with the understanding that this is not a definitive study. Others will have to build on this fragile patchwork.

As in so many manufacturing enterprises, success is not guaranteed and seldom is there a straight line moving towards economic stability. There are many lithographic companies that lasted just a year or two, suggesting that being successful required a variety of skills. Other companies struggled at times and managed to survive. And, just as in book publishing, not all printers were publishers. Separating the two roles is important as we look at the business of lithographic printing and publishing. Some lithographic printers also were publishers, but there is an important distinction. As we shall see, job printing was an important aspect of the lithographic printer's trade. Indeed, there are many lithographic printers who never published what we might term framing or art prints destined for public or domestic interiors.

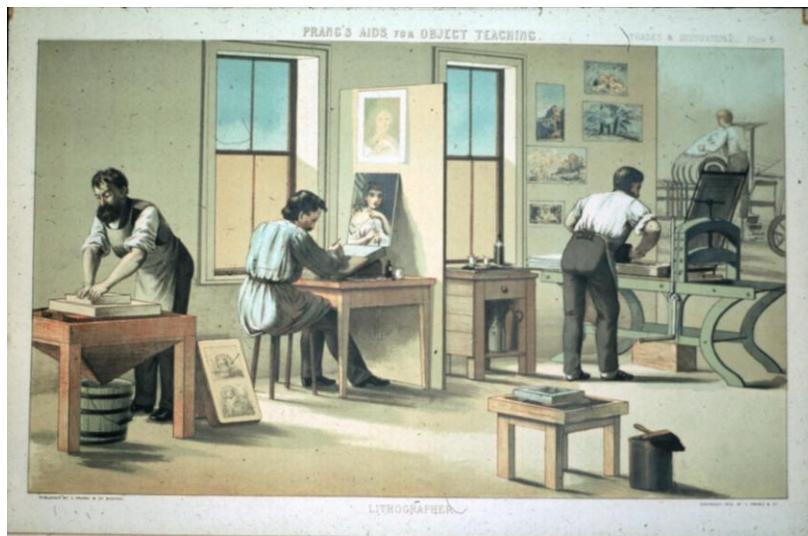
Throughout this paper, I have cited costs for labor and print publications when I could find them. Please keep in mind the enormous change in the value of a dollar between the first half of the nineteenth century. According to changes in the consumer price index, one dollar in 1830 is roughly equivalent to \$24 today. If you look at wages for unskilled labor, the one dollar is worth \$256. In 1860 looking at the consumer price index, one dollar becomes valued at \$26.60; the wage for unskilled laborers changes to \$171. My mind has a hard time keeping this in mind and I encourage you to remember these numbers. What sounds to us like a minor expense in 1830 or 1850 was not so minor in terms of wages paid at the time.¹

Where to begin? We may as well start in Philadelphia in 1870 when Peter S. Duval, a name that will be very familiar to you by the end of this conference, published an important article on lithography in J. Luther Ringwalt's *American Encyclopaedia of Printing*. Duval had just retired from active business at the time that he wrote his account of the history of lithography in which he commented on the ways that lithography can be used to print images and texts using a variety of methods. Among the topics he discussed is an overall assessment in the change in scale of the lithographic industry. He noted that at its beginning about 1825 there

were three lithographic firms using just eight printing presses. By 1870 he notes the existence of fifty-five firms employing four hundred and fifty hand presses and about thirty steam presses.² There was an enormous growth in the size of the industry over a forty-five year period. What began as a few men working in Boston, New York, Washington, and Philadelphia grew many times over.

PERSONNEL AND SPACES

What did the early lithography companies look like in terms of personnel and space? We have scant pictorial sources but some personal narratives to help us, although as David Tatham wrote, “Documentation of their equipment, quarters, and arrangements with artists is scant.” He surmised that for companies like the Pendleton shop in Boston or Anthony Imbert’s in New York, both established in 1825, a “draughtsman-proprietor, a pressman, a bookkeeper, and a lad-of-all-work sufficed to constitute a viable operation in the early years with other draftsmen on call.”³



The Lithographer, printed in Boston by Louis Prang in 1875, suggests the small scale of a lithographer's workshop with just a few employees at work. Collection, American Antiquarian Society

This is certainly the case with New York's first lithographers, the firm of William Armand Barnet and Isaac Doolittle that began its brief existence in 1821. Barnet and Doolittle met in France. Barnet was the son of the American consul in Paris and Doolittle was a mechanic with an interest in steamboats. Together they studied lithography and arrived in New York in the fall of 1821, presumably with a press, paper, stones, crayons, and, perhaps with one or more of the early treatises on the process. Henry Banks, for example, compiled *Lithography; or, The Art of Making Drawings on Stone for the Purpose of Being Multiplied by Printing* for

publication in Bath in 1813.⁴ Senefelder's own text, *Vollständiges Lehrbuch der Steindruckerei* was translated into French and English in 1819.

Among Barnet and Doolittle's efforts were illustrations for *The Children's Friend*, an early book with images of Santa Claus, illustrations for James E. Smith's *Grammar of Botany* and Benjamin Silliman's *American Journal of Science and Arts*, all published in 1821 and 1822. The lithographs for the books and periodical are examples of job printing. On the other hand, Jacques Milbert, a French artist and naturalist, drew a view of a Coal Mine at Treuil in the Loire Valley and a separately issued view of Brownville, New York. Known by only one impression, it is possible that this was an experiment or printed for Milbert's own purposes. Likewise, John Rubens Smith, well known in London before coming to the United States in 1809, produced a delicate and beautiful portrait of his wife. Smith employed certain aspects of French romantic art in his depiction—an outdoor setting, a Grecian urn on the left of the composition, and in her costume.

The partnership did not survive. It is very likely that the partners did not understand how to price their services and failed to flourish on those grounds. There were other problems as well. Writing in 1822, Godefroy Engelmann, in his *Manuel du dessinateur lithographe* noted that there were an insufficient number of artists in New York to keep the press in business.⁵ Charles Alexandre Lesueur, a French naturalist working in Philadelphia at the time who supplied drawings for publications of the Academy of Natural Sciences, noted that there was an absence of connoisseurs of fine arts, a situation that also complicated the fledgling company's existence.⁶ A few years later in Philadelphia, the first lithographers there, Kennedy & Lucas, according to Nicholas Wainwright, "turned out a wide variety of work, but never achieved much volume."⁷ Nor did another important early Philadelphia firm, Childs & Inman make any money.⁸ To return to the question of how many men were working in the company, I believe that from the company's output, there were probably just the two men working with the possible assistance of a young man who helped out keeping the shop clean and heated. Someone had to stoke the stove. To attract the attention of Milbert and Smith, however, Barnet and Doolittle were probably connected in the small community of artists in New York.

A company about which we know a great deal was that run by George Endicott in New York beginning in 1831. One of his employees, Charles Hart, compiled a lengthy memoir late in the nineteenth century about his experiences that provides us with information not available for other establishments. Endicott moved to New York from Baltimore where he and Moses Swett (trained in Boston at the Pendleton firm) had been in business for a year. Endicott & Swett issued an advertising-circular in early 1832 promoting their offerings to the New York community. This included "portraits, landscapes, views of public buildings and

country seats, portraits of animals, anatomy, vignettes, title pages for books, diplomas, maps, plans, circulars, checks, notes of hand, bills of lading, bills of exchanges, etc., etc.”⁹ They made sure to offer job-printing services to a range of clients, institutional and commercial. This became a normal practice and insured a constant income. They also offered to supply artists with prepared stones that the firm’s printers would then print. In a letter on this advertising circular, George Endicott wrote his parents “We have all hands employed profitably, three presses going, and orders constantly coming in.” Clearly he had a different business model than Barnet and Doolittle. Swett left the firm by July 1834 and George’s brother William joined him in 1840 as a bookkeeper. Hart served as an apprentice in the firm beginning in 1839 after working for a china and glass shop. While on errands, he passed by the Endicott shop at 359 Broadway and watched the printer at work through a basement window.¹⁰ He was on hand when the presses and stones were moved from that location to 152 Fulton Street. He started work there at the end of December 1839 and remained until a fire destroyed the premises in 1859.

When Hart began, Charles Parsons, later to become a well-known artist whose marine paintings were reproduced by Currier & Ives, was also an apprentice and artist; Alexander Robertson was the printer. George Endicott also drew on stone and his brother William soon became the bookkeeper. Hart, writing long after the fact, noted only two presses, down one from 1831. One was small and the other had a twenty-six by thirty-six inch bed. Starting small was typical; growth came with successfully meeting the needs of customers.

For example, Daniel W. Kellogg started his Hartford company with just one press in 1830. The company grew as the decades passed. An 1849 article in the *Hartford Daily Courant* describes some of the Kellogg’s spaces in the building at 136 Main Street. There was an artists’ room in which draftsmen prepared the drawings on stone. The presses occupied a separate space. In 1849 the Kelloggs claimed to be able to print each day “3,000 to 4,000 copies of various popular prints for general sale, of which over 600,000 are published annually by this firm. And in addition to this, a large amount of job work, and prints of much more elaborate workmanship and finish are also here turned out.”¹¹ The daily output of prints suggests ten or twelve presses were being used simultaneously. From the pressroom, the prints went to the sizing room where a coating of glue, alum, and water was applied to each sheet mechanically. Each machine could treat twenty-five or thirty sheets per minute. After drying, the prints went to the coloring room. The Kelloggs employed twenty-five to thirty young women who applied watercolors to the prints. When dry, the sheets were pressed to smooth them and then packed for market. “Orders are received from every portion of the United States, and no village or hamlet in our land is without specimens from this establishment.” In 1849, the

firm had four hundred stones on hand, "arranged on shelves and labeled, presenting the appearance of a vast library of mammoth volumes. Solid literature this, of over 40,000 pounds weight." Additionally, the firm engraved and printed currency using metal plates. Presumably this work was done in additional spaces. In all, the firm employed fifty men and women and together they turned out work valued at \$35,000 a year. At four cents each, the 600,000 prints brought in \$24,000.¹² Job printing and their own pamphlet publications would have brought in the rest of the income. In any event, this no longer is a business that can exist in a two or three room commercial space. Indeed the Kellogg firm was packed into two floors of a substantial building at 136 Main Street. There may have been an additional building in use too.¹³

The scale of lithographic companies and their production increased in the period from 1840 to 1860 and later. When John T. Bowen's firm prepared the illustrations for the octavo edition of John James Audubon's *The Birds of America* being printed in Philadelphia from 1839 to 1844, about seventy people worked on it, mostly in Bowen's press and coloring rooms.¹⁴ William T. Forbes began his company in Boston in 1862 in two rooms on the third floor of 265 Washington Street. There were two presses and he specialized in printing labels for the textile industry. He later branched out to produce sheet music covers, theatrical posters, in addition to continuing to produce labels and other types of job printing. In 1923, the company occupied a factory covering ten acres of floor space with 1100 employees!¹⁵ Milton Bradley started his company in Springfield, Massachusetts, after purchasing a press in Providence in 1860. He produced portraits, general job printing, and board games. The firm acquired the McLoughlin Brothers publishing company in 1920; Hasbro purchased the company in the 1980s.¹⁶

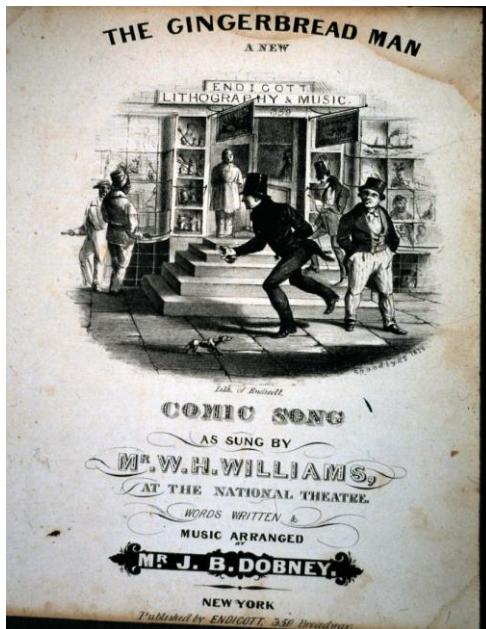
In Philadelphia, Peter S. Duval's firm moved into new quarters in 1848. The second floor had six rooms and Duval installed presses run by steam that supplemented several older French presses that could not be modernized. One room, thirty by almost one hundred and fifty feet, contained thirty presses. This was probably the largest company in the nation at the time. As Nicholas Wainwright pointed out, steam presses enabled him to print faster and more economically.¹⁷ Color printing, for example, required multiple press runs for each image; clearly the number of presses was a great advantage to his business. And at that scale, it was a business.

At the same time, the Endicott firm had about a dozen employees or so. Skilled printers were in demand and they commanded six to twelve dollars per week. A good one could print 300 hundred impressions per day. Artists who worked steadily in the company received fifteen to eighteen dollars per week.¹⁸ Even the artists made less than the minimum wage in today's terms. Yet a number

of them gained valuable experience while working for the company and some went on to establish their own companies, such as John H. Bufford and Anthony Fleetwood. Given the number of impressions that a printer could supply in a day's work, it is obvious that there had to be a demand for the images.

APPRENTICESHIPS

In the absence of opportunities for professional training in artistic professions, the way to learn was through traditional multi-year apprenticeships. Charles Hart, for example, responded to a notice posted in Endicott's shop saying that a boy was wanted.¹⁹ His chores were varied and included stacking cordwood for the stoves, sweeping, preparing lithographic stones by grinding and polishing, and making tracing paper, lithographic crayons, and varnish. To earn extra money, he colored stock prints—female heads, music titles, steam boats, and depictions of camp meetings—in the evenings.²⁰



Charles Hart watched the printer through the window by the stairs. Collection American Antiquarian Society

At the end of his apprenticeship, he was paid \$3.50 per week (in addition to room and board); Charles Parsons earned \$15.00 per week after the conclusion of his apprenticeship in 1841.²¹

Benjamin Champney's apprenticeship to the Pendleton firm in Boston began in a similar way. He was working for a shoe dealer and could peer through the back

windows of 204 Washington Street into a courtyard and see the office of the New England Bank Note Company and William S. Pendleton's company. Finally, he entered the bank note company's premises but was "repulsed" by the head printer. It turned out that two of the draftsmen who were working for Pendleton came to live in the same boarding house as Champney and they encouraged him to perfect his drawing skills; finally Robert Cooke encouraged William Pendleton to take Champney on as an apprentice.²² William Pendleton took on many other aspiring lithographers and artists including Nathaniel Currier and John H. Bufford who each went on to head up important lithography publishing firms. Indeed Winslow Homer apprenticed for two years in Bufford's firm where he served as a copyist, transferring the designs of others to stone, work that he regarded as drudgery.²³ Other artists received their early training at Bufford's including John Perry Newell, Joseph Foxcroft Cole, and Joseph E. Baker.

In Philadelphia, Albert Newsam, who was deaf and dumb, became a renowned portrait artist working for Peter S. Duval. As a student at the Deaf and Dumb Institution, his talent for sketching and drawing, an activity he began very early in life, was fostered and upon graduation he became an apprentice in the office of Cephas G. Childs, an engraver and future lithographer. He remained with Childs for four years, by which time Childs had added lithographic printing to his business. By the age of twenty-two Newsam was working steadily as a portrait artist. Duval, hired in Paris by Childs in 1831, retained Newsam as his principal portrait artist when he assumed ownership of the company.²⁴

We know little about the actual responsibilities and circumstances of apprentices in such firms. However, Jeremiah Fowler's indenture with the Kellogg firm in Hartford does survive. Dated 1834, Fowler's apprenticeship began when he was aged sixteen and was to last for five years. In lieu of receiving clothing, he earned thirty dollars per year for the first two years; thirty-five dollars during the third year, and fifty dollars for each of the final two years. He continued to work for the Kellogg firm for several years, but by 1844 he had entered into a plaster and candle-making business with his brother. He later found employment as an accountant.²⁵ Apprenticeships were an important part of the lithographic industry. Proprietors had the chance to assess the talents and energy of their youngest employees. From Hart's narrative, it is apparent that he did all of the work that more experienced hands considered beneath their dignity. Once Hart became a valued employee, another youngster would be taken on in the same capacity. Many apprentices, however, like Winslow Homer, went on to careers as independent artists. The lithography shop served to train artists and other publishers.

SEPARATELY PUBLISHED PRINTS AND JOB PRINTING

The market for printed images expanded dramatically during the nineteenth century as the cost for individual prints fell because of the relative low cost of lithographs as opposed to earlier engravings. Bringing art to the masses was not just good for the lithographers, some commentators in the nineteenth century felt there was a moral good as well. For example, the Reverend G. W. Bethune in an address to the Artists' Fund Society of Philadelphia noted that lithographs "have enlivened with glimpses of Art the walls of many a humble dwelling. . . . The lithographs may be rude and gaudy, cinerary urns be turned into flower vases, goddesses made to hold candles, and cross legged Cupids to read little books; but you will rarely find, in a humble family, a taste for these ornaments unaccompanied by neatness, temperance, and thrift. They are like the cherished plants in the window, the green creepers in the yard, or the caged singing bird on the wall, signs of a fondness for home, and a desire to cultivate those virtues which make home peaceful and happy."²⁶ The successful lithographic publisher focused on printing images that would appeal to homeowners and other purchasers such as owners of hotels and other meeting spaces. Popular subjects included portraits of public figures, town and city views, landscapes (particularly images of those places that became part of "landscape tourism"), political prints, public buildings including churches and schools, genre images, and sentimental and religious imagery. The same lithographers who issued such prints might also work on commission producing illustrations for books, advertising prints and ephemera of all kinds; some, notably Currier & Ives focused on issuing prints for display. Peter S. Duval, among others, exploited all aspects of the market, which suggests why he needed thirty presses.

The amount of job printing conducted by lithographic printers has never been quantified. Few institutions have cataloged their stashes of billheads, trade cards, currency and other miscellaneous holdings. One important use of lithographic printing was the creation of facsimiles of hand written letters. These circulars never had an imprint, yet they are abundant. One document in the 1850 litigation between John Comstock and Edmund and Elijah Kellogg reveals some figures about that firm. A letter from Comstock's attorney, E. W. Chester to the E. C. Kellogg suggests that the income from job printing was about \$4,000 against \$8,000 for separate prints.²⁷ It is impossible to know if other companies did as much job printing, but it certainly represented a large proportion of the output of several of the largest firms and other companies worked almost entirely on commission. Joanna Cohen's paper will focus on advertisements for retail establishments.

COLORISTS AND COLOR PRINTING

When confronted with colored lithographs, many people ask how it was done. The article cited above about the Kellogg firm, written in 1849, provides one scenario of women working on the premises. Another possibility is suggested by an invoice from James Baillie, a print colorist, to Nathaniel Currier. He charged him for coloring 92 impressions of *Flight into Egypt*, 73 of *Christ at the Well*, 125 *Lexington* (could this be the destruction of the steamboat?), 199 of St. Patrick, and so on for a total of 2378 impressions for which he received \$23.78, minus rent of ten dollars and the cost of two prints which were four cents each.²⁸ We do not know if Baillie colored the prints himself or if he had assistance. Another print colorist in New York was John T. Bowen, who moved in 1838 to Philadelphia work on McKenney and Hall's *History of the Indian Tribes of North America* (Philadelphia, 1836-1844) as both printer and colorist.²⁹ His specialty was the production of illustrations for color-plate books. The Endicott brothers called on their sisters from time to time to help with hand coloring.



Sequohah by J. T. Bowen, Collection of American Antiquarian Society

An article, "The Map-Colorer," in *Yankee Doodle*, a popular magazine of 1846, discussed the work of map and print colorists. The author suggested that about 200 girls were employed in coloring prints. Employed by the week, they received "in the most extensive establishments, from \$2.50 to \$3.50 per week." An oversupply of prints pushed the value of the work lower than should have been the case. The girls usually were educated and lived with friends or relatives so they were able to spend most of their wages on clothing in imitation of the "the gaudy vulgarisms which the

unrefined wealthy flaunt along Broadway in silk and velvet. “ The more sensible saved their income to use it to establish themselves “in life, and to embellish for them comfortable and happy homes.”³⁰ We believe that the prints were passed along an assembly line and each employee applied a single tint. Inexpensive prints often had just one or two colors. However, the finest hand-colored lithographs issued by Nathaniel Currier and later Currier & Ives, were more complex with many more colors applied. What do we know of these young women? The observer of the Kellogg firm described them as possessing surprising “dexterity and skill.” He commented “that for attractive, interesting, cheerful and intelligent faces—rosy health, and spirited, sylph-like grace of movement, no class or grade of ladies among us can compare with the ‘shop girls’ of our city.”

Virginia Penny, the author of *The Employments of Women*, interviewed Nathaniel Currier for this publication that appeared in 1863. In the article on “Lithography,” she noted that a “forewoman superintends the girls, who are paid by the quantity and kind of work they do. He finds that small girls are usually the best workers. Their fingers are more nimble, and they enter into it with more zeal. He thinks it best for them to commence at ten or twelve years of age. Prospect for employment in that branch.” However, she noted that men colored the finest pictures. These would include the large folios, such as *Preparing for Market* or the stunning depictions of trotters. The girls earned between \$3.00 and \$7.00 per week. “The work requires care, and is wearisome, because of sitting long and steadily.” It is interesting to note that in 1855, large folio Nathaniel Currier lithographs retailed for one to three dollars.³¹ Men received \$12 to \$25 a week for coloring. John T. Bowen of Philadelphia (who married one of his colorists) employed about twenty female colorists; Lavinia Bowen carried on his lithography business after his death in 1856. Bowen’s colorists often worked at home so that their neighbors would not perceive they were away at employment outside the domestic confines.³²

Beginning in the early 1840s, lithographers began to use mechanical means to reproduce color. William Sharp, trained in England, settled in Boston in 1839 and produced for the first color lithograph, a portrait of F. W. P. Greenwood. Such early color lithographs feature three or four different colors; the portrait of Greenwood is delicate in its coloring. The prints that Sharp did for John Fisk Allen’s *Victoria Regia, or The Great Water Lily of America* are bold and colorful.³³ Soon other lithographers were producing color lithographs that supplanted much of the hand coloring. Some printers, notably Nathaniel Currier, Currier & Ives, the Endicott firm, among others continued to produce lithographs printed in black on white paper that were subsequently colored by hand.

Some printers, including Peter S. Duval, experimented with lithotints in which areas of color were applied by washes applied to separate stones. In this way,

backgrounds, such as skies in landscape views, could be printed in color, rather than having a colorist do the work. Hand coloring could then be applied. Louis Prang, a German immigrant, learned color textile printing in his native Germany. Several years after arriving in Boston, he joined forces with Julius Mayer with whom he began printing labels for a variety of companies.



Collection American Antiquarian Society

They also produced business cards, scenic views, and posters. After further training in Europe, Prang developed an important specialty in the late 1860s, producing reproductions of paintings using up to thirty stones per image. Distributed on paper embossed to resemble canvas and framed in walnut frames, the prints in fact could be mistaken for oil paintings on canvas.³⁴

COSTS

How much did it cost to commission a print? Ralph E. W. Earl commissioned a full-length portrait of Andrew Jackson shown in a landscape at the Hermitage in 1831. Earl was a portrait painter who became a close friend of the president and lived for a period of time with the president's family both at the Hermitage in Tennessee and in the White House. He commissioned the print in the face of the presidential election in 1832 and after political prints had savagely satirized the president. A Boston physician, George Bates, handled the negotiations with William Pendleton in Boston and tracked the progress of the commission. First, Earl's painting was shipped to Boston. Then the work began. Pendleton selected one of his draftsmen, John H. Bufford (1810-1870) to make a reproduction of the painting on the block of limestone. The painting remained in Boston for the duration of the project, suggesting that Bufford referred to the painting in the process of making the copy rather than making a copy on paper and using that as his source for the

drawing on stone. Earl was impatient to receive the first proof from the stone. It took Bufford over three months to complete the work. Bates explained to Earl “no man can work steadily on it, particularly on the figure, but must leave and return to it occasionally so as to be able to mend or to correct any imperfections.” The cost of the drawing was estimated to be no more than \$120 and printing on paper 21 by 28 inches would be \$10 to \$20 per hundred impressions, depending on the quality of the paper.³⁵

The first proof was sent to Washington in late October and Earl did not approve it. Bates admitted that the weather had been humid which affected the printing of it.³⁶ Lines were fuzzy and Bufford had to redo much of the work, which took another three months. Finally, an impression reached Earl in March and he requested 200 impressions to be sent to him. Earl suggested selling each one for \$5.00, an enormous sum for a portrait print.³⁷ It was only at this time that a strategy for distributing the prints was devised. In a subsequent letter, Bates suggested to Earl “a sufficient number can be sold here to meet the expenses, at any rate every aid and facility will be afforded to realize as much as possible.” He went on to define the audience and hoped that purchasers would include individuals of wealth, those “easy in circumstances,” and “our good country friends, who if not so rich as citizens are not less devoted to Liberty and lovers of her great champion.”³⁸ By late July, 950 impressions had been made. Two hundred went to Nashville, 100 to New York, 150 to Baltimore (the Republican Convention was being held there), and 50 each to Albany, Philadelphia, New Orleans, Charleston, Cincinnati, Norfolk, and Louisville. It turned out that sales did not go well and prints remained unsold.³⁹ It is likely that expenses were met but that Earl did not reap a great profit on this effort. Nor is it possible to assess the impact that a favorable portrait print had on the election in the fall of 1832. At least during the Republican Convention in Baltimore, there were handsome portraits of Jackson in some shop windows. It is unlikely, however, that any of the delegates purchased them. Jackson won the election and the handsome portrait remains.

Seldom do we have so much information on the creation and distribution of a print. There are invoices in various collections that provide similar information. At AAS we have several in the Charles Henry Taylor Collection. One invoice for a plan of Mount Auburn Cemetery in Cambridge, Massachusetts, reveals that in 1831 the cost of lithographing the plan was \$35.00. Printing 500 impressions cost \$50.00 including the paper. Three hundred of the impressions were colored at a cost of \$27.00. One hundred additional prints were ordered the following year at a cost of ten cents each, or \$10.00 including the cost of paper. The stone was then revised to reflect newly purchased burial lots and prints at a cost of \$5.00 and 300 more

impressions were ordered by the Massachusetts Horticultural Society, under whose auspices the Cemetery was established, at a cost of ten cents each.

In 1835, William Pendleton wrote to George Bond about Bond's request for an engraved map of the Cemetery. Pendleton estimated that the cost of an engraved plan would be \$120 for the plan alone or \$150 for the plan with two views. The cost of printing would be \$7.00 per hundred impressions, but the cost of the paper is not included. It is important to note that an engraved plan is more expensive than a lithographed version. The labor of engraving a metal plate and printing from a plate is more costly in terms of labor. The Cemetery commissioned an engraving rather than a lithograph.

In 1844, Henry R. Robinson, a lithographer of popular prints and political cartoons in New York, sent a circular letter to presidents of "Clay Clubs" and "Clay Democratic Clubs" advertising the existence of a blank certificate of membership. The certificate was copyrighted by Robinson, suggesting that he was assuming the risks of publication. In any event, he was selling these certificates for \$8.00 per hundred or 12 ½ cents each. Robinson considered them to be suitable for framing. We have no way today to know how successful this effort was.

Another commission dates from 1866. Amasa Farrier, the town surveyor of Stoneham, Massachusetts, and the designer of the rural cemetery in that town, was asked to find a printer for a plan by a Doctor Brown. This might be Dr. W. Symington Brown, a physician specializing in obstetrics in Stoneham. Farrier obtained an estimate of \$200 from John H. Bufford & Son in Boston. The drawing on stone cost \$150.00; printing 500 copies, \$20.00; paper \$30.00. To produce the plan in colors, the total cost would be \$275. Farrier had apparently promised another gentleman that the cost would not exceed \$150 so he went to another printer who would not even give him an estimate because he thought the project was too difficult to accomplish within strict time constraints. He then went A. Meisel who did consent to print 500 impressions for \$150. 00. He would print in color using tint stones at a cost of \$15 per tint. Alternatively, Farrier promised to color a small number of the plans for fifty cents each.⁴⁰ By 1865, there was certainly competition among printers. Thirty years earlier, William Pendleton blamed the slow delivery of one order on his being the only lithographer in Boston.⁴¹

GETTING THE PRINTS OUT THE DOOR and ADVERTISING

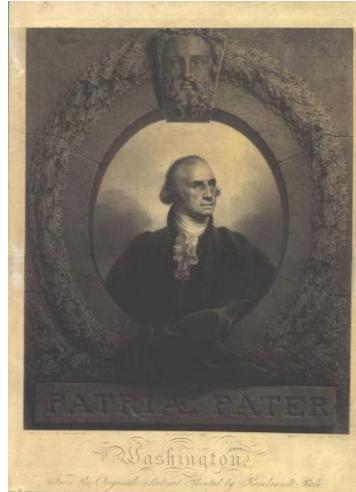
It's important to remember that unsold inventory ties up working capital—a large inventory is not an asset! Endicott sold prints from his shop on Broadway as we can see in the cover of a piece of sheet music, *The Gingerbread Man*. Likewise the trade card for Henry R. Robinson, issued in the mid-1830s, shows his shop window filled with prints.



Collection of the American Antiquarian Society

Direct retail sales were one method for the sale of prints. The main outlet for Currier & Ives' prints was their store on Nassau Street. On one floor were tables with prints stacked. Around the walls were bins, above which were framed prints. When the weather cooperated, more prints were displayed outside.⁴² We know from other documentation that print publishers sold prints through agents and to other retailers. Daniel W. Kellogg wrote to John Richardson in Washington, North Carolina, in 1833 about sending him 600 lithographs, 500 of which were hand colored and 100 were plain. Among the group were twenty portrait prints of Andrew Jackson, all that he had on hand in Hartford. The colored prints cost Richardson ten cents each; the plain ones were just six cents each.⁴³ The account book of Belknap & Hamersly, Hartford booksellers and publishers, reveals that E. B. & E. C. Kellogg sold groups of lithographs to the firm at prices of four cents each from February 1852 through April 1857. Unfortunately, the only title mentioned is *Nellie* of which Belknap & Hamersly purchased fifty impressions.⁴⁴ Overall, the booksellers purchased 2,469 lithographs from the Kellogg firm. In addition, Belknap and Hamersly commissioned many book illustrations from the Kelloggs.

Beginning in the 1820s, lithographers and print sellers all advertised their wares in newspapers. These notices were often brief, but sometimes actually listed titles. R. H. Hobson, for example, advertised that he had "Fine English Lithographs" for sale. Among them were portraits of George Canning, the actress Ellen Tree, "Lithographs suitable for Scrap Books" and "Peale's fine Lithograph of Washington."



Rembrandt Peale's portrait of George Washington issued by the Pendleton firm in Boston.

Collection of the American Antiquarian Society

He sometimes published lithographs printed by Cephas G. Childs.⁴⁵ William Simpson advertised that he had a “few setts” [sic] of views of La Grange for sale. Alvan Fisher published the prints in Boston as *Views of Lagrange. The Residence of General Lafayette* in 1826. A French firm, de Villian, lithographed the plates.⁴⁶ George Melksham Bourne, an importer of prints in New York advertised the portrait of a popular actress and singer, Maria Felicita Garcia Malibran printed by John Pendleton in 1830 but published by Bourne.⁴⁷

In 1831, Henry Inman, already in partnership with Cephas G. Childs, but not yet residing in Philadelphia, advised Childs to advertise. To attract artists to the shop, he suggested that Childs send circulars to members of the American Academy of Fine Arts.⁴⁸ Childs & Inman advertised frequently in the Philadelphia papers. But, it seems that most early publishers of lithographs did not advertise as extensively in newspapers as book publishers did, but that may simply be that there were fewer print publishers. To attract job printing, however, like so many other manufacturers and businesses, they issued trade cards, a practice dating back to



the mid-eighteenth century.

Typical of lithographers' cards are those for Thomas Moore in Boston that is titled *Engraving & Lithography*. It notes that the firm offers "Steel, Copper & Wood Engraving, Copperplate, Lithographic & Xylographic Prints, Visiting & Business Cards Engraved & Printed at the shortest notice." One for George Endicott in New York simply notes that his "Lithographic Prints, Pianoforte Wareroom and Lithographic Office are at 152 Fulton Street" where he also sold lithographic materials and fine engravings. Also in the first half of the nineteenth century are two trade cards issued by D. W. Kellogg and E. B. & E. C. Kellogg in Hartford. D. W. Kellogg advertised that he maintained a "large assortment of Plain and Colored Lithographic Prints which they will sell on reasonable terms." The other card notes the full range of job printing that the Kellogg firm could undertake: "Portraits, landscapes, anatomical, botanical, architectural and mechanical drawings; circulars, notes, drafts, checks, stock certificates, bill and letter heads, druggist & manufacturers' labels, show cards for insurance and other purposes, views of public buildings, private residences, &c. &c."⁴⁹ P. S. Duval noted on his billhead, another good form of advertising, that he could issue lithographed portraits from life, landscapes, anatomical and architectural drawings, bills of lading, billhead, checks, circulars, maps, plans, mechanical drawings, music titles, facsimiles, and images transferred from copperplates.⁵⁰

J. T. Bowen used a different tactic. He sent impressions of his prints to newspaper editors who then wrote up notices of them, a form of free advertising. This was not a new procedure; Amos Dootlittle had sent impressions of one of his political prints during the War of 1812 to newspaper publishers with the same intent.⁵¹ In Bowen's case, the editor of the *Saturday Courier* praised his checks, a sheet of ornamental patterns, and the advertising print for the Union Hotel. He closed by stating "Mr. Bowen's establishment is one of the most extensive in the country, and he is a gentleman ever to be depended upon."⁵²

Sometimes bill heads of lithographers incorporated important information. One for Nathaniel Currier noted that he not only was a "Print Publisher" but an "Importer and dealer in Engravings, Fine English, French, German, Plain and Colored." He also had "Gilt, Rosewood & Fancy Frames Constantly on hand" and could make others to order.⁵³

Print publishers occasionally issued catalogs of prints. These are now very difficult to find. Jones & Clark's Engraving Establishment in New York sent out a circular letter advertising their prints available to "every section of the Union." Although most of their prints were engraved, for \$1.50 they offered the lithograph

by Sarony, Major and Knapp of *The Horse Fair*, after Rosa Bonheur's famous painting. They offered other prints described as "in oil colors," possibly chromolithographs. In 1864, John H. Bufford issued a catalog described in a newspaper column in the *Boston Evening Traveller*. It noted that Bufford listed one hundred "large drawing room prints." The article reported that "Bufford's lithographs are sold wherever the flag of our country waves, and in foreign lands as well." David Tatham suggests that these claims should be "taken with a grain of salt," but there is probably some truth to the claim of wide distribution.⁵⁴

Nathaniel Currier and Currier & Ives issued lists of lithographs for sale with prices. These would have been sent to other print sellers as well as to their agents throughout the country.⁵⁵ During the Civil War, Endicott & Company sent out a list of prints of naval vessels and other steamships. Prices varied from one to three dollars. Advertisements for lithographers are frequently found in city directories, in books and pamphlets that they published, and on wrappers for periodicals.

GOVERNMENT PRINTING

One source of lithographic printing that was lucrative and helped maintain a steady source of income was printing for state and federal governments. States commissioned geological and natural history surveys beginning in the 1830s. The Massachusetts Legislature commissioned one of the earliest. Edward Hitchcock, then a professor of geology at Amherst College, compiled and wrote *The Geology of Massachusetts* published in 1841 (an earlier edition appeared in 1835). The cost of the letterpress composition, woodcuts for the text, printing, and binding came to about \$6,453.50 for 1500 copies. In the absence of an invoice in the Massachusetts State Archives, I believe that Hitchcock personally paid for the fifty-one lithographs printed by B. W. Thayer & Company in Boston. In Hitchcock's papers at Amherst College are detailed accounts for his time and that of various assistants as well as travel and other expenses. It is interesting to note that he paid Deacon Robert Peckham of Westminster, Massachusetts, better known as an itinerant portrait painter, \$18.00 to make "24 Paintings of Geol. Specimens."⁵⁶ These are among lithographs. In addition there are fourteen landscape images drawn by Orra Hitchcock (his wife), H. T. Bartlett, and Henry J. Van Lennep, a former student. For the earlier geological survey that he did for the Commonwealth of Massachusetts, he had to petition the Legislature for an additional payment. He noted "Nor have I made any charge for the drawings of our scenery which accompany my Report, although they have cost me the labour of weeks and the artists who executed them spent a still longer period." He went to reflect "I have had a strong desire that the indispensable expenses of the geological Survey should be moderate in order that other states might be led to follow the example & that the government of the State might be satisfied that the whole was conducted on the principles of the strictest

economy." These costs were not modest. It cost Hitchcock, for example, \$196.63 to have 600 impressions of the geological map printed lithographically rather than \$100 that had been budgeted.⁵⁷

Other states did follow Hitchcock's early efforts. George Endicott's company did its share of printing for New York State natural history surveys. Charles Hart noted that there was a shortage of lithographic commissions in the early 1840s. The contract for work for the New York Geological Survey was received in 1842 or 1843.⁵⁸ In 1845 Endicott received \$16,716.22 for printing the plates for works by Hall and Torrey. One statement reveals that Hall or an artist working for him received \$290 for 145 drawings of fossils and an additional \$535 for drawing 107 fossils on stone. Printing costs were \$305 for 30,500 plates or a penny each. For the volume devoted to botany, the cost alone for coloring 1000 copies of 151 plates was \$8,050.⁵⁹ These sums for the large print runs suggest that government printing would be a steady source of income. Indeed, Charles Hart claimed that the surveys commissioned by New York gave "employment at one time to nearly all the artists and printers in New York City."⁶⁰

George T. Logan, an employee of the Forbes Lithograph Mfg. Company, wrote in 1876 to an acquaintance, Mrs. Banks, asking her assistance in presenting an agent of the firm to her husband, General Banks, in an effort to obtain "some of the Government's printing which is let out by bids." He goes on to suggest that their agent, Mr. Gestefeld, can "convince the people there of our ability to fulfil any contract that we may be able to obtain. I am sorry to trouble you about business affairs, but you know probably that a person must have some acquaintance to obtain any hearing on Government business."⁶¹ Some things never change!

The federal government commissioned work from a number of lithographers, largely as a result of extensive surveys of the West. Henry R. Schoolcraft's *Historical and Statistical Information Respecting the History, Condition and Prospects of the Indian Tribes of the United States* was published in six volumes from 1851 to 1857. The artist Seth Eastman was the primary illustrator, both in the field and back in Washington where he prepared the images for publication. Three lithographic firms reproduced his work: James T. Bowen produced twenty-one lithographs for which he received \$1,896; Peter S. Duval received \$1,421 for nineteen plates; and James Ackerman of New York received \$1900 for thirty-five plates. The edition size was 1200, requiring that many impressions of each illustration. The prices varied according to the complexity of the images and the printing and coloring processes employed.⁶² Cost of each impression is small, but the numbers add up. Successful completion of one contract often led to others, supplying a good income stream.

The National Archives contains the costs of printing numerous illustrated government documents. Peter S. Duval charged \$1,176.06 to print seventeen plates for William H. Emory's *Report on the United States and Mexico Boundary Survey* in 1857. The edition size was 11,530 so over 196,000 book illustrations were required. Napoleon Sarony received \$4,608 for printing 6,400 copies of twelve chromolithographs for the same publication.⁶³

Other publishers commissioned illustrations as well. Again, it is difficult to estimate the number of illustrations printed lithographically because few libraries provide access points by illustrative processes. However, at the American Antiquarian Society, there are approximately 625 books with lithographed illustrations printed between 1820 and 1840 (a period in which illustrative processes are noted); 235 issued between 1840 and 1850; and an additional 215 in the next decade. However, AAS catalog records after 1840 do not yet reflect in any uniform way the presence of lithographs. Yet providing illustrations for book publishers was a source of income for many lithographic firms.

OTHER NICHE MARKETS

Particularly in the decades of the 1830s and 1840s, commercial lithographers worked closely with publishers of musical scores. Prior to the development of lithography, music scores were engraved using burins or punches on metal plates and printed laboriously and expensively. Lithography simplified the printing process tremendously and lithographing the music itself was also easier. Moreover, the artists associated with lithographers were eager to draw images for the title page. Artists such as Winslow Homer, Fitz Henry Lane, Robert Salmon, even James McNeil Whistler, all drew images on stone in this way. Music publishers generally commissioned this work, although some lithographers, including George Endicott in New York, also published music. Indeed in 1830s he wrote his family in New England that he was beginning to sell piano fortés as a side line to his lithography business. In Philadelphia Thomas Ash on Chestnut Street was a major sheet music publisher in the 1830s who lithographed his own publications.⁶⁴ Edward S. Mesier also published lithographed music for sale in New York and by a partner, O. C. Greenleaf, in Boston. For the most part, printing music for publishers was a good business, particularly as pianos became an important part of domestic life and a constant supply of new music needed to be in the market. American composers flourished and American publishers printed music by British and Continental composers from Mozart and Haydn to Chopin and Rossini.

The same lithographers who make separately published prints also printed maps, generally on commission. For example, William S. Pendleton in Boston, best known for his separately published lithographs, made at least 100 maps between 1825 and 1831 that are in the collection of the American Antiquarian Society. The best known are those that he printed as a result of the Massachusetts Legislature's requiring each town in the Commonwealth to produce a survey according to carefully drafted guidelines. These manuscripts maps became the property of the State Archives. However, some enterprising community leaders perceived that copies of maps might be useful to have in multiple copies and turned to Pendleton to produce them. Walter Ristow noted that the manuscript plans were copied onto transfer paper that made the transfer of the basic design of the map to the lithographic stone straightforward. Then lithographic draftsmen added details such as names of property owners, vignettes of buildings, symbols for forests and fields, etc. Of the 84 maps published as a result of the 1830 legislation, all but 21 were reproduced by William Pendleton. Pendleton also printed maps for books, canal companies, and others.⁶⁵

The importance of map production to the lithographic industry is not a topic that has been examined in any detail. Few collections of nineteenth-century maps are cataloged in a way that enables the scholar to determine the company responsible for the printing of the publication. Charles A. Seavey's *Mapping the Transmississippi West, 1540 – 1861: An Index to the Cartobibliography*, for example, lists personal names associated with the publication of just over 1,300 maps. Only 198 can be attributed to lithographers, suggesting that lithographers were not uniformly part of the cartographic description. At the American Antiquarian Society, there is a card index that includes entries for many of the maps produced lithographically. A quick glance at the index indicates that maps were an important part of the industry. Jay Last has noted "Nineteenth-century Americans had a strong interest in the physical details of their rapidly expanding country. In addition to general maps of the nation and its growing number of subdivisions, they purchased maps of explorers' routes and immigrant trails, city plans, mining claim descriptions, railroad survey and route maps, and land grant descriptions. This material was produced quickly and inexpensively by lithography."⁶⁶

FUTURE DIRECTIONS AND CONCLUSIONS

This presentation does take all of the evidence that exists into account. Lacking from this patchwork is a thorough look at the R. B. Dun Credit Reports at the Harvard Business School's Baker Library. These detail the failures and changes in partnership status of many of the larger firms. The credit reporters had to note

whether or not a business was worthy of credit. In the 1850s, most of the lithographic firms were too small to warrant much attention. Nor has the 1860 Census of Manufactures been studied closely. Book and periodical publishers' accounts would reveal costs of commissions. Records of other businesses could be scoured for job printing. What did it take for a lithographic business to become and remain successful? A number of ingredients are necessary. Lithographers had to exploit certain markets and gage future interest in their prints successfully.⁶⁷ Charles Hart wrote "In the good old days the passport to success in lithography was a knowledge of the business, skillfulness, energy and a little capital of his own hard earnings. Borrowed capital seldom succeeds. Most of the early printers were personally known to the dealers in lithographic materials, and such as were skillful, honest and industrious could always obtain a limited amount of credit. Great capital not being obtainable fortunately was not needed."⁶⁸ Hart's experiences and first-hand knowledge of lithographic business practices probably is the best source for the recipe for success. Certainly Nathaniel Currier and James Merritt Ives fit his observations.

Acknowledgements

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ENDNOTES

¹ See www.measuringworth.com.

² J. Luther Ringwalt, *American Encyclopaedia of Printing* (Philadelphia: Menamin & Ringwalt, J. B. Lippincott & Co., 1871): 278. The *Manufactures of the United States in 1860* (Washington: Government Printing Office, 1865) listed 53 establishments in seven states. The capital invested was \$445,250; number of persons employed (including 26 women) was 786; annual wages were \$338,868; cost of materials was

\$229,206, and value of the product was \$848,230. (page cxl). I believe that only printers whose establishments were beyond a certain size were included the census.

³ David Tatham, "The Lithographic Workshop, 1825-50," *The Cultivation of Artists in nineteenth-Century America*, Georgia B. Barnhill, Diana Korzenik, Caroline F. Sloat, eds. (Worcester: American Antiquarian Society, 1997): 46.

⁴ The text was reprinted with an introduction and notes by Michael Twyman and published by the Printing Historical Society in London in 1976.

⁵ Engelmann, *Manuel du dessinateur lithographe* (Paris, 1822): 45.

⁶ Sally Pierce, *Early American Lithography, Images to 1830* (Boston: Boston Athenaeum, 1997): 12.

⁷ Nicholas B. Wainwright, *Philadelphia in the Romantic Age of Lithography* (Philadelphia: The Historical Society of Philadelphia, 1958): 10.

⁸ Wainwright: 25.

⁹ This document was owned by the late Gordon Colkett; a photocopies are at the American Antiquarian Society in the graphic arts reference files and in the author's collection of Endicott materials.

¹⁰ Charles Hart, *Lithography, Its Theory and Practice. Including a Series of Short Sketches of the Earliest Lithographic Artists, Engravers, and Printers of New York*, Manuscripts Division, New York Public Library, p. 53. The typescript made by Jay T. Last is available to researchers at the American Antiquarian Society.

¹¹ *Hartford Daily Courant*, January 18, 1849, p. 2.

¹² This figure is based on entries in the Belknap & Hamersly Invoice Book, 1845-1857, in the Connecticut Historical Society. Nancy Finlay kindly brought this source to my attention. E. B. and E. C. Kellogg did much printing on commission for this Hartford publisher.

¹³ A photograph of the building is reproduced in Nancy Finlay's *Picturing Victorian America: Prints by the Kellogg Brothers of Hartford, Connecticut, 1830-1880* (Hartford: Connecticut Historical Society, 2009): 13.

¹⁴ Wainwright: 54.

¹⁵ Jay T. Last, *The Color Explosion: Nineteenth-Century American Lithography* (Santa Ana: Hillcrest Press, 2005): 8; article in *Industry*, March 3, 1938.

¹⁶ Last: 40-41.

¹⁷ Wainwright; 64-65.

¹⁸ Hart: 81.

¹⁹ Hart: 53.

²⁰ Hart: 77.

²¹ Hart: 175.

²² Benjamin Champney, *Sixty Years' Memories of Art and Artists*, (Woburn, Mass.: 1900): 9-10.

²³ David Tatham, "John Henry Bufford American Lithographer," *Proceedings of the American Antiquarian Society*, 86 (April 1976): 49.

²⁴ Joseph O. Pyatt, *Memoir of Albert Newsam, Deaf-Mute Artist* (Philadelphia: Joseph O. Pyatt, 1868). This memoir contains much information on Newsam's, training, work, and love of art.

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- ²⁵ The indenture (Mss. 50098) is in the Fowler & Dewey Family Papers at the Connecticut Historical Society. Information about Fowler's subsequent career is in Nancy Finlay, *Picturing Victorian America*, p. 115.
- ²⁶ *The Pennsylvanian*, June 19, 1840; quoted in Wainwright, p. 45.
- ²⁷ Letter from E. W. Chester to E. C. Kellogg, New York, October 25, 1850. In the collection of the Connecticut Historical Society. Michael Shortell alerted me to the existence of this letter. The partnership was dissolved in due course.
- ²⁸ This information comes from a photograph in the Charles Henry Taylor Collection at AAS.
- ²⁹ Wainwright: 50
- ³⁰ *Yankee Doodle*, December 19, 1846, p. 124.
- ³¹ Invoice from Nathaniel Currier to Ronald Hatchman, April 21, 1855. Ms. E.9.4, Rare Book Department, Boston Public Library.
- ³² Virginia Penny, *The Employments of Women: A Cyclopaedia of Woman's Work* (Boston: Walker, Wise, & Company, 1863): 68-70.
- ³³ Bettina A. Norton's "William Sharp: Accomplished Lithographer," *Art & Commerce: American Prints of the Nineteenth Century* (Charlottesville: University Press of Virginia, 1978): 50-75.
- ³⁴ Jay T. Last provides a good synopsis of Prang's development and business in *The Color Explosion: Nineteenth-Century American Lithography* (Santa Ana, Cal.: Hillcrest Press, 2005), pages 122-124.
- ³⁵ George Bates to R. E. W. Earl, July 12, 1831. R.E.W. Earl Collection, American Antiquarian Society.
- ³⁶ Bates to Earl, October 24, 1831. R. E. W. Earl Collection, AAS
- ³⁷ Earl to William S. Pendleton, March 22, 1832. R. W. E. Earl Collection, AAS.
- ³⁸ Bates to Earl, March 28, 1832. R. E. W. Earl Collection, AAS.
- ³⁹ Bates to Earl, February 12, 1833, R. E. W. Earl Collection, AAS. A full discussion of this print and an earlier engraving commissioned by Earl is in my article, "Political Portraiture: Two Prints of Andrew Jackson," *American Art Journal* 18 (1986): 84-95.
- ⁴⁰ This document is in the Jay T. Last Collection in Beverly Hills, CA. In due course it will be in the collection of the Henry E. Huntington Library in San Marino.
- ⁴¹ Letter from Pendleton in the Charles Henry Taylor Collection. This letter is dated Sept. 11, 1835 but has no addressee; it refers to the map of Mount Auburn Cemetery.
- ⁴² Russell Lynes, *The Tastemakers* (New York: Grosset & Dunlap, 1954): 68.
- ⁴³ Letter from Daniel W. Kellogg to John Washington, November 8, 1833. Connecticut Historical Society Collection.
- ⁴⁴ This account book is in the collection of the Connecticut Historical Society and I appreciate Nancy Finlay's introducing me to this resource. The pages listing the sale of prints are 319, 350, 378, 388, 396 (*Nellie*), 411, 446, 451, 473, 475, and 504.
- ⁴⁵ *National Gazette*, Philadelphia, October 13, 1827, p. 4; Wainwright, p. 17.
- ⁴⁶ *National Gazette*, Philadelphia, April 22, 1828, p. 3. AAS has a set of the prints.
- ⁴⁷ *New-York Morning Herald*, March 3, 1830, p. 6. AAS has a different print published by him, *Elizabeth*, after Henri Grevedon, as was the portrait of Malibran.
- ⁴⁸ Letter at the Historical Society Pennsylvania, cited in Wainwright, p. 18.

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- ⁴⁹ Trade cards are in the graphics collection of the Connecticut Historical Society.
- ⁵⁰ Billhead dated October 1839, Lithograph Collection, AAS.
- ⁵¹ *Brother Jonathan Administering a Salutary Cordial to John Bull* (New Haven, 1813). An impression of this print is at AAS.
- ⁵² Wainwright: 53.
- ⁵³ Receipt at the Boston Public Library, Rare Books and Manuscripts Department, Ms. E.9.4 (Invoice to Ronald Hatchman, April 21, 1855).
- ⁵⁴ David Tatham, "John Henry Bufford, American Lithographer," *Proceedings of the American Antiquarian Society*, April 1976 (86): 59-60.
- ⁵⁵ John Zak and James Brust describe and discuss six lists in "Which Currier & Ives Prints Were Most Popular in the Nineteenth Century?" *Imprint* 32 (Autumn 2009): 34-41.
- ⁵⁶ Edward Hitchcock Collection, Box 11, F 13, Amherst College Library Special Collections.
- ⁵⁷ Edward Hitchcock Collection, Box 12, Folder 5, Amherst College Library Special Collections.
- ⁵⁸ Hart's memoir, p. 239.
- ⁵⁹ This information is found in Box 3, Folder 15 of the Book Trades Collection at the American Antiquarian Society.
- ⁶⁰ Hart, introduction to his manuscript memoir.
- ⁶¹ Letter from George T. Logan to Mrs. Banks, April 15, 1876. Book Trades Collection, American Antiquarian Society.
- ⁶² Peter Marzio, *Chromolithography 1840-1900. The Democratic Art: Pictures for a 19th-Century America* (Boston: David R. Godine, 1979): 28-30.
- ⁶³ Ron Tyler, *Audubon's Great National Work: The Royal Octavo Edition of The Birds of America* (Austin: University of Texas Press, 1993): 178.
- ⁶⁴ Wainwright: 9.
- ⁶⁵ Walter Ristow, "Maps by Pendleton's Lithography," *The Map Collector* (Dec. 1982, issue 21): 30.
- ⁶⁶ Last, *The Color Explosion*: 258.
- ⁶⁷ Wainwright: 34.
- ⁶⁸ Hart, p. 112.