

A Rural Rulemaker: Captain Anthony Gifford

by Don and Anne Wing

Connections between British and American manufacturing have fascinated us for years. We are currently trying to learn more about the development of rulemaking in both countries and are finding that, as in so many other trades, each country influenced the other. (Milt and Sue Bacheller are researching the Boston makers also; the results of our mutual ongoing project will be presented in future publications.) The subject becomes fairly complicated because of intermarriages among rulemaking families and evolving partnerships, both here and in England. At this time, however, we would like to offer the information we have found about one particular American rulemaker who is just enough out of the mainstream of our research to warrant a stand-alone article. Having Boston connections, he was a second "generation" American rulemaker, but apparently did not have onward ties to future rule manufacturing concerns. That maker is Anthony Gifford of Westport, Massachusetts.

Lemuel and Mortimer Hedge

A brief summary: rulemaking was a well-established trade in England as early as the 1770s, when a group of ten Birmingham area makers advertised an agreement to set prices.¹ American maker-marked rules at that time appear to have been manufactured by scien-

tific instrument makers, with rulemaking not yet a separate trade. By the early 1820s, however, William and Thomas Belcher, who had emigrated from Sheffield, were establishing in New York what was to become one of the larger American rulemaking firms of the period. George Piper arrived about 1820 in Boston from England, advertising as a pocketbook maker but certainly making rules as well.² Englishmen William Lambert and William Rook were also on the Boston scene early on (Figure 1). Undoubtedly the single most important influence on rulemaking in this country was American inventor Lemuel Hedge of Windsor, Vermont. (We will show in later publications how Hedge, trained as a blacksmith, cabinetmaker, and organ builder, ventured into rulemaking due to the influence of one of the English rulemakers in Boston.) Hedge patented his rule-graduating machine in 1827, beginning the machine stamping of wood rules in this country; the British did not use machines for marking rules until decades later.

Lemuel Hedge's son, Mortimer (1813–1863) appears to have made a career out of promoting his father's invention. Lemuel and another son, Egbert, set up rule shops in Hartford and Middletown, Connecticut. However, Lemuel was, by 1840, working in New York City with Mortimer.³ Mortimer, who had married Louisa Wise there in 1836, was listed as a rulemaker in the directory of 1840.⁴ Apparently competition from the growing Belcher firm caused the Hedge enterprise in New York to be short-lived. Mortimer settled in Boston, Massachusetts, by 1844, working at 5 Merrimac Street, the same address that was listed for rulemakers William H. Rook in 1842 and James M. Stevens Jr. in 1845.⁵ Other Boston makers, including Joseph and Lawrence Watts, were well established by this time also, marking their rules with distinctive stars and brackets (Figure 2). One has to assume that Mortimer Hedge was involved in the growth of Boston rulemaking, assisting these makers with his father's graduating machines as his family had done with the Connecticut makers. The gradua-



Figure 1. New England, circa 1820 (scale approximately fifty miles per inch).

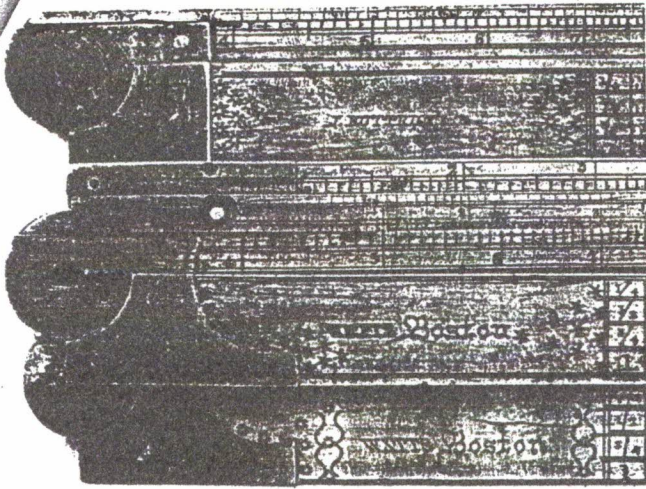


Figure 2. Boston rulemakers' stamps embellished with brackets and stars, which were also used by Gifford.

tions on Rook's rules appear to be machine-stamped, not hand-stamped. Somehow Hedge must have met whaling captain Anthony Gifford, either in New York, in Boston, or in Westport, on his way to Boston.

By 1847 at the age of 34, Mortimer Hedge had moved from Roxbury, near Boston, to Westport (Figure 3).⁶ This brings up the first of many questions that we have not been able to answer yet: Why did Hedge move to Westport? Did he already know, or know of, Anthony Gifford? Had Gifford already arranged with Hedge to assist in setting up a rule factory?

Anthony Gifford

Anthony Gifford (1794–1862), was born in Westport (originally part of Dartmouth, Massachusetts), the youngest of Stephen and Rhoda Gifford's eight children. What trade he learned is not known; he would have been fourteen years old and ready to become an apprentice in 1808, too early to have studied rulemaking in New England. Perhaps he started as a mariner, as he participated in at least five whaling voyages to the South Atlantic and Pacific between 1818 and 1845, for a total of more than seventeen years at sea, rising to the position of Captain for the last two voyages.⁷ (Following Captain Gifford's career would make an interesting study; the log book of one of his voyages is in the Whaling Museum in New Bedford.)

Most of Gifford's voyages lasted for over three years, but there were two periods of time, 1824–1832 and 1840–1841, when he was not at sea. Married in 1824 to Deborah Chase, Gifford had a daughter who was born in 1825 and died in 1836 and sons, Stephen and Peleg C., born respectively in 1826 and 1828 (where they apprenticed is unknown).⁸ During this eight-year

period of land-based stability, it is possible that he had some exposure to rulemaking in Boston or New York and started his own business. His occupation at this time is undocumented, and the marks and some of the characteristics of his rules indicate two different periods of manufacture. Upon his return from his whaling voyages, his ships were laden with typical whaling ship cargo like sperm oil and whalebone. It is unlikely that he would have had room for boxwood from South America, even as ballast, but he might well have bought walrus ivory to sell to rulemakers. Perhaps he met the owners of some of the rule shops this way.

Gifford purchased land from William Rotch in Westport in 1841, shortly before leaving on his last voyage. This four and one-half acre lot, located just upstream from the family homestead and hoe factory, included a substantial dwelling and mill sites; on the property were a working grist mill and saw mill. The site had been used for manufacturing beginning in the eighteenth century. Gifford also had an interest in the family water-powered iron forge and hoe factory on the opposite side of the street from these mills. After returning from his voyage, he had the land resurveyed in 1846, and the revised boundaries increased the acreage and included the stream and mill pond.⁹ By 1850, at the age of fifty-six, he had built a rule factory on his property and both sons were involved in the business. In the 1850 Census, Anthony Gifford and his son, Stephen, were listed as machinists, and his son, Peleg, Mortimer Hedge, and twenty-two-year-old Robert Hanna (born

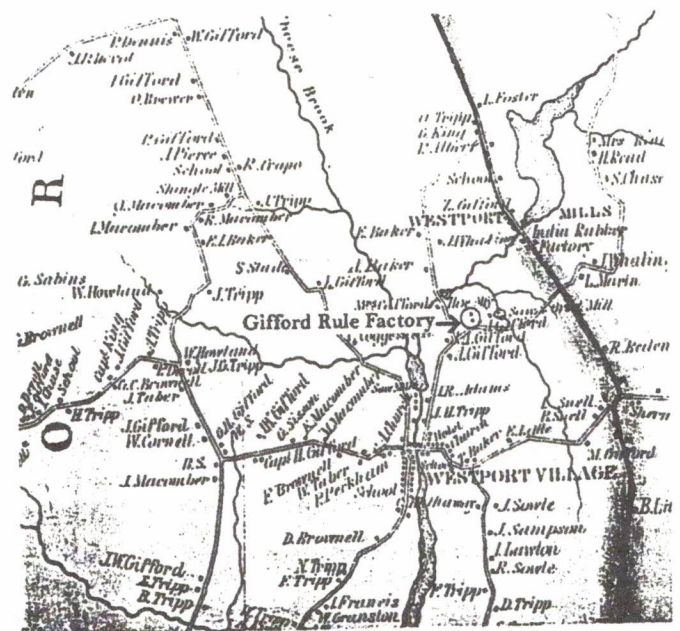


Figure 3. Westport, Massachusetts, 1851 (H. F. Walling, Bristol County, New Bedford: C & A. Taber).

in Ireland), were all rulemakers. Anthony himself was listed as a rulemaker in the 1852 Massachusetts Register.

In the 1850 industrial census the Gifford enterprise was producing rules (to the annual value of \$500), utilizing water power, and employing four males and one female.¹⁰ Boxwood was listed at the value \$300, with five tons of raw materials including fuel.

We have located Gifford's property in Westport on what is now known as Reed Road (Figure 3). The buildings are long gone, but some foundations are still there, as well as the nearby mill stream and part of a dam and sluiceway. The house of sons Stephen and Peleg still stands and offers evidence of boarding workmen from the factory. It is obvious that the logistics of the business were not simple; there is no direct access to a river or the sea, or a railroad. Although the sawmill on the property would make the construction of shipping crates easy, the location would require significant overland haulage of heavy boxwood logs, machinery, and other supplies to the factory and finished rules out for shipment. Because boxwood is so dense and the logs so irregular, the logs were likely hand-sawn with a thin blade and were probably not sawn in the up-and-down sawmill, which would create a lot of waste of this expensive wood. Perhaps Gifford brought in boxwood blanks already cut.

This brings up our second unanswered question: Why did an apparently successful whaling captain become a rule manufacturer, particularly in such a rural area? Did he want a "retirement" occupation? Was he setting up a business for his sons? Did he want to diversify from the other mills on his site? By the late 1840s the Boston rule trade was beginning to diminish, and Gifford must have been aware of the growing success of the Connecticut firms of Stephens, Chapin, and the Middletown shops, as well as E.A. Stearns in Brattleboro, Vermont, and Belcher in New York. How could he hope to compete with them from the little coastal town of Westport?

And yet, the Gifford factory appears to have been reasonably successful for a number of years. The business had increased considerably by the 1855 industrial census, the value of rules being \$6,000.¹¹ Seventeen people were employed, compared with the five in 1850, with the majority being either family or local farmhands. In searching the Massachusetts state census of 1855, we were able to find several men listed as rulemakers, including Mortimer Hedge and Stephen and Peleg Gifford. Some of the rulemakers, however,

had not been born locally. Born respectively in Northfield and Warwick, Massachusetts (home of the Stearns family), and almost certainly recently arrived from Brattleboro, were twenty-eight-year-old William Simonds and thirty-six-year-old John Stearns. John was a son of Edward A. Stearns, who in 1837 had taken over Clark & Company, the rule business that Lemuel Hedge had begun in Brattleboro, Vermont. E.A. Stearns died in 1856, when the firm was about to be sold, and son John returned to Brattleboro by 1860.¹² (Here is another connection begging to be studied. Another employee had been born in Poughkeepsie, New York; were there newspaper advertisements to recruit journeymen rulemakers?)

While in Westport, Mortimer Hedge sent three sample machine-graduated rules, which were most likely made in the Gifford factory, to the *Scientific American*, resulting in the following notice of 18 June 1853:

Graduating Machine.

We have received three very neat small measure scales from Mortimer Hedge, of Westport, Mass., the divisions of which were laid out and executed by a machine invented by his father, Samuel Hedge, of Patterson, N. J. The machine will divide any given number of equal divisions in any given space, and make the lines of any degree of fineness. The machine appears to be a good and ingenious one.

Figure 4. Scientific American notice regarding Mortimer Hedge's rules.

A month later, in the 14 July issue the following notice appeared:

ADVERTISEMENTS.

IN CONSEQUENCE OF A NOTICE of a graduating engine, which was inserted in the *Scientific American*, of the 18th of June last, we (my father and myself), are perfectly deluged with letters from every part of the country, inquiring the price of the machine, and for a description of it; its mode of operation, of its applicability to various purposes, etc., etc. Now my father, Lemuel Hedge (not Samuel Hedge), of Paterson, N. J., who is the inventor and sole proprietor of the machine, wishes the public, and all interested, to be informed through the medium of your paper, that the machine is not for sale, and that no description of it or its mode of operation will be given either publicly or otherwise.

MORTIMER HEDGE,
1* Westport, Mass., July 14, 1853.

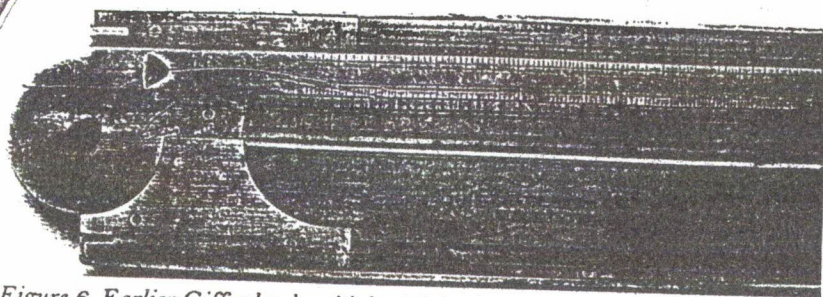


Figure 6. Earlier Gifford rule with hook joint binding.

Figure 5. Mortimer Hedge's announcement one month later.

It seems rather odd to promote one's wares and then complain that the response is too great. Possibly they were overwhelmed with requests, but the more likely reason is that Lemuel Hedge died on 1 August 1853, less than two months after the first notice.¹³ Perhaps Mortimer was not inclined or not able to produce enough machines to meet the demand the notice had generated. The patent on the machine had run out by 1841, and so theoretically anyone would be able to use Hedge's ideas to build a similar device. There is evidence that Lemuel Hedge had made numerous improvements to his machine since its inception. He continued inventing and patenting equipment for sawmills and the like and is listed in directories as a machinist/inventor in his last years in Brooklyn, New York, and Paterson, New Jersey.

Gifford's Rules

Boxwood rules made by Gifford can be found in many styles, and they bear a number of uniquely American features with little English influence (Figure 6). His earlier rules have outer brass bindings which are wrapped with a hook into the end of the hinge joint. This was a clever way of eliminating the usual problem of the binding coming loose at the hinge end and strengthens the connection between the wood and the brass hinge. William Rook used this feature fairly early on, leading us to believe that it came to Westport with Mortimer Hedge, who had been working with Rook in Boston and Roxbury.

Gifford's rule tips are of heavy brass, not iron, and appear to be cast rather than bent. His pin bits are consistently made from dovetailed slide cut-offs, a feature which first shows up in Connecticut and seems to have followed Mortimer Hedge (Figure 7). Unlike the Boston and early Connecticut makers, Gifford's slides are moved with a fingernail-breaking depression, as opposed to the raised bump of an iron or brass pin.

The main joints on Gifford rules are of solid brass

construction with three leaves, the middle one being quite thick. This seems to have developed in the Connecticut River valley and was used by Jones of Hartford, Savage of Middletown, and Stearns. It was also used by Rook in Boston and Roxbury but not by the other Boston makers, who used iron in the center of their joints like the English. It seems that this is yet another

innovation in rulemaking introduced by the Hedge family. As shown in Figure 8 the center leaf has notches carefully hand-filed to represent a knurl decoration. This, like the hook joint binding, was apparently dropped in the later rules to reduce labor costs.

The graduations on some of Gifford's rules lack consistency and are not as well done as examples of his contemporaries. It would appear that both the marking chisels and the alignment devices in his Hedge engine were beginning to show some serious wear.

Two-foot, two-fold Gifford rules are perhaps the most common, but four-fold rules of one and two feet can also be found, and we have also seen a three-foot, four-fold rule which was made to a high standard. Based on surviving examples, Gifford appears to have made more four-fold rules than the individual Boston makers. To the best of our knowledge, although he was a seafaring man, Gifford made no Gunter rules for navigation, unlike the Boston makers who all made and/or marketed Gunter rules. There are some possible explanations for this. First, to judge from the number of remaining examples, the Gunter rule market appears to have been well covered by the Belcher Brothers in New York and Valorous Merrifield in Boston. Second, by the 1850s Gunter rules were being used less and less as published navigation tables became more widespread.

Figure 7 (right). Pin bits cut from dovetailed slide.

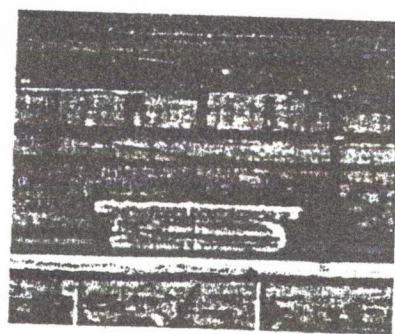


Figure 8 (below). Joint with hand-filed "knurl" on center leaf.



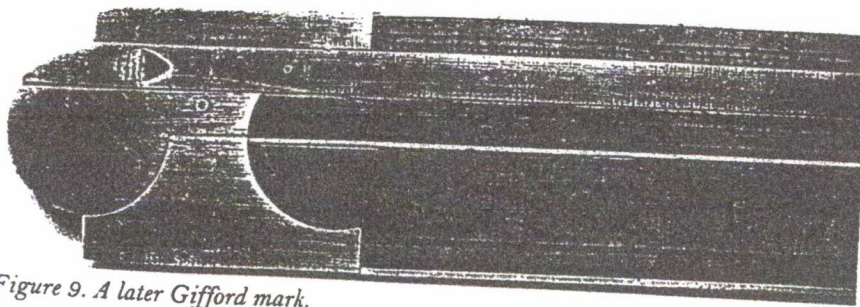


Figure 9. A later Gifford mark.

Third, Gunter rules were probably among the most difficult type to manufacture, with the complicated scales and the inlet brass zero points. Perhaps there was more money to be made producing the simpler rules.

A broadside dated 1 January 1855, advertising the wares of Kellogg Cobb & Co. in Boston, lists the rules of Anthony Gifford that this factor was offering.¹⁴ The discounts printed on this price sheet were 60 percent on boxwood rules and considerably less on ivory rules, squares, and bevels. Since the squares and bevels are not numbered as are the rules, it is possible that they, and perhaps the ivory rules as well, were brought in and were not part of Gifford's production.

Based on the broadside, Gifford's terminology for his forty different sizes and types of boxwood rules roughly follows that of E.A. Stearns & Co. (1847-1849), although his listing does not offer as much variety; Stearns includes yardsticks, board measures, and ironmonger's scales.¹⁵ Gifford did not use for his rule descriptions the terminology standardized at the convention of rulemakers held in New York on 11 May 1859.¹⁶ Stearns's half-bound rule is called by Gifford *bound*, and a full-bound is called *bound and lined*. Although the Gifford broadside lists squares, bevels, and a range of ivory rules, we are not aware of any existing today and would appreciate hearing from anyone who knows of any examples. Gifford's rules were generally less expensive than Stearns's.

Gifford was probably a bit more prolific than the Boston makers, as more of his rules are known than

those by Lambert, Rook, and Merrifield but they are still relatively scarce; we estimate that there are seventy-five to one hundred known surviving Gifford boxwood rules. Their frequency appears to be about the same as J. Watts of Boston, but Watts was in business much longer, indicating that Gifford's production was probably greater than Watts's for the time that he was making rules. His business did not come close to the size of the Belcher Brothers, Chapin, Stearns, and Stephens.

At least two distinct stamps exist on Gifford rules. The one we think is earlier is simply A. GIFFORD, WESTPORT. These rules show starbursts and brackets similar to the Boston rulemakers (Figure 6). His second stamp is A. GIFFORD, MAKER, WESTPORT, MASS. in larger letters and with a series of star decorations but no brackets (Figures 9 and 10).

A small number of Gifford's rules add the words "U.S. Std" (Figure 10). The U.S. Standard was generally adopted after 1856, because it was based on a standard imperial yard which was sent to Washington that year by the British government. In order to use the term legitimately, Gifford would have had to obtain his length gauges from someone who had equipment calibrated to the Washington standard. The nearest source for this would have been Joseph R. Brown of Providence, who had access to this standard and referenced it on the earliest steel rules of J.R. Brown & Sharpe. Perhaps this standard mark was used on only the highest quality rules. H. Chapin also used this mark on some of his wood rules.

Given the consistent faintness of the Gifford name stamps on surviving examples, one wonders whether the rules could have been graduated and numbered, and the markings filled and sealed, before the name stamp was put on, thus preventing the blacking from sticking to the letters. This would imply that perhaps

early in his production the rules were made elsewhere. The fact that only his later name stamp bore the word "Maker" could support this theory, but there is no other evidence.

The ultimate demise of the Gifford factory remains a bit of a mystery. A few chatty rather than scholarly histories

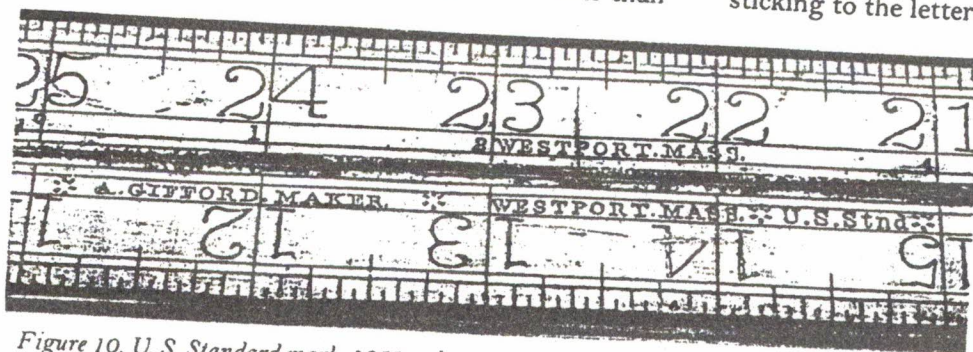


Figure 10. U. S. Standard mark, 1856 or later (collection of Francis "Mac" McClellan).

state without references that there was a fire. We could not find a reference to a fire in the abstracts of *New Bedford Republican Standard* for the year 1860, but since there is no exact date given for the end of the business these abstracts bear further searching.¹⁷ Anthony Gifford died in 1862, but his will, written in 1849, was not specific. Other than a bit of money to both sons, he left everything to his wife Deborah, and there are no probate records in her name in the Bristol County registry.

The financial panic of 1857 could have had an effect on the Gifford business; it may have become difficult to sustain the company with seventeen employees. In that year the tariff on imported rules dropped from 30 to 25 percent, probably increasing competition from the British. Anthony Gifford's younger son, Peleg, had died in 1859 at the age of thirty-one, and Anthony was in his sixties and probably less and less involved in the workings of the factory. Perhaps money, or enthusiasm, or both, ran out.

In the 1860 Census, only Alexander A. Gifford, age twenty, and probably a nephew of Captain Anthony, was listed as a rulemaker, along with Mortimer Hedge. Anthony Gifford was a master mariner, with real estate but little personal property, while Hedge had no real estate but \$4,000 in capital. Apparently Hedge had possession of the remains of the rule business. Hedge appears to have been living in mill housing upstream near the new Trafford textile mill complex with his wife Louisa and their eight children ranging in age from five months to twenty years. The Hedge contingent of rulemakers had died out by 1863, when Mortimer died of dropsy in April after serving in the Civil War for six months, and his only son, Lemuel Mortimer, died of dysentery two months later.¹⁸ The very fact that Mortimer Hedge had joined the army is an indication that the Westport rule business was extinct by 1862. The small Boston rule factories were mostly finished as well, while Stanley, Chapin, and Stephens in Connecticut were burgeoning. The era of the small rule shop had ended.

Manifesting once again the interconnections of the early American manufacturers, even the seemingly distant Anthony Gifford of Westport had dealings with at least Mortimer Hedge and probably Edward A. Stearns and the Boston makers. By the 1830s and 1840s, travel in the eastern seaboard states had become relatively easy, advancing the interchange of ideas and methods of manufacturing. Unlike planemakers, however, whose en-

terprises spread rapidly to both urban and rural areas, rulemakers were a close-knit group and maintained their relatively small individual localized shops until the late-1850s. By then small companies were either ceasing operations or being absorbed by larger ones, and workers were becoming more specialized. Rulemaking is but one small example of this growth of American industry.

Notes

1. Advertisement dated 20 August 1770 in *Aris's Birmingham Gazette*.
2. Boston City Directory for 1821. Advertisement reproduced in Milton H. Bacheller, Jr., *American Marking Gages, Patented and Manufactured* (Plainville, Massachusetts, 2000) 254.
3. 1840 Federal Census.
4. Hedge Family Bible, abstracted in *Connecticut Nutmegger*, Vol. 21 (June 1988): 53.
5. Boston City Directories for 1842, 1844, and 1845.
6. Hedge Family Bible, *op. cit.*
7. Unpublished research by David P. Mello; also Judith Navas Lund, *Whaling Masters and Whaling Voyages Sailing from American Ports: A Compilation of Sources*, New Bedford Whaling Museum, 2001.
8. Vital Records of Westport, Massachusetts.
9. Bristol County Registry of Deeds, New Bedford site, Book 5, 353 and Book 13, 385.
10. *Products of Industry for the Year Ending June 1, 1850*. National Archives and Records Administration (Waltham, Massachusetts), Microfilm roll T 1204 5, 301.
11. *Statistical Information Relating to Certain Branches of Industry in Massachusetts for the Year ending June 1, 1855*, Boston, 1856, 107.
12. 1860 Federal Census.
13. Vermont Vitals Index.
14. We have seen a photocopy of this broadside but without provenance.
15. *Mensuration*, Vol. 1, No. 1, 3.
16. Kenneth D. Roberts, *Wooden Planes in Nineteenth Century America, Vol. II*, (Fitzwilliam, New Hampshire: Ken Roberts Publishing Co., 1983) 172-174.
17. Typewritten abstracts compiled by Paul Cyr, New Bedford Public Library.
18. Massachusetts Death Registrations, Vol. 165, 144.

Authors

Don and Anne Wing are longtime EAIA members from Marion, Massachusetts.

Acknowledgments

The authors would like acknowledge with gratitude the early, unpublished research done on the Gifford enterprise by both David P. Mello and Roger K. Smith. We would also like to thank the many others who have provided information, clues, and examples for this research: Milt and Sue Bacheller, Phil Cannon, Jim Hill, Paul Keabian, Phil Stanley, and Bud Steere.