Darcy Kuronen

The Musical Instruments of Benjamin Crehore

Benjamin Crehore (1765–1831) of Milton, Massachusetts, is believed to be the first instrument maker in New England to build pianos. He was also one of the first to make bass viols (fig. 1). Although historians have long recognized Crehore's significance, and recent scholars have established the fundamental facts about his life and career,[1] there has been little examination of the actual instruments that he manufactured. The whereabouts of five pianos and five bass viols made by Crehore are currently known, and close comparison of them reveals interesting similarities and differences. More important, however, are aspects of their construction that indicate his skills as an instrument maker and his influence upon later piano and bass viol makers in New England.

Recent studies have shown that there was far more musical activity in eighteenth-century New England than unaccompanied hymn singing by the Puritans.[2] Although the early colonists forbade the use of instruments in musical worship, there were many opportunities for secular music making. Military and ceremonial music were a part of daily life, and there is ample evidence of recreational music in the form of secular songs, dances, and theatrical presentations. The latter two activities did not, however, gain wide-spread acceptance until late in the eighteenth century, as the newly formed country began exploring its artistic as well as political independence.

Early New England residents relied on importation from the mother country for their musical tastes and their musical instruments. News-

Fig. 1. William M. S. Doyle, American, 1769–1828, *Benjamin Crehore*. Silhouette, 100 mm x 127 mm (3 15/16" x 5"). Private collection.

Fig. 2. Benjamin Crehore's house in Milton, Mass., probably late 19th century.

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Fig. 3. Bass viol, Benjamin Crehore, 1788. 544 mm x 1310 mm (21 7/16" x 51 9/16"). Museum of Fine Arts, Boston, Otis Norcross Fund, 1976.147.

papers of the time regularly contain advertisements for a wide variety of imported musical instruments and accessories. To be sure, some ingenious Yankees must have tried their own hand at making a few musical instruments for personal use, but such examples are usually unsigned and difficult to date with accuracy.[3]

By the last third of the eighteenth century there are a few documented instances of instruments being made in eastern Massachusetts. Boston newspapers from 1769 and 1770 report that a Mr. James Joan (sometimes spelled Juhan) was making assorted types of string instruments, and by the late 1790s William Callender, a local ivory turner, appears to have been producing some woodwind instruments such as fifes. The local demand for instruments at this time was still so small, however, that no one was able to make a full-time business of manufacturing them. Benjamin Crehore is the first Boston area instrument maker to have left behind a substantial body of signed work.

Before discussing his instruments, it will be useful to present a brief summary of Crehore's life. He descended from a family that had resided in the Boston area since the mid-seventeenth century.[4] He was born in Milton to William Crehore (1730–1803) and Ann Bowen (1725–1797),[5] but virtually nothing has yet been discovered about the early years of his life. Various sources from the late nineteenth century allude to his noted mechanical abilities, but they do not specify whether he was necessarily precocious with these talents.[6] In any event, many other members of the Crehore family worked as carpenters and cabinetmakers, and it is entirely likely that he learned his woodworking skills from one of them.[7]

It is not known exactly when Crehore first became involved with making musical instruments.[8] The first tangible evidence is a handwritten label in one of his bass viols (discussed in detail below) that indicates it was made by Crehore in Dorchester (Mass.) in 1788. Another vital clue involves two letters to Crehore, the first written to him from New York by James Hewitt on November 23, 1797.[9] Hewitt writes "I should be very glad to have some of your pianofortes on commission, and to supply you with whatever I have in my store upon terms which shall be agreed upon."[10] A second letter was addressed to Crehore two days later by B. Dangel of New York.[11] Dangel writes that he "spoke to Mr. Hewitt, our leader, who keeps a music store here[,] about forte piano strings, which you want. His character is that of a real gentleman. Here is a letter to you for him. I described your knowledge in making musical instruments, particularly forte pianos."[12] These letters certainly seem to indicate that Crehore had been making pianos for some time.

In 1791 Crehore entered into partnership with Lewis Vose (1783–1834), a harness maker, to build a house and shop located between

Adams and High Street in the area of Milton known as Lower Mills.[13] Vose ended up paying most of the construction costs and ultimately took over ownership of the property. Crehore then rented the shop and one unfinished chamber from Vose at a cost of $20 per year from March 1792 to May 1796.[14] It was here, and in a neighboring house built on property belonging to his wife's family, that Crehore probably built most of his instruments (fig. 2).

There is an often repeated story that Crehore worked at Boston's Federal Street Theatre in the late 1790s and became acquainted with various professional musicians engaged there.[15] Among them was Peter von Hagen, Sr. (1755–1803), who had come to Boston from New York in 1796 and was apparently conductor at the Theatre from January 1797 through the end of the season in 1800.[16] Regardless of how Crehore came to know von Hagen, the *Columbian Centinel* of May 12, 1798, advertised that the two men had formed a partnership "for the purpose of importing from London instruments of the first quality, and the best makers."[17] The advertisement goes on to say that "They will also have for sale, of their own manufactory, Piano Fortes made on the newest and most approved plans with Pedals, Patent Swell, and Italian Harp top."[18] Fourteen months later, on July 3, the *Centinel* carried a notice that the partnership had been terminated. This was the first of several short-lived associations that Crehore had with other members of the local music trade. By November of 1801 Crehore had made an arrangement with the Boston music dealers Francis Mallet (1750–1834) and Gottlieb Graupner (1767–1836), who advertised "a large assortment of American Piano Fortes, manufactured by Benjamin Crehore."[19]

In July of 1804 Crehore and organ builder William Goodrich (1777–1833) signed an agreement[20] to jointly manufacture organized pianos, a hybrid keyboard instrument that combines a piano and organ into a single case.[21] The venture lasted only a short time, the agreement being terminated in November of the same year,[22] and there is no evidence that they ever completed any combined instruments. Crehore's interest in pianos of unusual design is in evidence again a few years later in an advertisement in the *Independent Chronicle*, March 23, 1807, where Graupner advertised a piano with a transposing keyboard "made, under his direction, after a plan of the Germans, by Messrs. Crehore and Babcock of Milton." Again, no examples of such an instrument by Crehore are known to survive.[23]

Among the aspects of Crehore's career that have been difficult to document with certainty, is exactly when various "apprentices" might have worked for him.[24] He is said to have trained William and Adam Bent, Lewis and Alpheus Babcock, and John Osborne.[25] The brothers Bent and Babcock were from Milton families and probably served their apprenticeships with Crehore in his shop near Lower Mills. All five

men later took up careers in piano building, but only Alpheus Babcock and John Osborne remained involved long enough to produce a significant number of instruments.[26] The Bents set up their own shop in Boston in 1798, listed in that year's *City Directory* at 90 Newbury Street.[27] The Babcocks first appear in the *Directory* in 1810 at 49½ Newbury Street, but by early 1812 they had joined forces with an organ builder, Thomas Appleton (1785–1872), and were working at 18 Winter Street.[28] Reminiscing in 1872, Appleton said that Crehore worked for the firm of Babcock, Appleton, and Babcock "for a time" after 1810. He further recalled that it was during this period that Crehore trained Osborne.[29]

After the death of Lewis Babcock, in January of 1814, Crehore ceased his association with the other members of the Babcock and Appleton firm.[30] From this point on he appears to have played a less prominent role in the city's music industry, and little more is known of his later years than his early ones. There is a story that about 1812 he constructed an artificial jointed wooden leg, said to be the first of its kind ever invented.[31] Crehore stopped paying personal taxes in 1816 and it has been suggested that he may have been semiretired by this point.[32] He was active enough, however, to take out a patent on a veneer saw frame on May 22, 1828.[33] At the age of sixty-six Crehore died, in Milton, on October 14, 1831.[34]

Bass Viols

Violins were made only occasionally in New England during the late eighteenth and early nineteenth century, but the region's luthiers of that period are well represented by a type of string instrument that is fundamentally a violoncello. Usually referred to as "bass viols" by the builders themselves, these instruments vary considerably in both size and shape, although many are a good deal larger than a standard-size violoncello.[35] Numerous printed sources from the time clearly indicate that American bass viols were derived from the violoncello and that the only essential difference was the name.[36] As a bass instrument, their main purpose was to provide support, in the absence of an organ, for congregational singing, hence the application of the term "church bass" to them by some modern writers.[37]

Five bass viols made by Benjamin Crehore are currently known to exist, although it is likely that other undocumented examples are owned privately.[38] Four of the extant instruments are owned by the Museum of Fine Arts, Boston, and a fifth by the National Museum of American History, Smithsonian Institution. A larger number of bass viols would of course be helpful in attempting to understand Crehore's style, but even by comparing the five available instruments certain characteristics can begin to be identified.

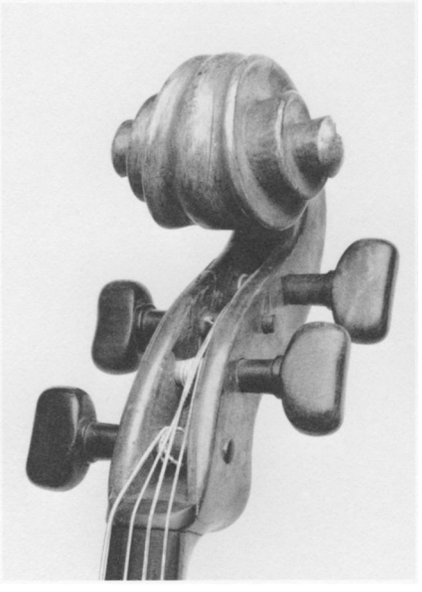

Fig. 5. Scroll of bass viol in fig. 3.

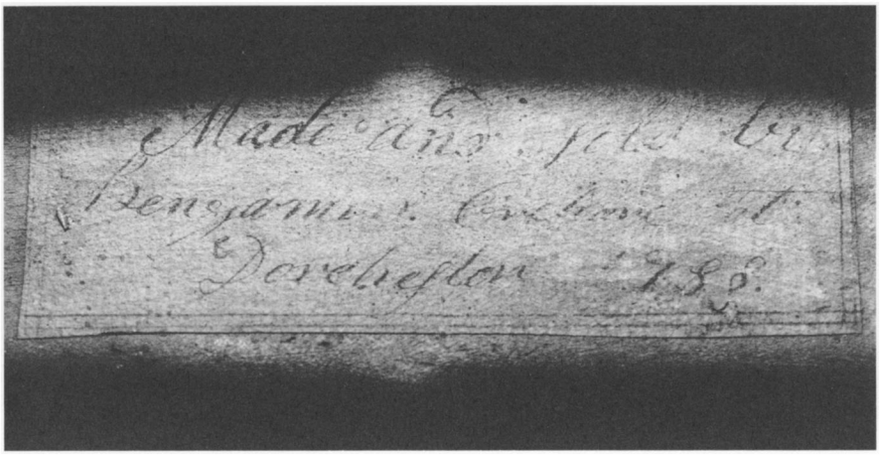

Fig. 4. Label of bass viol in fig. 3.

Crehore's most interesting bass viol also appears to be his earliest extant instrument of any kind (fig. 3).[39] Bearing a handwritten label that indicates it was made in Dorchester[40] in 1788 (fig. 4), it possesses some very individualized features. With a body length of 843 mm and a lower body width of 541 mm, it is an exceptionally large example of a bass viol.[41] Equally striking is the outline of the body with its squarish upper and lower bouts and the wide flattened surfaces at the ends. The soundholes are of a curious pattern with very elongated and slender curves at the ends.[42] Perhaps the most distinctive element is the massive scroll (grafted onto a replaced neck) with its deeply cut volutes and wide ears (fig. 5). The large maple tuning pegs cannot be said with any certainty to be original, but their bold design complements the other eccentric details.

The belly (top plate of the body) is made from two pieces of white pine (*Pinus strobus*)[43] with the seam placed off center. The wood is essentially quarter-cut (i.e., sawn in radial section to the tree's growth rings), but the grain spacing is quite wide at the center and becomes increasingly wider toward the edges as the growth rings were sawn closer to tangential section (i.e., slab-cut). Crehore's use of pine of irregular grain for the belly deviates considerably from the traditional use of quarter-cut spruce in fine European string instruments. Bellies that are completely slab-cut do occur frequently, however, on later American bass viols. A dull brown varnish covers the body and there is no purfling, either inlaid or painted.[44] A certain lack of finesse in this bass viol helps reinforce the impression that it is among Crehore's earliest works. The overall execution shows relatively skilled hands, but there does not seem to be direct inspiration from any particular European school of violin making. Crehore would have been about

Fig. 6. Bass viol, Benjamin Crehore, about 1790–1810. 425 mm x 1210 mm (16¾" x 44¼"). Museum of Fine Arts, Boston, Gift of Charles Crehore Cunningham, Sr., 1976.156.

Fig. 7. Bass viol, Benjamin Crehore, about 1790–1810. 425 mm x 1210 mm (16¾" x 44¼"). Museum of Fine Arts, Boston, Gift of the New England Conservatory, 1983.148.

Fig. 8. Bass viol, Benjamin Crehore, about 1790–1810. 427 mm x 1210 mm (16 13/16" x 44 1/4"). Smithsonian Institution, 1981.0030.01. (Photograph: Courtesy the Smithsonian Institution.)

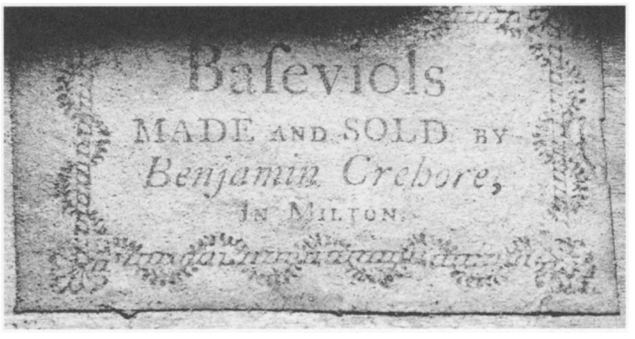

Fig. 9. Label of bass viol in fig. 6.

Fig. 10. Label of bass viol in fig. 8.

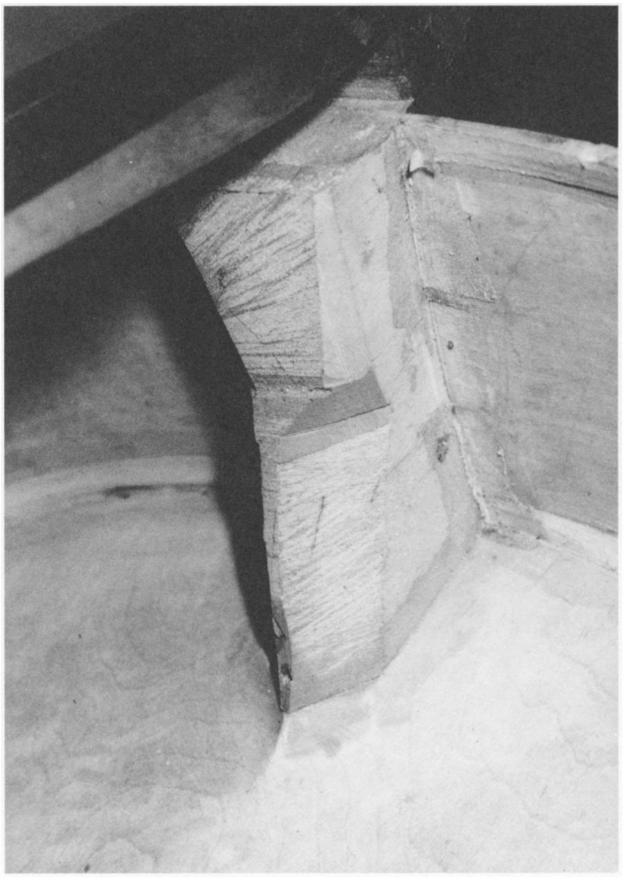

Fig. 11. Detail of neck block on bass viol in fig. 8.

twenty-three years old at this time. Had he served any kind of apprenticeship in woodworking, it would be typical for him to have completed it at about age twenty.

Three of Crehore's bass viols have enough similarities to merit discussion of them as a group (figs. 6–8).[45] Three out of five surviving instruments barely constitute a norm, but the recurrence of certain features in this group shows that at some point Crehore began to regulate the pattern to his work. Each of these bass viols contains a printed label similar to the one shown in figure 9.[46] The label in the Smithsonian instrument, however, has some slight differences in the type sizes and seems to have suffered a printer's error since the second letter in Crehore's name is scratched out (fig. 10). The labels are not dated, but given the increased refinement in these instruments, they must date later than the one from 1788. Taken together with the other information now known about Crehore, they could have been made any time between about 1790 and 1810.

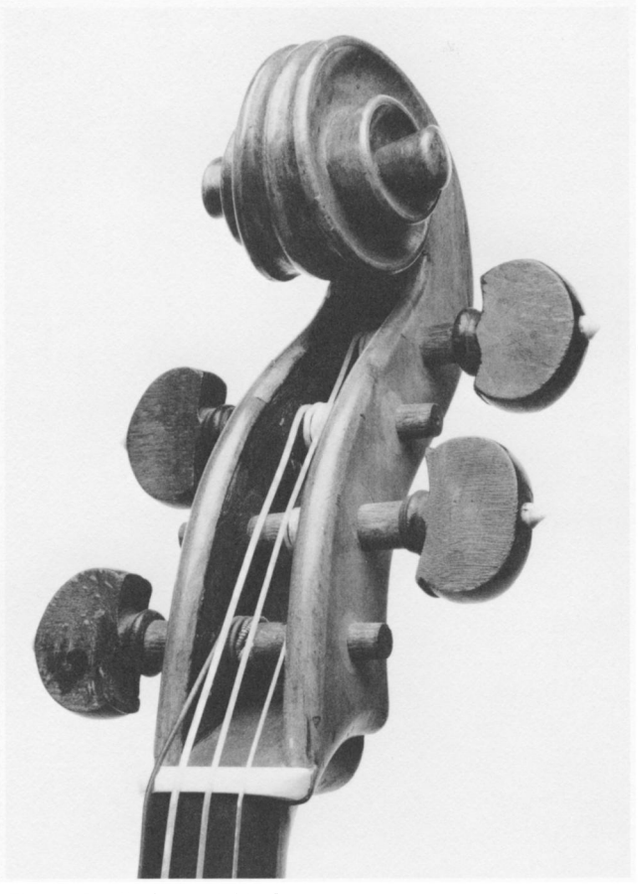

Fig. 12. Scroll of bass viol in fig. 6.

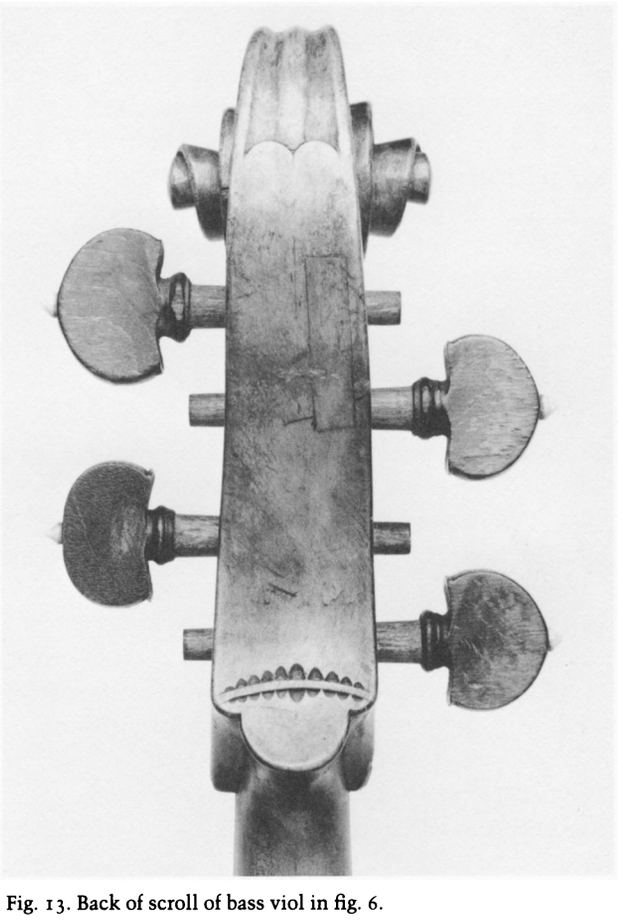

Fig. 13. Back of scroll of bass viol in fig. 6.

In this group the body measurements are within a few millimeters of each other and the body outlines all exhibit a flattened effect at the top and bottom that is similar to the 1788 example. They are much smaller than the 1788 instrument, however, with an average body length of 733 mm, a bit shorter than a standard violoncello. These instruments could possibly have been used in the manner of regular 'cellos, rather than being restricted to playing simple bass lines for church singing. The similar size and pattern of the group probably results from the use of a template, a standard practice among violin makers.

Fortunately, all three have survived with their original necks and scrolls, although only the Smithsonian example has the neck still set in its original configuration, including an original neck block (fig. 11). This block is unlike those often found in other early American string instruments, which often have a "foot" that projects on to the back plate for support.[47] Probably sometime during the nineteenth century

the necks of both Museum bass viols were set at a steeper angle to make the instruments usable for modern playing technique. In each case the neck block was replaced with the type used in a modern violoncello, but the back retains a thin pointed platform shaped to receive a block like that in the Smithsonian instrument. The fingerboard on the Smithsonian bass viol is also thought to be original, although it is very long compared to other instruments of the period. The fingerboards of the two Museum bass viols in this group are replacements.

The scrolls on these three bass viols exhibit the same features as the 1788 instrument, although proportionately smaller (fig. 12). The carving of the volutes is less exaggerated, but the ears still project relatively far out to the sides. An important detail is the way in which the double fluting stops shortly after cresting the top, rather than extending down the back of the pegbox (fig. 13). This feature is taken from earlier European violin-making traditions which, unlike the well-known North Italian school, considered the scroll itself as an element quite separate from the pegbox.[48] At the lower back of the pegbox Crehore has incised an arched design that has not been noticed on other American bass viols; it may be a detail unique to Crehore's work (fig. 13). The tuning pegs on early string instruments are so often replacements that it is rare to find original examples. However, the appearance of the pegs on the Smithsonian bass viol and the Museum's no. 1976.156 is so similar that it is quite possible they are original.

Compared with his 1788 opus, Crehore shows a marked increase in skill on these three examples. He has also taken greater pains in his selection of wood, the quarter-cut bellies now exhibiting finer and more even grain. White pine (*Pinus strobus*) is used on Museum no. 1976.156 and spruce (*Picea*) on no. 1983.148. The belly of the Smithsonian instrument has been identified, by gross features only, as pine.

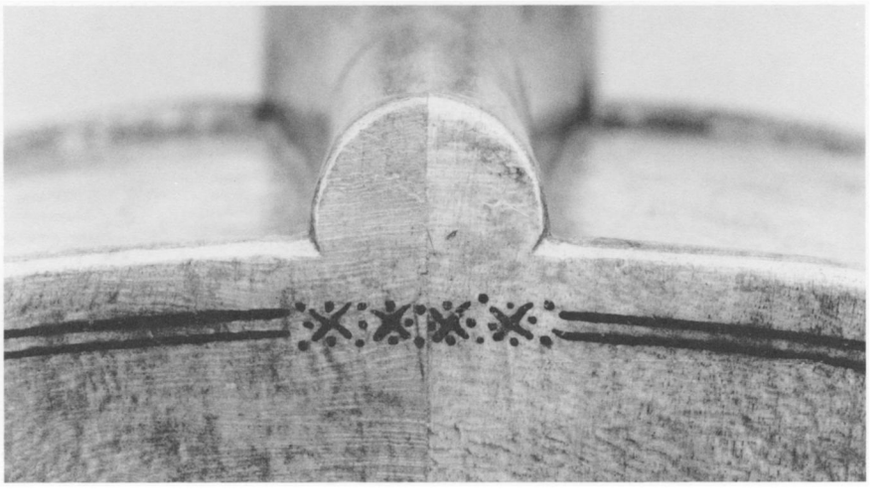

Fig. 14. Detail of purfling on bass viol in fig. 7.

Fig. 15. Bass viol, Benjamin Crehore, about 1790–1810. 468 mm x 1,285 mm (18⁹⁄₁₆" x 50⁹⁄₁₆"). Museum of Fine Arts, Boston, Gift of Christopher Bickford, 1984.79.

The pattern of the soundholes on the Smithsonian instrument and the Museum's no. 1983.148 are the same, but the soundholes on Museum no. 1976.156 are quite different, and might raise suspicion about the originality of the belly. A detail not found on the soundholes of any of the Crehore bass viols is a small connecting piece of wood at the turns. This is a common feature on other American bass viols, although it has sometimes been cut away by later repairmen.[49]

Purfling on American bass viols is often achieved by simply painting two black lines around the perimeter of the belly and back. This is the case with the group under discussion. Although one of the purposes of traditional inlaid purfling is to help halt the spread of cracks to or from the edges of the plates, it also serves a visual function of framing and defining an instrument's shape. Interrupting the painted purfling at the top of the backs is the design shown in figure 14.[50] A similar design has been noticed on some other early American string instruments, but its significance has not yet been established.[51]

The fifth surviving Crehore bass viol has suffered untold misfortunes over the years (fig. 15).[52] Its neck and scroll are crude and clumsy replacements, the surface of the body appears to have been roughly scraped, and a poor quality, thick reddish-brown varnish has been applied all over. There is no purfling, although this would have been lost if the body was scraped. The body length of 789 mm is shorter than the 1788 bass viol, but still quite a bit longer than the other three. The body outline does not follow those of any of the other four examples. Its label contains the same printer's error found in the Smithsonian bass viol, and a supposition could perhaps be made that these two instruments are both earlier than the two with corrected labels. In the absence of other evidence, however, this must remain speculation. Given the instrument's poor state of preservation, it is quite possible that some of the components of the body are not original. The belly might be considered questionable because its soundhole pattern matches none of the other four. The back is more likely original since the label shows no sign of forgery and appears to have been affixed to the wood for a very long time. The most interesting feature of the instrument is its tailpiece (not pictured), which is the same shape as the one on the Smithsonian bass viol, and includes a similar lozenge-shaped piece of ivory near the bottom and ivory strip under the strings.

One element that remains in question for all of Crehore's bass viols is to what degree the interior structures, other than the neck blocks, might have been altered. In normal violin-making practice the seam between each plate (belly and back) and the ribs (sides of the body) is reinforced by thin wood liners that are glued along the entire joint. The 1788 instrument does not have continuous lengths of liner, but instead has a closely spaced series of short triangular blocks glued along the

joint, a system that is simpler to produce than bending long liners to fit the curves. A similar type of block liner is traditional in guitars. Such blocks are occasionally found in later bass viols, although they may sometimes be the result of repair work.[53]

Another construction method without liners was often used to attach the plates to the ribs on American bass viols. In this system the ribs are glued into a groove cut around the entire perimeter of the plates.[54] Although easier for the builder to execute initially, this design creates problems when repairs are needed. As a consequence, some instruments that were originally constructed in this manner have been rebuilt with liners, in which case the undersides of the plates are planed down to eliminate the grooves.[55] It is not certain whether any of the Crehore bass viols were originally constructed with grooves, but they now all have liners.

Pianos

Almost the same number of Crehore pianos survive as bass viols. There are five known pianos and one other which may still be extant, although its current whereabouts is unknown (fig. 16).[56] All are the type with rectangular case, called a square piano, that was popular as a domestic instrument during the eighteenth and nineteenth century.[57] Square pianos were well suited for use in the home since they took up relatively little space and their case design harmonized with other home furnishings.

There were few keyboard instruments of any kind in colonial America since, as one writer has concisely put it, "[they were] expensive and hard to construct."[58] One source estimates that in 1791 in Boston there were fewer than thirty pianos, all of them imported from London.[59] The complete history of ownership is not known for any of Crehore's surviving pianos, but the original purchasers were in all likelihood musical amateurs who only performed on their instruments in the home. (The country supported very few full-time professional musicians until well into the nineteenth century.) The American clientele for pianos was also primarily from the upper class, although some middle class merchants would have been able to purchase a piano as a prominent status symbol.[60] It seems doubtful that Crehore produced a large number of pianos during his career; one author estimates ten to twelve every year,[61] but even this is probably rather high.

As with his bass viols, Crehore's pianos can be grouped for the purpose of comparison and dating. The two earliest are apparently those belonging to the Boston Public Library (fig. 17)[62] and the Essex Institute in Salem, Mass. (fig. 18).[63] Written in black paint on the bottom of the Library piano is "No. 3" (fig. 19), and the same hand appears to have written "No. 4" on the bottom of the Salem instrument. In the absence

Fig. 16. Square piano, Benjamin Crehore, about 1795–800. 580 mm x 1,620 mm x 850 mm (22 13/16" x 63¾" x 33 7/16"). Current location unknown.

Fig. 17. Square piano, Benjamin Crehore, about 1795–1800. 573 mm x 1,599 mm x 865 mm (22 9/16" x 62" x 34 1/16"). Boston Public Library, Boston, Mass.

Fig. 19. Detail of bottom on square piano in fig. 17.

Fig. 18. Square piano, Benjamin Crehore, about 1795–1800. 570 mm x 1,581 mm x 837 mm (22 7/16" x 62 1/4" x 32 15/16"). Essex Institute, Salem, Mass., Gift of Arthur M. Merriam, 2,862. (Photograph: Courtesy Essex Institute, Salem, Mass.)

of other evidence, the meaning of these numbers can only be guessed at. It is possible that the Crehore piano which is currently unlocated is earlier than these two instruments, but this is impossible to ascertain from the photograph alone.[64]

Similar in most respects to the Library and Salem pianos are one owned by the Museum (fig. 20)[65] and another owned privately (fig. 21).[66] Certain changes in the construction and decoration of these two pianos, discussed below, date them later than the Library and Salem instruments. Before pointing out the differences, however, the characteristics that are common to all four pianos will be discussed.

All are essentially modeled after English pianos made between about 1780 and 1790, and Crehore undoubtedly based his work on imported instruments to which he had access.[67] The exterior casework is of solid mahogany,[68] except for the back wall which is of pine,[69] and the area surrounding the keyboard is veneered with holly (*Ilex*) as a light contrast. Narrow inlay is used to outline the surfaces of the case and the sections of the lid. The case rests on a frame stand of mahogany-veneered pine, held together with iron bed bolts that are easily removed in order to take the stand apart for transport.

All four pianos have a keyboard range of five octaves from FF to f''' (sixty-one notes), with thick ivory coverings for the natural key levers and stained hardwood for the accidentals. All four also use the same

Fig. 20. Square piano. Benjamin Crehore, about 1795–1800. 566 mm x 1,592 mm x 856 mm (22 15/16" x 62 13/16" x 33 5/8"). Museum of Fine Arts, Boston, Gift of Camilla Cunningham Blackman in Memory of Lucy Clarendon Crehore, 1992.95.

Fig. 21. Square piano, Benjamin Crehore, about 1795–800. 567 mm x 1,592 mm x 845 mm (22 15/16" x 62 13/16" x 33 1/4"). Private collection. (Photograph: Courtesy of the owners.)

English single action that was developed by Johannes Zumpe (1726–1791), a prolific and successful builder of square pianos in eighteenth-century London.[70] The hammers are relatively small and covered by two to three layers of leather, and are hinged to a rail with parchment rather than the more typical leather.[71]

The damper system is also like that used by Zumpe, but with some very noticeable changes. Instead of using leather or cloth pads to damp the vibrations of the strings, as was usual, Crehore has glued a tall cylindrical pad to the underside of each damper lever. These pads appear to be made from cotton cord, each bound with thread except at the free end which is fluffed out to provide a soft surface. For lifting the dampers from the strings Crehore has devised an ingenious mechanism that allows one hand-operated control lever to lift either just the treble dampers, from c′ upward, or all of the dampers. Moving the control lever slides a strip of wood, with four small wedges affixed to the top, transversely under the damper levers. Initially, two of the wedges engage notches in an upper strip of wood that lifts the treble dampers. When the lever is advanced further, the two other wedges engage a second upper strip that lifts the bass dampers as well (fig. 22). This unique mechanism was very likely conceived by Crehore as it has not been found on any other pianos. Since Crehore and von Hagen advertised in 1798 that the pianos they were making and selling had pedals and patent swell—features that are present on the one other surviving piano, discussed below—those with the hand lever mechanism should perhaps be dated as earlier than this year.

The layout and lengths of the strings in all of the examples is quite consistent with other English and American square pianos of the period. The tuning pins are clustered at the right end of the case and the

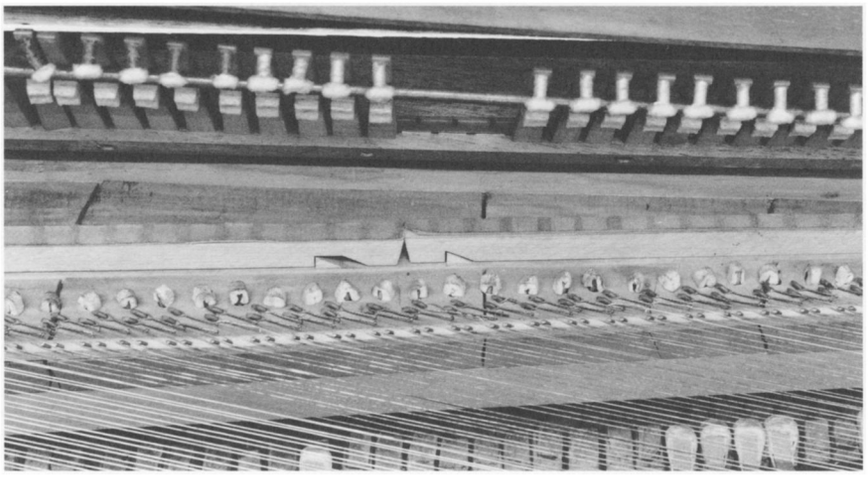

Fig. 22. Damper mechanism and hitch-pin plank of piano in fig. 17.

hitch pins are driven into a maple plank positioned along the back behind the keyboard. Each piano has two strings per note and the length of c'' averages about 290 mm. The woods used for the soundboards have been identified as spruce (*Picea*) in the Library piano and the one that is privately owned, and pine in the Museum instrument.[72]

A misunderstanding concerning Crehore's soundboards should also be addressed. Appleton, writing in 1872, stated that it was Crehore who introduced "the long sounding-board, same as now used."[73] As Appleton explained, English square pianos had "short sounding-boards," i.e., ones that did not extend over that portion of the case where the key levers lie. Perhaps Crehore did utilize this design at some time, but it is not present in any of his known instruments, including the latest one, discussed below. It may be significant, however, that long soundboards are found in certain pianos made by other Boston makers who are known to have associated with Crehore.[74]

A feature of the framing on the Library and Salem pianos has caused some unfortunate deformation, and may be an indication that Crehore at first did not clearly understand what he was copying from another piano. The problem involves the maple hitch-pin plank, which bears the tension of all the strings. In English square pianos of the period this member is typically about 40 mm thick, its grain running parallel to the back of the case. It is often covered by thin pieces of veneer, the grain of which runs perpendicular to the back. In the two pianos under discussion, Crehore made the plank from two thick layers, the lower one running parallel to the back, but the upper layer made from pieces 16 mm thick and running perpendicular to the back. Consequently, the hitch pins are driven only into the upper layer rather than into the stronger lower layer. Because of the grain orientation (and probably also because of poorly seasoned wood), each section of the upper layer has greatly shrunk, causing wide gaps between adjacent pieces and sometimes splitting across the entire width (fig. 22). In the Salem piano the pieces have also warped upward considerably. In both pianos the distortion of the hitch-pin planks has resulted in deformation of the wooden nut that is glued along the top front edge. Since pins driven into the nut hold the strings in proper alignment, its deformation must have rendered each instrument unserviceable. A related problem has further compromised the integrity of the case. The pine planks selected for the rear case wall of these two pianos were either poorly chosen or poorly seasoned since each has become extremely bowed out toward the back. Both problems have been avoided in the later Crehore pianos, so he must have discovered the error in this design.

An aspect of the early Crehore pianos where he departs most from standard English practice is the construction of the case bottom. The bottom on such pianos is typically between about 50 and 80 mm thick

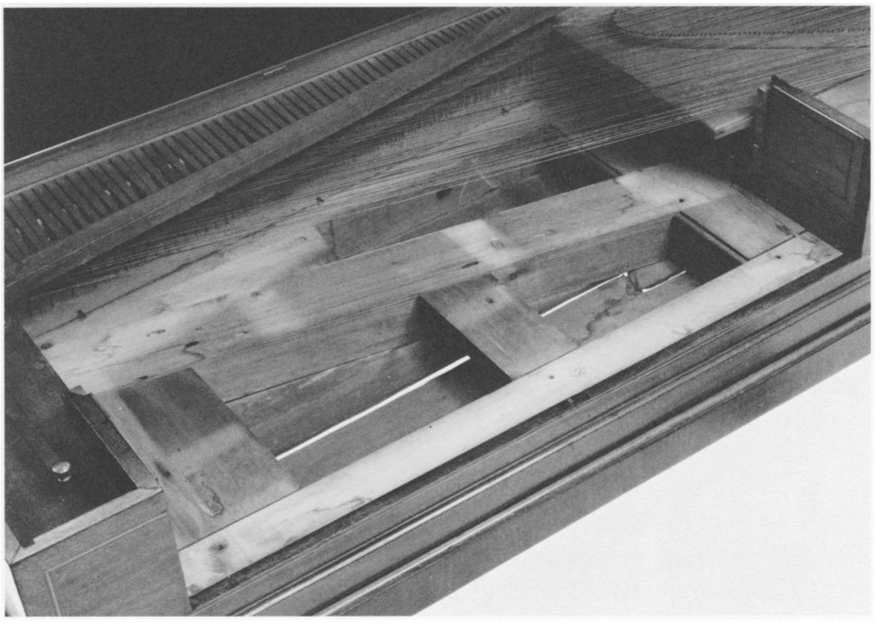

Fig. 23. Framing of piano in fig. 20.

and is made from two layers of softwood, the lower layer running longitudinally to the case and at least part of the upper layer running at an angle in line with the strings. Crehore's practice with his four earliest pianos was to construct the bottom as a framework of heavy pine members with thin pine panels covering the bottom surface (fig. 23). In the Library and Salem pianos all of the framework is dovetailed together. In the Museum instrument some of the less critical joints are simply butted, while in the privately owned example most of the joints appear to be butted. Crehore's reasons for constructing the bottom in this fashion is not certain, but he may have adopted the idea of a thin bottom from traditional practice in harpsichords and spinets. It is also possible that he felt the additional air space afforded by the open frame would improve the sound.

The fifth Crehore piano (fig. 24) is superficially like the other four.[75] Its keyboard range, however, is five-and-one-half octaves from FF to c'''' (sixty-eight notes) and the action used is the English double-type patented in London by the piano builder John Geib (1744–1818).[76] It originally had two pedals (now missing), one to operate the dampers[77] and the other to lift one of the lid flaps, thereby functioning as a swell device. All of these differences place the piano as later than the others, probably between about 1798 and 1810. Other differences in construction that confirm the later dating are a veneered (rather than solid) mahogany case and a bottom made from solid planks instead of the framework system used on the other Crehore pianos.

The cabinetwork and decoration are fundamentally similar on all six pianos, based on the English neoclassical style. Small differences are worth noting, however, as they reinforce the chronology of the instruments. On the Library piano the decorative inlay is of herringbone design, while on the Salem piano the inlay is comprised of triple-line stringing, two dark lines sandwiching a light line. The inlay on the unlocated piano appears to be a single wide strip of light stringing, but it might be composite like the Salem piano's. The Museum and privately owned instruments have a slightly wider band of inlay than the others (about 9 mm), comprised of a wide strip of light wood with two dark strips at the outer edges. As mentioned above, the New York piano has a veneered rather than solid case. On it a central broad band of mahogany is outlined by geometric stringing with rosewood crossbanding above and below.

The legs and stands also exhibit slight variations. The Library, Salem, and unlocated pianos have single-taper legs, each with light stringing at their very edges, and a wide horizontal band of dark inlay near the top and bottom. The privately owned instrument also has single-taper legs and similar wide bands of inlay, but the surfaces of the legs are reeded.[78] The Museum piano has all of these features, but the legs are double-tapered with an added point at the bottom. The legs of the New York piano are double-tapered, but their inlay differs markedly from all of the other instruments, the faces of each leg being outlined with

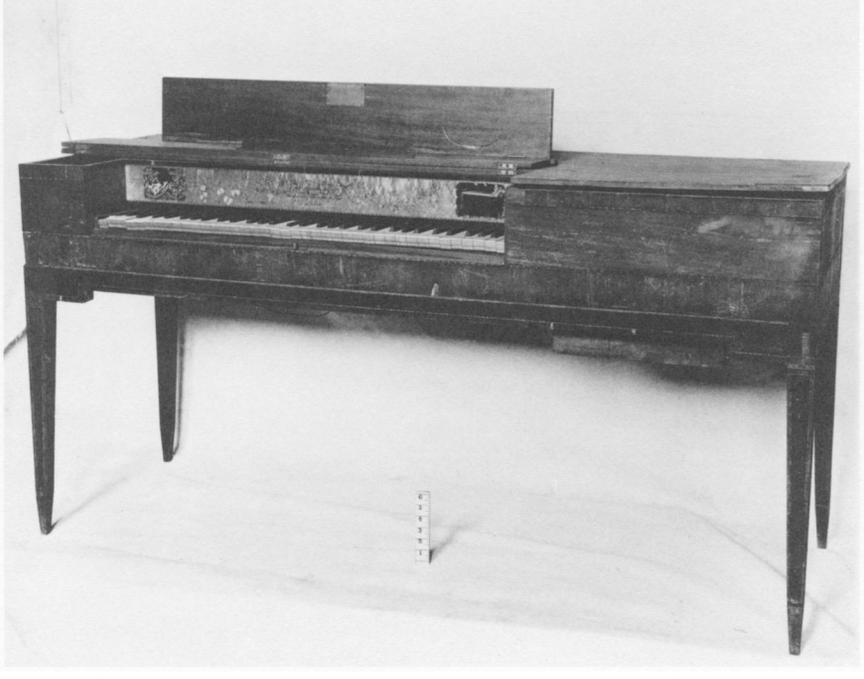

Fig. 24. Square piano, Benjamin Crehore, about 1798–1810. 587 mm x 1,671 mm x 859 mm (23⅛" x 65¹³⁄₁₆" x 33¹³⁄₁₆"). Metropolitan Museum of Art, New York, The Crosby Brown Collection of Musical Instruments, 89.4.2858. (Photograph: Courtesy the Metropolitan Museum of Art.)

geometric stringing. The stand on the New York piano also once housed two drawers which are now missing.

The only hardware of any decorative significance on Crehore's pianos is found on the stands in the form of covers for the bed bolts. These covers have been lost or replaced on all of the pianos except the Museum's, the covers of which are oval-shaped stamped brass. Brasses like this were surely purchased from an outside source rather than custom made in Crehore's shop.

Furniture from this period with double-tapered legs is most commonly found in Massachusetts, but reeding is far less typical for the region, occurring only occasionally on fancy high-back chairs. The edge stringing on the legs of the earlier pianos is also rather uncommon in New England furniture.[79]

The later pianos exhibit moldings on some surfaces where they are not present on the early ones. The molded reeding on the legs of two of the instruments has already been mentioned. The keyboards have molded fronts on the key levers, except for the Library, Salem, and unlocated pianos, which have flat fronts.[80] There is a molded edge on the lids of the Museum and privately owned pianos, but the edge is square in all of the other instruments. On these same two instruments, a molding is found at the base of the case sides, but this piece is plain in the Library, Salem, and unlocated examples. (This piece is not part of the case design of the New York piano.)

A somewhat peripheral component that would have originally been present on all of the five known pianos (and has managed to survive on the Library, Salem, and New York instruments), is a thin (about 7 mm thick) panel that rests on small blocks on the inside case walls and covers the action and part of the soundboard. Now usually referred to as a dust cover, these panels were a standard feature of English and American square pianos of the late eighteenth and early nineteenth century. Such panels do not, however, cover enough of the inside to act as a serious deterrent to dust. As one writer has suggested, their function was more likely as a modesty cover to hide the instrument's mechanical parts from view when the lid was open.[81] The panels are often missing from extant pianos, but they were commonly painted on their upper surface in a solid color, usually a shade of green. Of the extant covers in the Crehore pianos, the Library's is painted a dull bluish-gray while those in the Salem and New York pianos are unpainted, but lightly varnished.

Each of the nameboards on the pianos bears Crehore's name hand-lettered in ink surrounded by painted floral decoration (figs. 25–27). Floral decoration of this type was somewhat common on English instruments of the period, although it certainly was not a mandatory element. There is reason to believe that on some of the pianos the

Fig. 25. Nameboard of piano in fig. 17.

Fig. 26. Nameboard of piano in fig. 18.

Fig. 27. Nameboard of piano in fig. 20.

decoration was executed by John Ritto Penniman (1782–1841), an ornamental painter who worked in Boston.[82] The nameboard decoration on the Salem piano has already been attributed to Penniman by one scholar.[83] The colors and general style of the flowers on the Museum and privately owned instruments are similar enough to suggest that the same artist may have also painted them. The decoration on the unlocated piano is of much different design than the others, and

the colors it was painted are unknown. The Library nameboard is very modest with only a small spray of flowers on a blue-gray panel surrounding the signature. The nameboard of the New York piano has several differences from the others. It is veneered in bird's-eye maple (rather than holly), the ends are pierced with fretwork (now mostly missing), and the flowers are painted in lighter hues than the other extant examples.

Conclusions

It is unfortunate that none of the instruments left to us by Benjamin Crehore is in a condition that allows evaluation of its tonal qualities. Some of the bass viols were obviously altered and restored to a certain degree of playability at an unknown date, but none is currently playable. None of the pianos is playable either, and they show no evidence of any serious attempts to make them so in the last two hundred years. This may be just as well, however, for there is an increasingly prevalent feeling that old musical instruments can suffer a significant loss of important information when they are restored in a mis-informed manner.[84]

The absence of evidence otherwise suggests that Benjamin Crehore was completely self-taught as an instrument maker.[85] Despite this apparent disadvantage, the execution of his pianos and bass viols very nearly approaches the levels of professional European craftsmen. It can be seen that Crehore's understanding of the instruments gradually developed between his early and late work, and that, especially with the pianos, he analyzed the structure and made certain changes where he thought fit.

Despite the wealth of information that can be gleaned from Crehore's extant instruments, there are certain questions for which firm answers will probably never be found. Concerning the pianos, for example, it is not known if Crehore actually executed every part of the instruments himself.[86] With his earliest work he might have done so, but it is also quite possible that he had some assistance from another of the woodworkers in his family, especially with the casework. As he took on various apprentices, they must have played some part in the production of the pianos, although it is difficult to say exactly what and how much. In any event, Crehore alone must have been largely, if not entirely, responsible for the design of the various components, and it is to him that must go the credit for the final product, just as it is his name alone that is displayed on the nameboard. This has long been a traditional pattern of work and accreditation in musical instrument making as well as many other crafts.

Crehore's bass viols also raise many unanswered questions. His sur-

viving instruments show achievement of fairly high skill in the craft, again despite a lack of formal training. He is not known, however, to have employed or trained any workmen involved with string instruments, and much research remains to be done regarding what influence he might have had on later American luthiers.

It is also not known exactly what impact Crehore had on the other piano builders that he trained. Two extant pianos made by William and Adam Bent use many of the elements of Crehore's design,[87] but the earliest known pianos of the Babcocks are very up-to-date instruments styled after contemporary English models.[88] The later pianos of Alpheus Babcock and John Osborne show both these builders to have possessed minds that were at least as creative as their master's, if not more.[89] Whether Crehore was the primary source of inspiration for the inventiveness of these men cannot be ascertained.

It is perhaps a little unusual for one man to undertake the construction of instruments so disparate as pianos and bass viols, but Crehore was apparently not an ordinary craftsman. His interest in producing organized and transposing pianos (not to mention artificial legs) suggests a man who was always anxious to attempt something new and unusual. The short duration of Crehore's several business relationships could suggest that he was not easy to get along with. This might easily have been the case; such a personality trait is not uncommon among inventive minds. What is more likely, however, is that by associating with various artisans and musicians, he sought to broaden his connections and gain further expertise in his craft.[90]

Regardless of his influence on the instrument makers who followed after him, Benjamin Crehore stands out as a unique and pioneering craftsman among America's early instrument makers. The foundation he laid for musical instrument manufacturing in the New England area has been followed by generations of successful individual craftsmen as well as larger multifaceted firms. It is hoped that this brief survey of Crehore's instruments will add to the growing understanding of America's rich musical heritage.

Notes

Numerous colleagues have been supportive and helpful in my research. I wish to thank Anne L. Poulet and Sam Quigley for their constant encouragement throughout the project. I am grateful to John Koster and Marlowe A. Sigal for their direct observations about the pianos, and to Frederick Selch and Joseph Peknik III concerning the bass viols. To Cynthia Adams Hoover, Barbara Owen, and Sheridan Germann, I owe great thanks for their willingness to share their knowledge about Crehore and other early Boston piano makers. My thanks to Edward S. Cooke for his avid interest in my topic and for his insights about New England furniture and craft traditions. Credit must also go to Barbara Lambert for her role in the acquisition of the Museum's four Crehore bass viols. Finally, many thanks to Camilla C. Blackman for her timely and generous donation of the Museum's Crehore piano.

1. The most accurate summary of Crehore's life is given in "Crehore, Benjamin," by Cynthia Adams Hoover in *The New Grove Dictionary of American Music*, ed. H. Wiley Hitchcock and Stanley Sadie, vol. 1 (London and New York, 1986), p. 535.

2. Several excellent essays on the subject can be found in *Music in Colonial Massachusetts, 1630–1820*, 2 vols. (Boston, 1980). Of particular interest are articles by Barbara Lambert, "Social Music, Musicians, and Their Musical Instruments in and around Colonial Boston," pp. 409–514; and Cynthia Adams Hoover, "Epilogue to Secular Music in Early Massachusetts," pp. 715–867; both articles are in vol. 2.

3. Two interesting examples of homemade instruments from early New England are a square piano, maker unknown, late eighteenth century, Collection of Marlowe A. Sigal, Newton, Mass.; and a folk violoncello by George Jewitt, Lebanon, Maine, 1794/1795, Smithsonian Institution, 50,196. Ibid., pp. 791 and 801; and figs. 416 and 424.

4. Teague Crehore was the first person in Milton with that surname. It has often been said that he came from Ireland, but this has not been substantiated. See A. K. Teele, *The History of Milton, Mass., 1640–1887* (Boston, 1887), pp. 561–562; and Amy H. B. Crehore Falcon, *Crehore and Kin, 1620–1961, Pilgrims, Puritans, Founders, Patriots, and Wayfarers* (Evanston, Ill., 1962), pp. xi–xiv and 1–2.

5. Falcon, *Crehore and Kin*, p. 9.

6. For statements regarding Crehore's reputation as a mechanic see "The Music Trade," *The Musical and Sewing Machine Gazette* (February 21, 1880), p. 35; Teele, *History of Milton*, pp. 377–378 and 380–381; and Daniel Spillane, *History of the American Pianoforte* (New York, 1890), pp. 50–52.

7. Benjamin's father is described as a "joyner" in an indenture concerning the division of family property. See Charles Frederic Crehore, *A Genealogy of the Crehore Family* (Wellesley Hills, Mass., 1887), p. 10. A mirror and chair made by Benjamin's brother, Joseph Crehore (1763–1813), are in the Essex Institute, Salem, Mass., nos. 131,106 and 131,108. A mirror and canterbury (a container for storing music) made by Benjamin's second cousin, Charles Crane Crehore (1793–1879), are in the Museum of Fine Arts, Boston, nos. 1977.633 and 1988.161. Other woodworkers in the family included Benjamin's brother, Ebenezer Crehore (1764–1819), who worked as a house builder in Walpole, New Hampshire, and Benjamin's cousin (i.e., Charles's father), John Shepard Crehore (1767–1833), who was apparently well-known for high-back chairs that he produced at his shop in Milton. For further information about these and other family members, see Falcon, *Crehore and Kin*, passim.

8. Spillane states "that Crehore was, as far back as 1791 well known in Boston, New York, and Philadelphia as a maker of violins, 'cellos, and other instruments of that family, besides guitars, drums, and flutes." Although Spillane's pioneering study is a vital research tool, he is so often wrong with dates and other details that his information about early piano makers must always be interpreted with caution. See Spillane, *American Pianoforte*, p. 51.

9. James Hewitt was a professional musician from London who operated a music store in New York from 1797 to about 1811, and in Boston from about 1811 to 1816. See John W. Wagner, "James Hewitt, 1770–1827," *The Musical Quarterly* 58, no. 2 (April 1972), pp. 259–269.

10. The contents of this letter are quoted in Arthur W. Brayley, "Made America's First Piano," *Boston Globe* May 9, 1915. Brayley does not indicate where he had seen the letter.

11. *New York City Directories* from 1798 and 1799 list "Beat Dangel, professor of languages." His connection with Crehore or Hewitt has not been established.

12. The current whereabouts of this letter are unknown, but it was formerly in the possession of Crehore's granddaughter, Ann Elizabeth Crehore (1834–1917), who was married to Henry R. Reed and living at 29 St. Margaret's Street in Dorchester, Mass., as of 1905. Perhaps she also owned the letter from Hewitt mentioned in note 8. See "America's First Piano—Made in the Town of Milton," *Boston Globe* January 29, 1905, p. 5. The *Globe* states that the letter was written by B. Danzel [sic], but see note 11.

13. Original ledgers recording the various costs of constructing the house are preserved in the Milton Public Library. The Milton Lower Mills area is located at the tidewaters of the Neponset River and was since early times the site of various milling industries. See Teele, *History of Milton*, pp. 358–359 and 367–376.

14. Ellen F. Vose, *Robert Vose and His Descendants* (Boston, 1932) p. 217.

15. An unknown author writing in 1871 stated that Crehore was involved as a mechanic with the Federal Street Theatre in 1797 or 1798 for the purpose of helping to produce a play called *The Forty Thieves*. See "Music Trade," p. 35. Basically the same story is repeated in Teele, *History of Milton*, p. 337; and Spillane, *American Pianoforte*, pp. 51–52. Some part of the story must be faulty, however, since the first staging of *The Forty Thieves* in Boston took place on March 12, 1810. See Ruth Michaels, "A History of the Professional Theatre in Boston from the Beginning to 1816," Ph.D. thesis, Radcliffe College, 1941, p. 659. A large number of business records and letters from the Federal Street Theatre, dating from the 1790s to the mid-1800s, are in the Boston Public Library. A comprehensive index of these files makes no mention of Crehore, although numerous other persons involved with carpentry, stage machinery, and scenery are listed.

16. H. E. Johnson, *Musical Interludes in Boston, 1795–1830* (New York, 1943), p. 159.

17. There is a piano by Meinke and Pieter Meyer, Amsterdam, 1798 (owned by Sheridan Germann, of Boston), that has a label glued to the interior of the case indicating that the instrument was imported by von Hagen and Company. Germann has suggested that the stand for the piano was constructed after the piano had arrived in this country, since the design is not typical of other known Meyer pianos. It is also her assertion that the stand was likely made by Benjamin Crehore, since he was working with von Hagen at the time the instrument appears to have been imported. See Hoover, "Epilogue to Secular Music," p. 792 and figs. 418a and 418b.

18. The wording here was probably supposed to read "Italian harp stop." The harp stop was one of various names for devices that mute the strings of a piano by pressing leather or cloth against them.

19. See the *Boston Gazette* November 23, 1801. Mallet and Graupner were both immigrant professional musicians who had come to Boston in connection with the opening of the Federal Street Theatre. Graupner and his wife were particularly involved in the city's theatrical life. See Johnson, *Musical Interludes*, pp. 166–200.

20. The original document is in the Boston Public Library. An unknown author writing in 1834 states that Goodrich became acquainted with Crehore in May of 1804. See "Biographical Memoir of William M. Goodrich, Organ-Builder," *New England Magazine* 6 (1834), p. 28.

21. For a discussion of organized pianos see "Claviorgan" by Peter Williams in *The New*

Grove Dictionary of Musical Instruments, ed. Stanley Sadie, vol. 1 (London, 1984), pp. 429–430. For particular involvement by Goodrich with organized pianos see Barbara Owen, *The Organ in New England* (Raleigh, N.C., 1979), pp. 49, 52, and 62.

22. "Biographical Memoir," p. 28.

23. An example of a transposing piano, made in 1808 by Broadwood and Sons of London (formerly in the Broadwood Collection), is now in the collection of Marlowe A. Sigal in Newton, Mass. See Rosamond E. M. Harding, *The Piano-Forte, Its History Traced to the Great Exhibition of 1851* (Cambridge, England, 1933), p. 278 and facing plate.

24. The term "apprentice" is used somewhat loosely here; no formal contracts of apprenticeship with Crehore are known. Musical instrument making in America, being on such a small scale at this time was apparently not carefully regulated through a guild system. See Laurence Libin, *American Musical Instruments in The Metropolitan Museum of Art* (New York, 1985), p. 158.

25. The earliest known printed mention of Crehore's tutelage of these five men is in a letter written in 1872 by Thomas Appleton to George H. Chickering. It is reprinted in "Music Trade," p. 35. For details about William Bent (1772–1851) and Adam Bent (1776–1857) see Allen H. Bent, *The Bent Family in America* (Boston, 1900), pp. 98–99. Adam is recorded on the ledger mentioned in note 13 as having been paid for work on the Vose/Crehore house. For information about the Babcocks see Keith Grafing, "Alpheus Babcock: American Pianoforte Maker (1785–1842), His Life, Instruments, and Patents," DMA thesis, University of Missouri, Kansas City, 1972. For a summary of the life and work of John Osborne (1791 or 1792–1835) see "Osborne, John," by Cynthia Adams Hoover in *The New Grove Dictionary of American Music*, ed. H. Wiley Hitchcock and Stanley Sadie, vol. 3 (New York and London, 1986), p. 454.

26. Osborne was also notable for having trained Boston's most successful piano builder, Jonas Chickering (1798–1853). See Richard G. Parker, *A Tribute to the Life and Character of Jonas Chickering* (Boston, 1854), pp. 42–44.

27. The 1798 *Directory* shows the Bents in partnership with William Green (active 1798–1825), a maker of bass viols who later worked in Medway, Mass. The 1800 *Directory* lists William and Adam Bent alone as "instrument makers and carvers" at 26 Orange Street.

28. See an advertisement in the *Boston Gazette*, January 23, 1812. In his early years Appleton was employed by the same William Goodrich who had worked for a short time with Crehore. See Owen, *Organ in New England*, p. 70.

29. "Music Trade," p. 35.

30. *New Grove*, "Crehore," p. 535.

31. Teele, *History of Milton*, pp. 380–381.

32. *New Grove*, "Crehore," p. 535.

33. *A Digest of Patents Issued by the United States from 1790 to January 1, 1839* (Washington, 1840), p. 360. No copies of the text or drawing for Crehore's patent are known to survive. The originals would have been destroyed in a fire at the U. S. Patent Office on December 15, 1836, and there is no evidence that the patent was ever reconstructed or renewed.

34. A death notice for Crehore appeared in the *Columbian Centinel* on October 19. A copy of his probate record, in the Boston Public Library, describes him as a cabinetmaker.

35. Violoncellos were less standardized in size during the seventeenth and eighteenth century than is sometimes realized. By the early eighteenth century some makers had settled on a body length of 750 to 760 mm with a string length of about 690 mm. These dimensions have remained relatively standard ever since, although before 1700 the body length of violoncellos varied between 730 and 800 mm, the larger models apparently being preferred. See Elizabeth Cowling, *The Cello* 2nd rev. ed. (New York, 1983), pp. 32–34 and 39–40; and "Violoncello," by Klaus Marx in *The New Grove Dictionary of Musical Instruments*, ed. Stanley Sadie, vol. 3 (London, 1984), p. 806.

36. Discussion of the nomenclature for American bass viols is given in Frederick Selch, "Yankee Bass Viol Makers," *Journal of the Violin Society of America* 2, no. 2 (spring, 1976), pp. 26–37; and under "Bass viol," by Frederick Selch in *The New Grove Dictionary of Musical Instruments* ed. Stanley Sadie (London, 1984), vol. 1, p. 92.

37. It is assumed that American churches imitated a tradition of bass viol use in English church bands, although very little has been written about the subject. See Maurice Byrne, "The Church Band at Swalcliffe," *Galpin Society Journal* 17 (February 1964), pp. 89–98; and Francis W. Galpin, *Old English Instruments of Music* (London, 1911), pp. 282–283. Selch has conjectured that William Billings (1746–1800), a well-known singing master and cousin to Benjamin Crehore, may have been influential in adopting the use of bass viols in New England churches. See Selch, "Yankee Bass Viol Makers," p. 28.

38. Teele mentions a Crehore bass viol that was seen at a church in Thomastown, Maine, and another owned by John Preston of Hyde Park, Mass. See Teele, *History of Milton*, p. 378. Charles L. Crehore examined the instrument owned by Preston and stated that, in addition to being in poor condition and unsigned, no one in the Preston family was aware of its association with Crehore. See Charles L. Crehore, *The Benjamin Crehore Piano* (Boston, 1926), p. 21.

39. This bass viol is almost certainly the same one in *Catalogue of the Exhibition, under the Auspices of Chickering and Sons*, Horticultural Hall, Boston (1902), p. 54 and plate facing p. 15. The instrument also fits the description of one mentioned in William H. Howe, "Early American Violin Makers," *The Violinist's Guide* 20, no. 7 (July 1916), p. 5. Howe states that the instrument had formerly been used at the Old South Church of Weymouth, Mass., where it was played by a Mr. White. Personal communication from the instrument's previous owner indicates that it surfaced in recent times at an auction in Cambridge, Mass., in the early 1970s.

40. The writing on this label bears a reasonable resemblance to Crehore's signature on his contract with Goodrich, mentioned in note 20. The Lower Mills area of Milton, where Crehore worked in the 1790s, is just across the Neponset River from Dorchester. In 1788 Crehore may have lived in nearby Dorchester, or may have considered the Lower Mills area as part of Dorchester.

41. Comparison of the measurements of forty-five American bass viols made between about 1790 and 1850 shows only seven with a longer body than this instrument and none with a wider lower bout.

42. A somewhat similar style of soundhole occurs on some later string instruments made in America, notably ones from New Hampshire. Examples in the Museum of Fine Arts include an unsigned tenor violin, New England, about 1800–1825, William Lindsey Fund, 65.2684; a double bass by Abraham Prescott, Dearborn, New Hampshire, 1823, Gift of Frank G. Webster, 1987.22; and a bass viol by Abraham Prescott, Dearborn, New Hampshire, about 1820, William Lindsey Fund, 65.2686.

43. I am extremely grateful to John Koster, Conservator and Assistant Professor of Museum Science at the Shrine to Music Mu-

seum in Vermillion, South Dakota, for performing microscopic identification of various woods used in Crehore's instruments. Wherever the genus or species has been accurately established the scientific name is given parenthetically.

44. On better quality string instruments purfling is executed by gluing a narrow inlay of wood (comprised of a light strip sandwiched between dark strips) into channels cut just inside the perimeters of the belly and back.

45. Museum no. 1976.156 was purchased in 1925 by Charles L. Crehore (1867–1925), a great-grandnephew to Benjamin, from a Mr. W. Ropes. It had been located for Mr. Crehore by Henry F. Schultz, a former employee of Elias Howe and Co. The instrument was donated to the Museum in 1976 by Charles C. Cunningham, Sr., who had received it from his great-aunt, Lucy Clarendon Crehore (a sister to Charles L. Crehore). Museum no. 1983.148 was donated to the New England Conservatory by Wallace Goodrich at an unknown date, but by 1967 at the latest. See Elizabeth Burnett, "A Catalog of the Collection of Ancient Instruments Owned by the New England Conservatory of Music," master's thesis, New England Conservatory, 1967. It was donated to the Museum by the Conservatory in 1983. The Smithsonian instrument was acquired in 1981 from the Museum of the American China Trade in Milton, Mass.

46. The two Museum bass viols in this group bear additional labels that are not original. A handwritten label in no. 1976.156 reads "First American Maker 1785," and was probably applied in the late nineteenth or early twentieth century. It had certainly been applied by 1925 as it is mentioned in Crehore, *Benjamin Crehore Piano*, pp. 21–22. No. 1983.148 bears a second handmade label that reads "MADE / Anno Domini 1796" surrounded by colored ink drawings of various musical instruments, patriotic bunting, and American flags. The label appears to be made from laid paper (appropriate to the period), but the lettering and decoration seem stylistically incorrect for the period. I am grateful to Roy Perkinson and Annette Manick of the MFA's Paper Conservation Lab for their opinions about the physical characteristics of this label and the handwritten one in the 1788 instrument.

47. Selch, "Yankee Bass Viol Makers," pp. 30 and 37.

48. I am grateful to Karel Moens of the Musée Instrumental of the Conservatoire Royal de Musique in Brussels for pointing out to me the significance of this feature and its earlier precedents.

49. Selch, "Yankee Bass Viol Makers," pp. 29–30, and 34.

50. Museum no. 1976.156 has a small repair patch in the position of this mark, and although the painted purfling has been retouched in places it stops short of the patch. The instrument probably had the same design here originally as the others.

51. Other instruments with this design on the back include a bass viol by Benjamin W. Willard, Lancaster, Mass., 1810, Museum of Fine Arts, Frank B. Bemis Fund, 1987.15; and a bass viol by Abraham Prescott, Deerfield, New Hampshire, 1819, private collection.

52. The instrument was acquired by Christopher Bickford, Director of the Connecticut Historical Society, from Ira Rushman in 1975. It was donated to the Museum in 1984 by Mr. Bickford.

53. I thank Frederick Selch of New York City for telling me of other instances where this type of liner is used.

54. Selch, "Yankee Bass Viol Makers," p. 30.

55. I thank Karel Moens for informing me about the use of grooves in certain earlier traditions of European string-instrument making, and for explaining the manner in which such instruments were sometimes rebuilt.

56. The piano is traceable back to 1930 when, according to records of the Registrar of the Museum of Fine Arts, it was returned to Mrs. Percy H. Safford of Fitchburg, Mass. It was initially placed on loan to the Museum in 1917 by Charles M. Hedrick of Lowell, Mass.

57. It is possible, though unlikely, that Crehore made other types of pianos, such as grands. Spillane cites "a vague press notice" in 1800 that mentions an "'expert mechanic' whose 'new grand pianoforte' created so much attention in 1799 in Boston." See Spillane, *American Pianoforte*, p. 53. At present, the earliest known extant grand pianos made in the United States are from the 1830s; an example dated about 1835–40 by Nunns and Clark of New York is in the Prouty-Chew House in Geneva, New York. It is not until the 1850s that grand pianos were produced in substantial numbers in this country. I thank John Koster for bringing the Nunns and Clark piano to my attention and Roland Loest of New York City for confirming the date of manufacture.

58. Libin, *American Musical Instruments*, p. 157. Using instruments from the Metropolitan Museum of Art, Libin provides an excellent overview of musical instrument manufacture in America. The chapter "Keyboards and Automata," pp. 157–211, is especially relevant to this study.

59. Spillane, *American Pianoforte*, p. 49.

60. An excellent study of the piano as a cultural artifact is Arthur Loesser, *Men, Women, and Pianos: A Social History* (New York, 1954).

61. Spillane, *American Pianoforte*, p. 54.

62. The piano was apparently donated or loaned to the Library about 1910 by either Morris Steinert (1831–1912), a noted collector of antique keyboard instruments from New Haven, Conn., or his son Alexander Steinert, who operated a piano dealership in Boston.

63. The piano was donated to the Essex Institute in 1891 by Arthur Merriam of Boston, and is said to have been the first piano in Topsfield, Mass.

64. An aspect that suggests an early dating is the unusual appearance of the nameboard compared to the other examples. The case also lacks molded edges on the lid and reeding on the legs, elements which appear on some of the later pianos.

65. The piano was acquired by Ruth P. Cunningham from an antique dealer in New York City, probably during the late 1940s, and inherited by her daughter, Camilla C. Blackman, who in turn donated the piano to the MFA in 1992.

66. The piano was formerly owned by Charles L. Crehore (see note 45), who acquired it in 1922 from Mr. L. Loring Brooks. For further details of the provenance see Crehore, *Crehore Piano*, pp. 1–4.

67. The exact type of English piano that served as Crehore's model has yet to be determined. It was suggested by Benjamin's nephew, Isaac Crehore (1796–1872), that he might have copied a Broadwood. See "Music Trade," p. 35. There are so many differences, however, between Crehore's instruments and typical Broadwood or other English pianos that a search for the original model may be pointless.

68. The mahogany used for the casework has been identified as American mahogany (*Swietenia*). Crehore also frequently used mahogany for his hammer shanks and damper levers.

69. Throughout the text, where pine is referred to it has been identified as white pine (*Pinus strobus*), unless otherwise noted.

70. Concerning Zumpe's career see Henry Warwick Cole, "The Early Piano in Britain Reconsidered," *Early Music* 14, no. 4 (October 1986), pp. 563–566.

71. The use of parchment for hammer hinges is quite anomalous during this period. Although parchment is commonly used for damper-lever hinges and (in square pianos with an English double action) for jack hinges, it is generally considered too stiff and brittle for the amount of wear exercised on hammer hinges. It is interesting in this regard that nearly half of the original parchment hammer hinges on the Library piano have been replaced with parchment (probably at an early date), whereas the Museum's piano has nearly all of its original parchment hinges intact. In each case the original hinges are numbered sequentially in ink. There is some evidence for the use of parchment hinges at a later date, as can be seen in *The New-York Book of Prices for Manufacturing Piano-Fortes*, published in 1835 by the Society of Journeymen Pianoforte-makers (a copy is in The Metropolitan Museum of Art, no. 51.579.1). This publication mentions, on p. 56, hammers with "leather or parchment hinges." I thank Stewart Pollens, Conservator of Musical Instruments at the Metropolitan Museum of Art in New York, and John Koster for bringing this publication to my attention and for their observations about hammer hinges.

72. Although spruce has long been the most common soundboard material for keyboard instruments, white pine is occasionally found on American-made examples. Examples at the Museum of Fine Arts include a spinet by John Harris, Boston, 1771, Edwin M. Ripin Collection, Friends of the Collection Fund, 1977.58; and a square piano by John Osborne, Boston, 1824–26, Gift of Joseph L. Braun, James E. Tucker, and Marion V. Donnelly, 1989.127. Whereas white pine is a native wood to New England, and is very common in locally made furniture, spruce undoubtedly would have been imported.

73. See "Music Trade," p. 35.

74. There is a long soundboard in a piano built between about 1822 and 1824 by Alpheus Babcock, Essex Institute, Salem, Mass., 127,587 (for details see Grafing, "Alpheus Babcock," pp. 28 and 105); and in a piano made between 1824 and 1826 by John Osborne (cited in note 72). One writer stated that Eben Goodrich (1782–1841) was the first to use a long soundboard in pianos. See Henry A. Goodrich, *Church Organs: Some of the Early Builders in New England* (Fitchburg, Mass., 1902), p. 10. Eben Goodrich was, like his brother William, primarily an organ builder, but he is said to have worked with Crehore for at least a short time. See "Biographical Memoir," p. 28.

75. The piano is discussed in detail in Libin, *American Musical Instruments*, pp. 164–166. It was donated to the Metropolitan Museum by Mrs. John Crosby Brown in 1889, but there is no record of where she obtained it.

76. Crehore used leather, rather than parchment, for the hammer hinges in this piano (see note 71). I thank Stewart Pollens for examining these hinges for me. For details of Geib's patented action (British patent no. 1571) see *Patents for Inventions, Abridgements of Specifications Relating to Music and Musical Instruments, A.D. 1694–1866* 2nd ed. (London, 1871; facs., London, 1984), p. 18.

77. Libin would seem to be incorrect in considering Crehore's flexible attachment of the damper wires to the keys as having been an original idea. The basic design for this style of damper was patented by William Southwell in 1794 (British patent no. 2017), Ibid., pp. 28–29. With such dampers the lower end of each wire must be attached to the key lever in a flexible manner or the wire will bind in its upper guide as the back of the key lever rises.

78. The shelf on the stand of this instrument is not original. See Crehore, *Crehore Piano*, p. 13.

79. I thank Edward S. Cooke, Associate Curator of American Decorative Arts at the MFA, for his observations about the various decorative aspects of the stands and their relation to other New England furniture.

80. The wood used for the keyfronts has been identified as holly (*Ilex*) in the Library piano and probably aspen (*Populus*) in the Museum's piano.

81. See Laurence Libin, "An Open and Shut Case?," *Early Music* 15, no. 1 (February, 1987), p. 76.

82. For discussion of Penniman and his work see Carol Damon Andrews, "John Ritto Penniman (1782–1841), an Ingenious New England Artist," *The Magazine Antiques* (July, 1981), pp. 147–176. Some additional connections appear to have existed between Crehore and the artist. Penniman painted a portrait of Crehore's granddaughter, Ann Elizabeth Crehore, in 1832, and a Penniman watercolor and ink drawing of a piano was found in the attic of a house that had belonged to Benjamin's brother, William Crehore (1754–1813). Ibid., pp. 159 and 164.

83. Also attributed to Penniman is the decoration on the nameboard of a piano by Babcock, Appleton, and Babcock, 1812–1814, Taft Museum, Cincinnati, Ohio, 2.1932. Ibid., pp. 165 and 166.

84. An important discussion regarding this problem of restoration is given in John Barnes, "Does Restoration Destroy Evidence?," *Early Music* 8, no. 2 (April, 1980), pp. 213–218.

85. For examples of other American builders of keyboard instruments who worked without benefit of formal training see Owen, *Organ in New England*, pp. 22–48; and Libin, *American Musical Instruments*, pp. 157–158.

86. Spillane suggests that Crehore could not have produced the musical components of a piano without the help of someone more familiar with the mechanisms involved. He proposes von Hagen as a likely candidate to have helped Crehore in this regard, but it appears likely that Crehore was already making pianos before von Hagen arrived in Boston in 1796. See Spillane, *American Pianoforte*, pp. 51–52.

87. One Bent piano is at the Smithsonian Institution, no. 299,851; and a second is at the Historical Society of Old Newbury, Newburyport, Mass.

88. For example, a piano by Babcock, Appleton, and Babcock, about 1812–1813, in the Taft Museum, Cincinnati, Ohio, no. 2.1932; and one by Hayt, Babcock, and Appleton, about 1815, at the Smithsonian Institution, no. 303,520. See Grafing, "Alpheus Babcock," pp. 86–87.

89. Alpheus Babcock is credited with the development of the first single-cast metal frame for the piano (patented on December 17, 1825), one of the most significant contributions to piano design in the nineteenth century. Ibid, pp. 35–48.

90. I thank Edward S. Cooke for this suggestion about Crehore's many different associations.