The Loss and Survival of Musical Artifacts

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Introduction

The writing of history depends on information – written, visual, oral or otherwise – that is inevitably very incomplete, and sometimes also inconsistent, inaccurate or contradictory. While disciplines such as archaeology and paleontology have become expert in working with highly selective material and extrapolating (or speculating) as to the nature of what has not survived, a much broader area of 'lost studies' has emerged in the past few decades across many subjects, covering (among others) lost civilizations, cultures, cities, buildings, transport, languages and animals;[1] there is even now a complete catalogue of the 2,060 English country houses that have disappeared since 1800.[2] The majority of these studies are concerned with material objects in an archaeological sense, but many other intangible things in music and other aspects of culture can also be lost, including skills, crafts and knowledge (for example, the meaning of the ornament signs used in virginal music),[3] whether once recorded or not. Unless specifically notated in the music itself or described in treatises, many performance practices have been lost; comparing works in which the ornamentation has been written out with the plain version can give an idea of how much has been lost.[4]

Many music-related objects survive only in a partial or secondary form, including copies or engravings of lost paintings;[5] descriptions, drawings or plans of musical instruments; arrangements of musical works; or recordings or photographs of instruments now no longer extant. Probably the most remarkable example of this is the Sumerian-era Queen's Lyre, found by Leonard Woolley in 1922 during the Ur excavations in modern-day Iraq:[6] he poured molten wax into the space that he guessed was left by a vanished lyre, and so was able to extract a mould of it (illus.1) – the representation of an instrument that exists only through its complete absence.

The term 'lost' comprises many sub-categories, from things that have been deliberately or accidentally destroyed to those that have decayed, been damaged, neglected, stolen or mislaid. The categories below cover manuscripts and prints; musical instruments (especially keyboards); and paintings, principally from the later Middle Ages to the end of the 18th century, by which time antiquarians had begun many of the collections that would later form the basis of the world's museums and archives. It should be added that, unless appropriately catalogued and easily available, being in a museum does not guarantee that (for practical purposes), an object is not in effect 'lost'.

The saving or rescue of material was often related to its perceived value, either in terms of materials, historical significance, association or rarity; highly decorated material such as instruments or manuscripts could fulfil all of these requirements, and some decorative arts collections (for example, the Victoria & Albert Museum) specialized in these. Thereafter, restoration made possible preservation, either for public display, or private use or study.

Given the natural decay of organic materials over time, even if kept in optimal conditions, historical material was usually found in a condition requiring treatment to enable long-term survival (for a large-scale example, consider the 1511 Tudor warship Mary Rose, raised off Portsmouth in 1982 and now in its own museum).[7] In fact, entire buildings have been reconstructed from previous plans and photographs, as happened during the post-war rebuilding of Dresden, Warsaw and other cities.

Illus.1 Leonard Woolley with a plaster model of the excavated Sumerian 'Queen's Lyre' from Ur (1922)

Where the decay was too serious, rendering an object unusable, unrestorable or fragmentary, things were often discarded as 'broken' beyond viable or affordable repair. The gap between these two states (represented by a keep/discard dichotomy) is the 'loss point': the moment at which something can or cannot affordably or desirably be repaired or retained, as perceived at the time. This can vary considerably between different classes of object: for example, a few intact pages from a heavily damaged medieval music manuscript may be kept as a display artwork; or an unusable square piano with its mechanism missing or damaged might either be discarded, or converted into a piece of furniture such as a desk.[8]

The issue of use-redundancy (for example, a harpsichord retained in a mid-19th-century drawing room as decorative rather than functional) applies, and can be over-ridden if the item is perceived to be of historical interest or aesthetic value, even if it no longer works or has a practical use. In the same way, documents and objects can have an 'heirloom' value to families, individuals or institutions, regardless of their condition or purpose, and some early keyboards seem to have survived on that basis. While the 1691 Vincent Thibaut harpsichord (see below; a very rare example of a 17th-century French instrument) was found in a clearly 'broken' state, extensive restorations of such instruments have sometimes returned them to something approaching as-new condition. Had the Thibaut been found at a different time by a different or non-expert person, or in slightly worse condition, it could easily have been discarded.

The Lost Music Project, to which this article is an introduction, is concerned with three particular questions:[9]

- What objects are missing or lost?
- Why and how did they become lost?
- To what extent are the surviving objects representative, in type, quantity or quality?

Throughout, comparative reference below is made to non-musical sources, such as library studies, where they can shed light on musical traditions.

Creation

At the point of creation of an object, its eventual fate is sometimes considered; what materials is it made of, where will it be kept, who will look after it? and so on. These questions can affect the standard to which work is done, whether it is intended in some sense to be unique (in the sense of private – consider the coded writings of Leonardo da Vinci and Samuel Pepys), or whether it is intended to act as a further source for others (for example, some of Bach's keyboard manuscripts as copy-texts for his pupils). For material produced on a commissioned or commercial basis, such as codices, efficient methods were soon developed to ensure the speed and quality of production, sometimes supported by guild rules. In 13th century Paris and Oxford, for example, there were two particular streets where specialists gathered, meaning that stationers, copyists and binders all had the advantage of working within a highly localized community of craftsmen.[10] The better such work they produced, the more care was likely to be taken of it by its eventual owners.

After the creation may come the transmission of material, whether voluntary or otherwise. This can include sale, war booty (such as the library of Lucullus, taken during the 1st-century BC Mithradatic wars)[11] or theft (material subsequently appearing on the open market, the black market or by private sale). Transport was often risky across distances, and some early instrument suppliers made a point of dividing their cargoes between several ships when crossing the channel, as some form of risk coverage against loss.[12]

In the digital era, the question of storage format becomes crucial. To what extent a change in format might be equivalent to a loss in practice is yet to be assessed, but many documents which were previously stored in specific formats no longer in use or subject to deterioration (cassette tapes, reel-to-reel tape, floppy discs and so on) may effectively be lost.

Collectors and collecting

An awareness of the fragility of documents led a number of early writers and book owners to try and control their successors or readers, legally or morally: 'book curses' against theft were sometimes written into the front of codices,[13] and while music is rarely annotated in this way, a late 15th-/early 16th-century Middle English example does exist in the Pepys library in Cambridge:

He That stelle Thys boke,	*He who steals this book,*
A shalle be hangked vp on a hoke,	*Shall be hanged upon a hook,*
no vther be water nor be lond,	*Either by water or by land,*
wyt a fayer hempyng bond.	*With a good hemp band.*[14]

Writers like the 7th-century bishop Gregory of Tours, on leaving his extensive manuscript writings to his successors, noted, 'I conjure you all … that you never permit these books to be destroyed, or to be rewritten, or to be reproduced in part only with sections omitted… Keep them in your possession, intact, with no amendments and just as I have left them to you'.[15] Format also mattered: a 15th-century monk, Johannes Trithemius, wrote *In Praise of Scribes* (1492), 'The word written on parchment will last a thousand years. The printed word is on paper. How long will it last? The most you can expect a book of paper to survive is two hundred years'.[16] Fortunately he was incorrect in the latter respect.

Throughout history, large libraries have been destroyed or ransacked – the library of Alexandria in antiquity being the most famous example – but this process has not ceased in the modern age: major collections at Jaffna (1981) and Sarajevo (1992) are among the most recent,[17] while the Schoenberg archive in Los Angeles (comprising some 100,000 documents) was destroyed by fire only last year.[18]

Collections of musical paintings are relatively rare, although Padre Martini[19] and C. P. E. Bach[20] owned significant numbers of works in the 18th century, and the earlier Oxford University music collection was and is significant.[21] Once dispersed, provenance of the surviving works can be problematic; paintings of Purcell, Corelli, Handel and Geminiani, with the busts of the first two, were owned by The Concert of Ancient Music in 1786,[22] but it is not possible to specifically identify any of these with extant works.[23]

Ownership categories can be important: for a professional performer, a musical instrument is principally a working tool, but also one (as for a collector) with an asset value that can be realized in due course. For an institution, an instrument collection is one that can either function as a public museum repository, or a working collection for loan or hire to

students; while some institutional collectors (such as banks) have taken to 'investing' in valuable string instruments which are lent to leading performers. Other collections were originally assembled for their study value or as a research resource;[24] for this to be effective, the objects must be researched and catalogued thoroughly, and sometimes restored, which is a major expense. In order to preserve original material intact, some museums have commissioned working copies of instruments on which performers can experiment. An early example was the first historic clavichord reproduction made in Germany, built in 1911 by Otto Marx (1871-1964) as a copy of the 1543 Dominicus Pisaurensis.[25]

Some instrument collections were established as permanent, with restrictive covenants as to use, while others allowed for more flexibility. Modest private collections could function as a resource for demonstrations (for example, in the late-19th-century lecture-recitals by pianist and scholar A. J. Hipkins),[26] and larger collectors often hoped to create representative collections, a concept that is now near-impossible due to the paucity of newly-discovered material coming onto the market. Generally, the availability of working instruments beyond their own style period (for example, the viola da gamba) meant that older repertoire might also be kept in play privately for much longer than has previously been realized.[27]

The process of aggregate book collecting – from previous owners, libraries or institutions – has also led to 'lost' libraries being found within extant collections, such as the remnants of the 16th-century Pagliarini Collection incorporated into the Museo Internazionale e Biblioteca della Musica in Bologna,[28] or the 18th-century Academy of Ancient Music library now at Westminster Abbey.[29] The huge library of Fernando Colon (1488-1539) is represented by a quarter of its original contents, now held in Seville Cathedral.[30]

Recording losses

The sources recording musical items now lost take many forms, including paintings, drawings, inventories, wills, probate records, dairies, newspaper reports and advertisements,[31] archival descriptions, insurance documentation[32] and auction catalogues. Many of these remain to be fully explored; for example, Puttick & Simpson in London held close to 11,000 auctions between 1846-1971, including 1,650 of music,[33] and they were just one of many dealers there. Even were those records digitized and aggregated for searching, identifying actual material from brief descriptions is a challenge: a typical entry from 1863 is 'Lot 469, five motet partbooks'.[34] Secondary references can also be hard to find, and are individually not always very informative: that there was a chapel organ in Peterhouse, Cambridge, after the Restoration was originally known only because of a Probate document referring to the organist at that time.[35] However, where all sources can be assessed and combined, it is often possible to provide a convincing historical narrative, as with Peter Holman's recent study of Handel's harpsichords.[36]

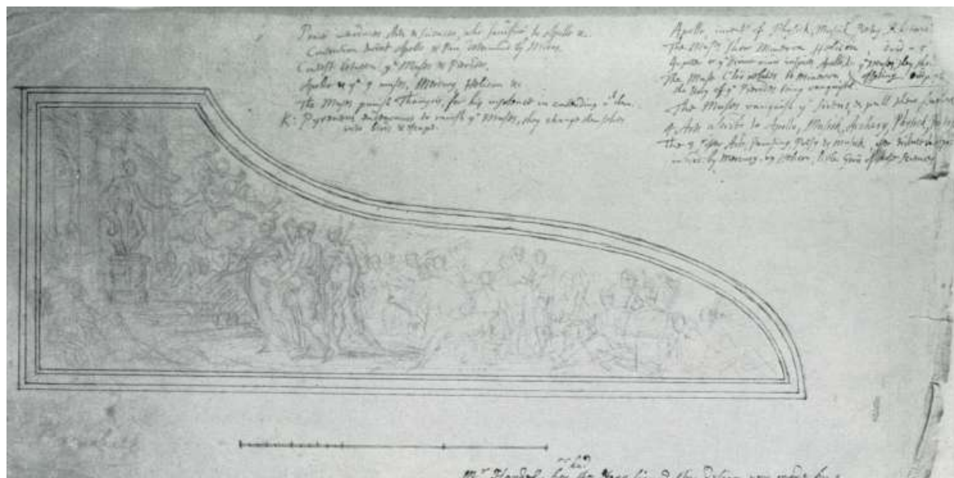
Damage, decay and re-use

Materials decay or degrade at different speeds, depending on their treatment or storage conditions. Sometimes these can be minor, such as mould resulting from damp conditions, which becomes major if not treated. Historical descriptions of neglect can be very striking, as when librarian Hugo Blotius arrived at his new post in the court library of the Holy Roman Emperor in Vienna in 1575: 'There was mould and rot everywhere, the debris of moths and bookworms, and a thick covering of cobwebs'.[37] However, objects such as musical instruments that are looked after can have a very long life-span: the earliest surviving organs, harpsichords and clavichords are nearly half-a-millenium old, and some of those only a little younger are still in playing condition.

The main source of damage to both instruments and books is water, whether in the form of an actual flood, or mere humidity. This leads at best to staining and a worst to rot; it can also degrade the organic glues used historically, causing an instrument to literally fall apart (or even collapse, if under strong string tension): a complete 1729 Posch violone found in Annaberg Abbey, Austria, in 1955 was originally described as 'a few wooden planks lying there in a disorderly heap'.[38] Woodworm can also destroy structural integrity, while action parts such as quills, felt hammers and listing cloth can also be destroyed by insect damage, such as moths. Metal items such as strings rust and break over the centuries (illus.2). Surface damage (dirt or scratches), while a normal part of wear-and-tear, can (like heavy playing) can also be detrimental: there are early keyboards which literally have deep grooves in their surface due to finger-wear, as with the 1674 Thamar organ at Framlingham church.

Partial loss can also occur, as when just a portion of an object is retained, and the rest discarded as damaged or unwanted. One such example is the painting inside a harpsichord lid, which could cost as much to have done as the value of the instrument itself, and survive separately for its artistic worth. In 1604 Sweelinck travelled to Antwerp to buy a harpsichord from the Ruckers workshop, costing 200 guilders including transport. Remarkably, the lid (only) from this instrument has recently been identified, containing an allegorical painting by Pieter Isaacsz.[39] Two further examples of a harpsichord lid painting where only the design survives can be found in the Fitzwilliam Museum, Cambridge, and in the National Galleries of Scotland. The first is a drawing of a harpsichord lid painting by James Thornhill (1675-1734), annotated 'Mr. Handel has or had the Harpsichord this design was made for' (illus.3);[40] the second is an anonymous drawing now entitled 'People Dancing and Making Music' of c.1560–70.[41] In neither case does an instrument survive. More recently, Malcolm Rose successfully constructed the case and mechanism of a mid-18th-century spinet to fit a surviving historic walnut lid he owned; with such projects, the Ship of Theseus hoves into view.

Illus.2 Unrestored late 18th-century square piano, with broken strings (photo: Francis Knights)



Illus.3 James Thornhill, Allegorical composition for the lid of a harpsichord[42]

The older the source, the more likely that it has become damaged. For example, 'Karen Desmond notes that there are 75 manuscripts surviving from the thirteenth century containing polyphony that were copied in the British Isles. She finds that an incredible 57 of these are fragmentary - 76 per cent'.[43] Owners at the time were well aware that a continuing process of repair was needed to preserve heavily used or important (religious or liturgical) material: 'a damaged book was not easily thrown away. In abbeys, monks were expected to repair volumes that had become damaged. During their visitations to Syon Abbey, bishops were required to check, "If ther be an inuentory or register of the bokes of the library, and how they and other bokes of study be kepte and repayred"'.[44] The Eton Choirbook, one of the most impressive 16th-century musical manuscripts, was apparently

neglected in its home institution for nearly four hundred years, when found on top of a cupboard in the 1920s;[45] such benign neglect likely ensured its preservation.

Paper partbooks (individual bound musical parts, usually gathering groups of pieces by composer or genre) were the most common format of the 16th and 17th centuries, and were relatively cheap to produce, as well as being easy to manage in performance and convenient to store. Unlike large choirbooks which contained all the voices,[46] their downside is that individual volumes from a set could be damaged or lost, rendering the set unusable. This has happened many times into the present (most 16th and 17th century British manuscript sets are now incomplete, and many have been since they started appearing in auction catalogues in the early 19th century) but this was recognized as a danger at the time too. At Trinity College, Cambridge in 1664, when George Loosemore (organist 1660-82) found that a manuscript set of 'Grace-songs which wee use upon our Solemne Feast-daies' by his predecessor Robert Ramsey (organist 1628-42) was incomplete he composed new settings of the same texts, noting in a handwritten dedication that 'by the unhappie losse of one book, or part, [Ramsey's] acurate parries, and labours, is lost and become uselesse'.[47] The missing music could actually have been found in the Peterhouse partbook copies a little way along the street, had he known.

Substantial materials, including wood and parchment, were worth keeping even when their original purpose had passed (consider also the amount of dressed stone that survives from Medieval buildings in later structures). The antiquarian John Aubrey (1626-97), writing after the two huge upheavals of the Reformation and the English Civil War, puts it very colourfully: 'In my grand Father's dayes the Manuscripts flew about like Butterflies. All Musick bookes, Acount bookes, Copie bookes, etc, were covered with old Manuscripts, as wee cover them now with blew Paper or Marbled Paper. And the Glovers at Malmesbury made great Havoc of them and Gloves were wrapt up no doubt in many good pieces of antiquity'.[48] Lesser paper could be used for mundane purposes such as to wrap fish or meat, the alleged end of some of Bach's now-lost cantata manuscripts,[49] while a substantial number of medieval musical manuscript pages survive as binding fragments.[50]

Destruction

As well as destruction or decay caused by neglect, there are many instances of destruction caused by the circumstances of violent human behaviour: wars, sieges and revolutions. However, the famous story that hundreds of harpsichords were burnt as firewood at the Paris Conservatoire during the cold winter of 1816[51] appears to be a later myth.[52] Instruments have been lost in social uprisings, and are sometimes only noted by their absence: for example, Mexican archives refer to harpsichords in some numbers, but not a single one has survived to the present (although a number of Latin American clavichords have[53] – and that difference might have something to do with the comparable status markers or storage location of the two types).

Fire has historically been a major cause of destruction, from buildings down to manuscripts. One Mr Roberts of St Davids recalled how during the English Civil War, 'heaps of parchment books and rolls [had been] burnt… [and he] being then a schoolboy, [did] carry several out of the library for the sake of the gilt letters [illuminations]'.[54] In Norwich, the destruction was equally deliberate, according to Joseph Hall's *Hard Measure* (1647): 'the service books and singing-books that could be had, were carried to the fire in the public market-place'.[55] Other examples from the period involve re-use of materials for actual war: Wrexham's organ, a rare such instrument in Wales, in 1643 had its pipes were melted down to make bullets for Lord Myddleton;[56] or the dismantling of the Exeter Cathedral organ: at Exeter Cathedral, 'they brake down the organs, and taking two or three hundred pipes with them in a most scorneful and contemptuous manner, went up and downe the streets piping with them'.[57]

Instruments could also be destroyed by fire, as when Handel's Covent Garden organ was lost in the conflagration there in 1808.[58] One instrument, a cello, was even drowned in a steamer sinking on the River Plate in the 1960s, although valuable enough – it was the 1711 'Mara' Stradivarius – to be salvaged and completely restored.[59]

The last natural form of destruction here is the earthquake, which could affect both instruments and music: when the opera orchestra lost all their instruments in the 1906 San Francisco earthquake, they were charitably replaced by the singer Marcella Sembrich (1858-1935),[60] while the organ of St John's Church, Hororata was destroyed in the 2010 New Zealand earthquake.[61] The catastrophic 1755 Lisbon earthquake destroyed the royal music library (illus.4), the lost contents of which are known only through a surviving catalogue.

Self-destruction

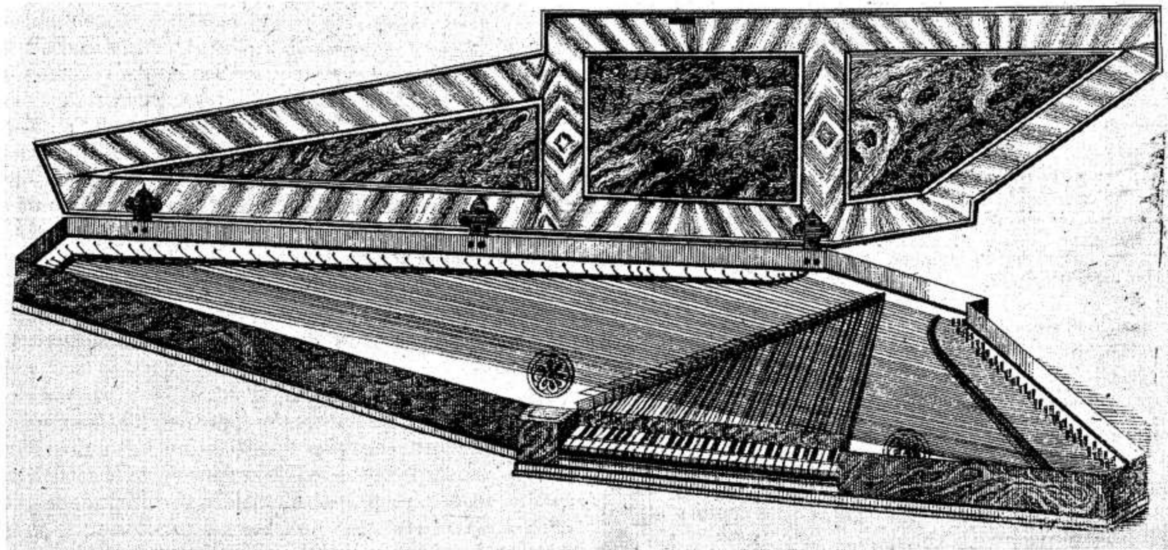
One further form of loss is self-destruction (or repudiation), where a composer culls their earlier or later works to make sure that their musical reputation can in some sense be posthumously controlled. This may be for confessional reasons (John Taverner, who – at least according to John Foxe (1563) – 'repented him very much that he had made songs to popish ditties, in the time of his blindness'),[62] or for quality reasons, as with C. F. C. Fasch (1736-1800) and Jean Sibelius (1865-1957) culling their archives at the end of their lives. The family or heirs of an artist may also decide to limit the material available to posterity, as with the posthumous destruction of many of Jane Austen's letters.[63]

Lost instrument types

Entire instrument types have also been lost, such as Gottfried Silbermann's *cembal d'amour* of 1721 (illus.5), a type of clavichord with double-length strings, or Holhfield's *bogenclavier* (bowed-clavier), about which C. P. E. Bach wrote most warmly.[64] Both of these have been reconstructed in modern times, along with many other rarities such as Thomas Mace's *lute-dyphone* (illus.6),[65] or the *lautenwerck* (lute-harpsichord), that survive only in engravings or by description (note that Bach owned two of the latter, which gives them particular

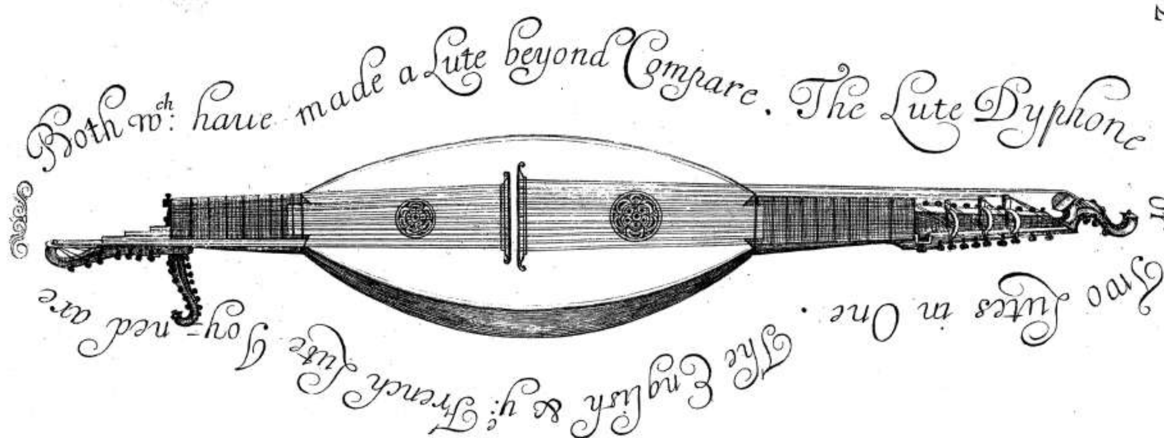
significance). With the *archicembalo* (a multi-keyed Renaissance chromatic harpsichord capable of playing in tune in remote keys)[66] there are extant examples to copy; the lost skill has been how to play it, but a few modern specialists like Christopher Stembridge and Johannes Keller have mastered that.

Illus.4 Engraving of the 1755 Lisbon earthquake, seen from the harbour[67]



Illus.5 Silbermann's Cembal d'amour, engraving (1723)

Other categories of vanished instrument design include one-offs, such as Flight and Robson's extraordinary 45-stop Apollonicon of 1817, a combination six-manual organ and barrel organ, eventually dismantled in about 1842.[68]



Illus.6 Mace's double-ended lute-dyphone, a combination lute/theorbo, engraving (1676)

Things hidden or mislaid

A further category of loss, sometimes temporary, comes with materials deliberately hidden. This can include compositions concealed for personal reasons (for example, Bartók's first violin concerto), or privately-owned prints or manuscripts not made available to anyone, and sometimes with not even the location or owner known. Examples of this include Kapsberger's third book of chitarrone music (1626), the Oldham manuscript of Louis Couperin's organ works, or the autograph copy of Froberger's Book 3 keyboard collection; only the contents of the last of these is still hidden – it was sold at auction in London in 2006 to an unidentified buyer and remains inaccessible.[69] Other works of 'whereabouts unknown' included Telemann's Fantasias for viola da gamba, which resurfaced in 2014, and Giordano's early opera *Marina* (1888), only published in 2025. They could also be misfiled or miscatalogued, as with Striggio's *Missa sopra Ecco sì beato giorno* in 40 parts, another remarkable 21st-century discovery.[70]

Works with dangerous political or religious associations were also hidden away, as with some Soviet-era compositions, or Catholic manuscripts at the Reformation. Sometimes the intention was that the items could one day become available or used: Elizabethan Catholic recusant Roger Martyn of Long Melford in Suffolk hid items discarded from his parish church 'in my house decayed; and the same I hope my heirs will repair and restore again one day'.[71] He was not alone in collecting material (including vestments, service books and music) from now-banned traditions, in the hope that they would be needed again one day, as had previously happened at the accession of Mary I.

A later example can be seen in the English Civil War, where the musical partbooks for the new Laudian chapel at Peterhouse in Cambridge were sealed up in the library to keep them from William Dowsing and his Puritan iconoclasts; the last three of these manuscripts only came to light in 1926.[72] The chapel organ at Peterhouse had been dismantled and concealed in 1643; a search was made for the parts in 1650, and in 1653 'The Organ Pipes & Case formerly belonging to the Chappel were sold by the Mr & Fellows to Mr Gregory

Hardwick Citizen London for thirty on[e] pounds'.[73] The college later unsuccessfully tried to recover it through a legal route, claiming they had undercharged the buyer, before giving up and commissioning a new instrument in 1667. At the same time and for the same reason, the Fellows of Jesus College allegedly buried their new 1635 Dallam chapel organ in the Master's garden to keep it safe, recovering it (in what sort of condition, one wonders) when it was safe to do so; that story may well be apocryphal – possibly referring to the college silver, not the organ. However, a 1652 college payment does in fact record £1 for the 'discovery of the Organs', so it must have been in some sense 'concealed'.[74]

A parallel story comes from 18th-century Canada: in about 1860, workmen found 'a dozen' viols hidden in a vault at the Hôpital-Général de Québec, which seem to have been hidden at the Siege of Québec in 1759.[75] The makers of the five surviving instruments from that cache (now in Canada and the US) include Nicolas Bertrand, Antoine Cabroly and Jean Villiaume, dated between 1712 and 1734.

Other lost items have had major consequences; when Arnold Dolmetsch left his Bressan alto recorder at Waterloo Station in April 1919 (later recovered), this was the impetus for the first modern copy, and eventually spawned an entire international recorder-making industry.[76]

Middens have become an important source of excavated historical objects, and in fact the best-preserved Medieval recorder (late 14th century) was recovered from a latrine in Tartu, Estonia, as recently as 2005;[77] whether is was lost or deliberately discarded is unknown.

Lost knowledge

The decline in craft skills brought about by industrial processes over the past few centuries has now reached the stage where some forms of creative knowledge reside in a single person.[78] Even if those are somehow recorded in visual or written form, the loss of the last practitioner represents the extinction of an old and continuing tradition.[79] Those active in the early music revival were well aware of this, as they taught themselves to make (and play) instruments where there was no-one to show them, as with the cornett and natural trumpet; such was the challenge that literally decades were needed before reliable professional levels of expertise were acquired. Even there, it is uncertain whether the results now achieved are close in every respect to those understood in the past; for example, Quantz (1752) talked of a 'thick, round, and masculine' tone-quality desirable on the Baroque flute,[80] terms that do not seem to accurately describe the sound of some modern players.

Scientific approaches to material objects have had considerable success: apart from dendrochronology, examination of moulding plane profiles and of local construction units (the 'inch' varied slightly from place to place across Europe) used for harpsichords have enabled some useful attributions, either of maker or place.[81] The process continues, with very recent attributions of anonymous instruments to an otherwise-unknown Bohemian maker,[82] and to the Moravian émigré David Tannenberg.[83]

Fakery and fraud

Fraudulent attributions and fakery have been known in the keyboard world for centuries, and even outstanding harpsichord makers such as Pascal Taskin were not above passing off an 'antiqued' new instrument as a rebuild of a highly-prized Ruckers instrument – at a far higher price.[84] The process continued in the late 19th century, when demand from museums and collectors caused both complete fakes and butchered instruments to be fabricated by unscrupulous or criminal dealer/restorers like Leopold Franciolini (1844-1920).[85] More recently, a number of replica 'Hotteterre' flutes,[86] and fake 'Spanish' harpsichords (a rare category) 'mainly found in cloisters and private houses' were shown to be fabrications,[87] not forgetting the 'experimental' fake of a 1755 Lefebvre instrument made by Martin Skowroneck – to see if it could be done. That maker went to enormous lengths to get things right, even hand-cutting screws which were not even visible.[88]

For musical compositions, the 'borrowed feathers' are often the work of unscrupulous publishers.[89] While there are a considerable number of 'Josquin' pieces with highly questionable manuscript attributions,[90] it was not until such works could be economically printed and sold that it was financially worthwhile passing off music as by a more famous contemporary. Haydn was a particular victim, and the current 'Made by Haydn?' project at the Joseph Haydn Institute in Cologne has identified for investigation an astonishing 1,300 pieces falsely attributed to that composer.[91] The faking process has continued quite recently, with six newly-discovered 'Haydn' keyboard sonatas debunked, although not until after they had been published – and recorded – as authentic.[92]

Preservation and restoration

For printed and manuscript material, a good cleaning followed by storage in a secure and managed environment is often sufficient to prevent further decay; for musical instruments the same applies, with the proviso that returning them to working order requires the replacement of consumable materials, including gut or wire strings, felts, piano hammers, oboe reeds and the like.[93] For certain instruments, physical rebuilding could also be undertaken, as with the *ravalement* enlargement process through which 18th-century French harpsichord makers converted earlier Netherlands instruments to modern specifications of compass and registration. This could involve major surgery, with new keyboards, wrestplank and so on, as the rebuilt width was somewhat greater. Instruments could also be re-painted or decorated in the current furniture styles, with new stands in addition. The effect of all this was to a produce a harpsichord closer in sound to the French than the original Dutch. Other keyboard conversions enabled additional usage, as with the pedal pulldowns added to some French and Italian instruments enabling organists to practice at home.

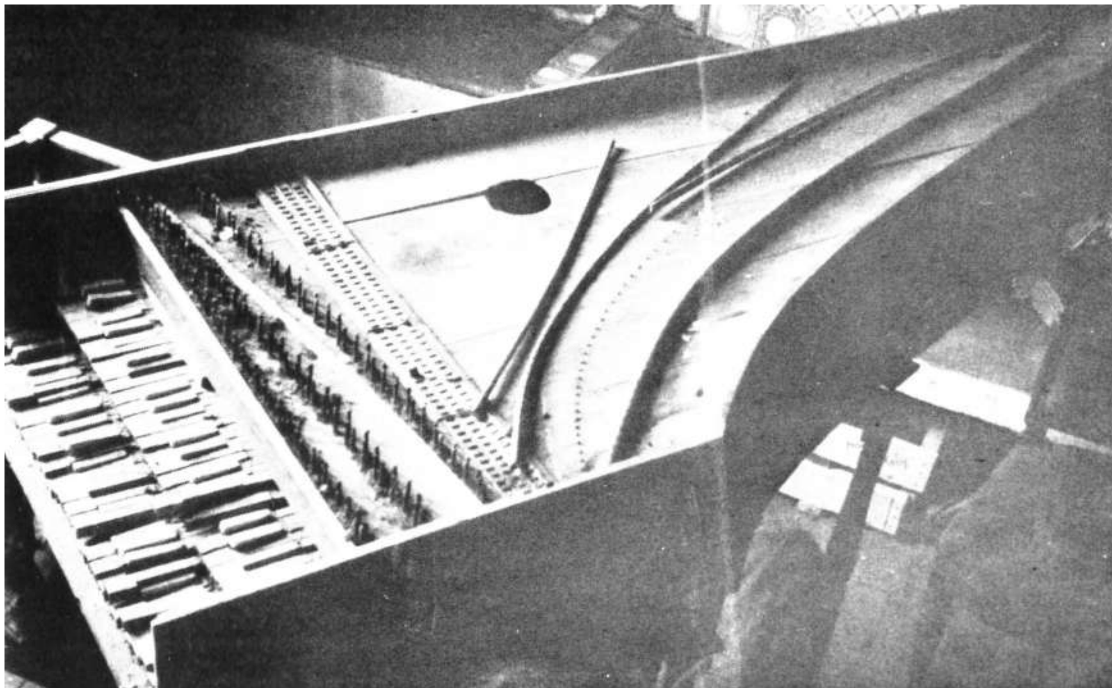
Modern techniques have made the processes of studying and restoring instruments somewhat easier: from X-rays of interiors, to digital scans, to 3D printing of entire recorders, cornetts or harpsichord jacks.[94] In addition, published restoration reports document materials and changes, with a view that every difference between old and new

needs to be recorded,[95] and also to be reversible – many early 20th-century restorers used damaging synthetic glues, for example.

Modern restoration is often more extensive than is realized (as is also true in fine art restoration): see, for example, the photograph of the 1691 Vincent Thibaut harpsichord (illus.7) now in the Musée de la Musique, Paris, in the condition it was found, long-abandoned in an attic.[96] Although this has been left unrestored for conservation reasons, the comparable 1679 Thibaut instrument in Brussels (illus.8) that has been fully restored looks almost like new, with spectacular walnut marquetry.

Reconstructions

As with the *cembal d'amour* engraving above, illustrations have often proved sufficient for modern luthiers to create now-lost instruments from published and manuscript sources: lutes, clavichords, harpsichords, organs, viols, recorders and others have been reconstructed from the woodcut or engraved depictions, descriptions or measurements in Arnaut de Zwolle (c.1450), Sebastian Virdung, *Musica getutscht* (1511), Martin Agricola, *Musica instrumentalis deudsch* (1545), Marin Mersenne, *Harmonie universelle* (1636), Michael Praetorius, *Syntagma Musicum* (1618-1620), Thomas Mace, *Musick's Monument* (1676), the Talbot manuscripts (c.1700) and Dom Bédos de Celles, *L'art du facteur d'orgues* (1766-78). Sometimes, these renderings (as with the Urbino Intarsia of c.1480) are so precise that perspective-correction software can be used to create accurate three-dimensional plans from them.



Illus.7 1691 Vincent Thibaut harpsichord, as found

While modern engineering-drawing instrument plans only became common after WW2 (with the instruments drawn greatly influencing what was built, as with the 1769 Taskin harpsichord in the Russell Collection at Edinburgh University), the idea of accurate instructional drawings is itself much older. When these are carefully followed, it can be difficult to tell whether the resulting objects are originals or reproductions, as with Victorian copies of furniture made using the Chippendale pattern books, or some of the Gothic metalwork Eugène Viollet-le-duc provided for his restoration of Notre Dame Cathedral in Paris (1844-64).

The idea of 'reconstruction' also applies to damaged or incomplete musical sources, as with the Ramsey example from Cambridge cited above. With sufficient expertise it is possible to compose one or more missing voices in a style that is very similar to the original.[97]

Illus.8 1679 Vincent Thibaut harpsichord, restored

One further recent type of digital reconstruction is that of 'lost' acoustics; that is, the sounds and resonances of buildings no longer themselves extant, as with a project on the medieval Scottish Chapel Royal.[98]

Calculating losses

The successful survival of written texts historically relies of course on multiplication of copies, and vast numbers of printed copies are recording surprisingly early: in 1528, bookseller Louis Royer in Paris held a stock of 98,529 Books of Hours.[99] Although manuscript multiplication is a much slower and more expensive process, the numbers for

the major early authors collected by the Mapping Manuscript Migrations project are still remarkable.[100] For the thousand years up to the 13th century, writers from Augustine of Hippo to Cicero to Bede to Thomas Aquinas are recorded in between 4,661 and 1,477 extant copies (their current database size totals 222,605 manuscripts). This does not mean that all their works have survived: Aristotle's 2,029 copies represent only a percentage of what he is known to have written, that which was available for replication in the manuscript era and subsequently in print. At the other end of the spectrum come known authors or composers for whom nothing whatsoever survives, and who in effect disappear from history. Even where the sources seem robust in terms of quantity or quality, as for Sweelinck's extant keyboard sources – made in direct copies by the composer's own pupils – it is worth remembering that all of these are German: there are no early Netherlands Sweelinck sources at all.[101]

One type of information relating to survival that gives some idea of proportions is found in early library catalogues: these may exist even where the books themselves do not, or have not been identified.[102] The Priory Library at Rochester had 93 volumes, of which five survive at the cathedral today;[103] while the numbers for places such as Bury St Edmunds Abbey (destroyed at the Reformation) are in the order of 20%, all now held elsewhere.[104] However, Krista Milne notes that an important distinction must be made, and one that impacts musical sources: 'While existing discussions of medieval manuscript survival, most of which are based on the institutional library lists that tend to omit service books, place survival rates between 7 and 10 per cent, the survival rates for service books have been shown to be strikingly lower— about 0.2 per cent for missals and 0.1 per cent for antiphonals'.[105] Such working musical items may have produced to a more modest standard (in copying or binding), or fallen foul of religious change; in both cases, their value could be perceived as minimal, or negative.

Turning to musical instruments, aggregated data provides some useful evidence as to the distribution of (for example) types, but is rarely detailed enough to allow identification of specific surviving instances. Frank Hubbard's extensive listing of performer and maker keyboard ownership records from France cover hundreds of examples from 1617-1791,[106] but whether any of the Jacquets, Ruckers, Denis, Blanchets or Taskins recorded there (makers are only often not mentioned by name, and almost never by date) correlate with any extant examples is uncertain. Ruckers seems to be the most common identification, as befits their high reputation and therefore value. By comparison, correlation of the output from the 18th-century English 'factory' manufacturers Kirkman, Shudi and later Broadwood (such instruments were sometimes numbered), enables a reasonable estimate to be made of their survival rates.[107]

Conclusions

The figure of 3% is sometimes used as a rough guide to the average survival rates of material objects from the early modern period. This may be no more than a useful starting point,[108] but does help in considering the important issue of context: is what survives in

any way typical of what may have existed? What did that other 97% consist of? When, why and where did it vanish?

The work of Leonard Schick on 18th-century German harpsichords provides an excellent case study, where newspaper advertisements suggest the sizes and types of instrument available to Bach and his contemporaries was much greater than is represented by the extant examples.[109] The survival rate for those looks like a mere fraction of 1%, leading to questions as to why such a large number of valuable instruments disappeared. Overall, assessing and cataloguing the lost material invites a much richer assessment of the resources – whether manuscript, printed, visual or organological – once available to the musicians of the past.

The Lost Music Project (https://lost-music-project4.webnode.co.uk) explores the creation, damage, loss and restoration of musical instruments, scores and books from the Middle Ages to the present day. The three main strands being investigated at present are early keyboard instruments, lost music manuscripts and lost paintings of musicians. The Directors are Francis Knights and Pablo Padilla.

Notes

[1] See Ellen Adams, *The Minoans: Lost Civilizations* (London, 2025), Philip Matyszak, *Lost Cities of the Ancient World* (London, 2023), Timothy P. Wiseman, *The Lost History of Roman Theatre* (Princeton, NJ, 2025), Simon Thurley, *Lost Buildings of Britain* (London, 2004), Ian Gow, *Scotland's Lost Houses* (London, 2006), Steven Brindle, *London: Lost Interiors* (Croxley Green, 2024), Julian Holland, *Exploring Britain's Lost Railways: A nostalgic journey along 50 long-lost railway lines* (London, 2013), Andrew Robinson, *Lost Languages: The Enigma of the World's Undeciphered Scripts* (London, 2009), Sophia Smith Galer, *How to Kill a Language: Power, Resistance and the Race to Save Our Words* (London, 2026) and John Whitfield, *Lost Animals: Extinct, Endangered, and Rediscovered Species* (Nottingham, 2020) and many others.

[2] https://www.lostheritage.org.uk/lh_complete_list.html.

[3] See Francis Knights, 'Virginalist ornamentation and interpretation', *Early Keyboard Journal*, xxxiii (2024), pp.7-48.

[4] For some examples see Hans-Peter Schmitz, *Die Kunst der Verzierung im 18. Jahrhundert* (Kassel,1983).

[5] See, for example, Francis Knights, 'Formal portraits of British musicians before the Civil War', *NEMA Newsletter*, ix/2 (Autumn 2025), pp.18-43 and Bryan Au Yeung, 'The Sources of the Medallion Portraits in John Hawkins' *A General History of the Science and Practice of Music*', *NEMA Newsletter*, x/1 (Spring 2026), pp.47-108.

[6] Emma Louise Weston, 'Ancient Goddess love songs and the transcultural lyre', *NEMA Newsletter*, iii/2 (Autumn 2019), pp.12-22.

[7] https://historicdockyard.co.uk/attractions/the-mary-rose-museum.

[8] For photographs of modern pianos re-worked as desks, wine racks, bookshelves, tables and bars, see https://thepianogalshop.com.

[9] https://lost-music-project4.webnode.co.uk.

[10] Sara J. Charles, *The Medieval Scriptorium: Making Books in the Middle Ages* (London, 2024), pp.244-245

[11] Pettegree and der Weduwen (2021), p.24. See also Richard Ovenden, *Burning the Books: A History of Knowledge Under Attack* (London, 2021).

[12] Francis Knights, 'Musical Instruments in the London Customs Accounts, 1380-1537', *Bulletin of the Fellowship of Makers and Researchers of Historical Instruments*, clxiii (November 2023), pp.27-46.

[13] Eleanor Baker, *Book curses* (Oxford, 2024).

[14] Cambridge, Magdalene College, Pepys MS. 1760, front pastedown; thanks to Eleanor Baker for this reference and the translation.

[15] Gregory of Tours, trans Lewis Thorpe, *The History of the Franks* (London, 1974), p.603.

[16] Charles (2024), pp.305-306.

[17] Andrew Pettegree and Arthur der Weduwen, *The Library: A Fragile History* (London, 2021), pp.9-10. For a recent study, see Marzena Matla, Lenka Németh Vítová and Robert T. Tomczak (eds), *Rękopisy, księgozbiory i archiwalia w Europie Środkowej na przestrzeni dziejów: Straty, migracje, badania* [Manuscripts, Book Collections, and Archival Materials in Central Europe Across the Centuries: Losses, Migrations, Research] (Poznan, 2025).

[18] https://www.schoenbergmusic.com.

[19] The collection is now in the Museo internazionale e biblioteca della musica, Bologna; some were painted from engravings, not the other way round (compare Au Yeung (2026)).

[20] Annette Richards, *The Temple of Fame & Friendship: Portraits, Music, and History in the C. P. E. Bach Circle* (Chicago, 2022).

[21] See Rachel Poole, 'The Oxford Music School and the Collection of Portraits formerly preserved there', *The Musical Antiquary*, iv (1912-13), pp.143-159 and Knights (2025).

[22] Robert Elkin, *The old concert rooms of London* (London, 1955), pp.88-89.

[23] See the online catalogue at https://artuk.org.

[24] Dominik von Roth and Linda Escherich (eds), *Private Passion – Public Challenge / Musikinstrumente Sammeln in Geschichte und Gegenwart* (Heidelberg, 2018). For collecting, see Alexander Hyatt King, *Some British collectors of music, c. 1600-1960* (Cambridge, 1963) and Elisabeth Giselbrecht, 'To have and to hold: Music books as collectables', in Lisa Colton and Tim Shephard (eds), *Sources of Identity: Makers, Owners and Users of Music Sources Before 1600* (Turnhout, 2017), pp.239-260.

[25] Lothar Bemmann, 'The Decline and Revival of the Clavichord', in Bernard Brauchli, Alberto Galazzo and Ivan Moody (eds), *De Clavicordio VI*, Proceedings of the International Clavichord Symposium (Magnano: Musica Antica a Magnano, 2004), pp.29-36 at 33; Francis Knights, *Modern Clavichord Music* (Hebden Bridge, 2024), ch.2.

[26] Peter Holman, The harpsichord in 19th-century Britain', *Harpsichord & Fortepiano*, xxiv/2 (2020), pp.4-14.

[27] Peter Holman, *Life after death: the viola da gamba in Britain from Purcell to Dolmetsch* (Woodbridge, 2013) and Holman (2020).

[28] Kate van Orden and Alfredo Vitólo, 'Padre Martini, Gaetano Gaspari and the "Pagliarini Collection": A Renaissance Music Library Rediscovered', *Early Music History*, xxix (2010), pp.241-324.

[29] H. Diack Johnstone, 'Westminster Abbey and the Academy of Ancient Music: A Library once lost and now partially recovered', *Music & Letters*, xcv/3 (August 2014), pp.329-373.

[30] Pettegree and der Weduwen (2021), pp.97-99.

[31] See Holman (2013), Holman (2020), Leonard Schick, 'Harpsichords in Bach's Germany - an overview', *Harpsichord & Fortepiano*, xxvi/2 (Spring 2022), pp.10-19.

[32] Lance Whitehead and Jenny Nex, 'The Insurance of Musical London and the Sun Fire Office 1710-1779', *Galpin Society Journal*, lxvii (March 2014), pp.181-216.

[33] James Coover, 'Puttick's Auctions: Windows on the Retail Music Trade', *Journal of the Royal Musical Association*, cxiv/1 (1989), pp.56-68.

[34] Cited in Francis Knights, *A Catalogue of the Paston Music Manuscripts* (Cambridge, 2025), p.38.

[35] For the Peterhouse organ, see Nicholas Thistlethwaite, 'Peterhouse, Cambridge: The Documentation of a Lost Organ, 1635–1667', *Journal of the British Institute of Organ Studies*, xlvi (2022), pp.6-37.

[36] Peter Holman, 'Handel's harpsichords revisited Part I: Handel and Ruckers harpsichords', *Early Music*, xlix/2 (May 2021), pp.227–243 and 'Handel's harpsichords revisited Part II: Handel's domestic harpsichords', *Early Music*, xlix/3 (August 2021), pp.413-427.

[37] Cited in Pettegree and der Weduwen (2021), p.1.

[38] https://harnoncourt.at/PDFs_PCo/P21_Violone_Posch.pdf.

[39] Dirksen (2026), pp.189-191, with a colour illustration.

[40] Fitzwilliam Museum, Cambridge, Accession number PD.7-1954.

[41] National Galleries of Scotland, D665, reproduced in Heidelinde Pollerus, 'Appearance and Prestige: Phenomena of Keyboard Instrument Decoration in the Sixteenth Century', in Augusta Campagne and Markus Grassl (eds), *'Per aures ad animum' - The Harpsichord in the Sixteenth Century II: Italy* (Vienna, 2026), pp.247-327 at 254.

[42] From Raymond Russell, rev Howard Schott, *The Harpsichord and Clavichord* (London, 2/1973), pl.62.

[43] Krista A. Milne, *The Destruction of Medieval Manuscripts in England* (Oxford, 2025), p.67. See also Andrew Wathey, 'Lost Books of Polyphony in England: A List to 1500', *Royal Musical Association Research Chronicle*, xxi (1988), pp.1–19.

[44] Milne (2025), p.59.

[45] Francis Knights and Pablo Padilla, 'Historical Performance from Renaissance Choirbooks', *NEMA Newsletter*, viii/2 (Autumn 2024), pp.15-66.

[46] Magnus Williamson, *The Eton Choirbook: Its Institutional and Historical Background*, DPhil thesis (University of Oxford, 1997); Knights and Padilla (2024).

[47] Francis Knights, 'The historic chapel music manuscripts at Trinity', *Trinity College Annual Report* (2007), pp.55-59.

[48] Cited in Milne (2025), p.220.

[49] Christoph Wolff, *Johann Sebastian Bach: The Learned Musician* (Oxford, 2000), ch.12.

[50] See the works catalogued by the Digital Image Archive of Medieval Music at https://www.diamm.ac.uk.

[51] Laurence Libin and Arnold Myers, '4. Since 1800', in 'Instruments, collections of', *Oxford Music Online* (2001), cited without source.

[52] See Claudio Di Veroli, 'Revisiting Mercier-Ythier's *Les Clavecins*', *Harpsichord & Fortepiano*, xxx/2 (Spring 2026), pp.17-23 at 20: 'this appears to be an urban myth originating in the late 19th century'.

[53] See Juan Luis Garcìa Orozco and Pablo Padilla, 'Mexican Clavichords', in Bernard Brauchli, Alberto Galazzo and Judith Wardman (eds), *De Clavicordio VII*, Proceedings of the International Clavichord Symposium (Magnano, 2006), pp.21-28, Peter Bavington, 'Surviving Clavichords made in Latin America', in Brauchli, Galazzo and Wardman (2006), pp.99-118 and 'Clavichords made in Latin America: Updates and New Discoveries', in Bernard Brauchli, Alberto Galazzo and Judith Wardman (eds), *De Clavicordio IX*, Proceedings of the International Clavichord Symposium (Magnano, 2010), pp.11-22.

[54] Letter written by Thomas Tanner to Browne Willis (1719), reproduced in Henry Thomas Payne (ed), *Collectanea Menevensia*, I, cxcv (1820), cited in Sally Harper, *Music in Welsh Culture before 1650: A Study of the Principal Sources* (London, 2007), p.171.

[55] Andrew Cornall, *The Practice of Music at Norwich Cathedral c.1558-1649*, MMus dissertation (University of East Anglia, 1976), p.27.

[56] See Ian Spink, *Restoration Cathedral Music 1660-1714* (Oxford, 1995), p.3; Harper (2007), p.304; letter sent by Capt. Byrch to G. Carr, Secretary to the Marquis of Ormond, 12 December 1643, *Interesting Particulars of the Landing of the Irish Forces, of the Retreat of Brereton and Myddleton, of the Siege and Surrender of Hawarden, and of the State of Wales,* cited in John R. Phillips, *Memoirs of the Civil War in Wales and the Marches, 1642-1649* (London, 1874), doc. XXXVI, p.11. For the Welsh references, see Caitlin Parry, 'The Institutional decline of music in Wales between c.1567 and c.1760', *NEMA Newsletter*, viii/2 (Autumn 2024), pp.67-83.

[57] John Norman, *Box of Whistles: The History and Recent Development of Organ Case Design* (London, 2007), p.22.

[58] Adam Carse, *The Orchestra from Beethoven to Berlioz* (Cambridge, [1948]), p.197.

[59] Alessandra Barabaschi, 'Piecing together the history of the "Mara" Stradivari cello', *The Strad*, online article (17 September 2018); Kate Kennedy, *Cello: A Journey Through Silence to Sound* (London, 2025).

[60] Alma Mahler, trans Basil Creighton, *Gustav Mahler: Memories and Letters* (London, 1946), p.132.

[61] For illustrations of a number of destroyed or damaged organs, including very recent examples of vandalism, see Francis O'Gorman, 'What does a destroyed organ mean?', *Royal College of Organists' Journal*, xvii (2024), pp.64-80.

[62] Hugh Benham, *John Taverner: His Life and Music* (Aldershot, 2003), p.11.

[63] Claire Tomalin, *Jane Austen: A Life* (London, 2/2000), ch.12.

[64] Carl Philipp Emanuel Bach, trans William J. Mitchell, *Essay on the True Art of Playing Keyboard Instruments* (London, r/1974); he also composed a Sonata in G, H280, for it in 1783.

[65] Thomas Mace, *Musick's Monument* (London, 1676).

[66] See Christopher Stembridge 'The *Cimbalo cromatico* and Other Italian Keyboard Instruments with Nineteen or More Divisions to the Octave', *Performance Practice Review*, vi/1 (1993), pp.33-59 and Martin Kirnbauer, 'Why Should One Build an Archicembalo? An Attempt at a Response According to Nicola Vicentino', in Campagne and Grassl (2026), pp.111-132.

[67] See Judite Nozes, *O Terramoto De 1755: Testemunhos Britanicos* (Lisbon, 1990).
[68] Elkin (1955), pp.123-126.

[69] Bob van Asperen, 'A New Froberger Manuscript', *Journal of Seventeenth-Century Music*, xiii/1 (2007).

[70] The 42 partbooks were formerly owned by Sébastien de Brossard (1655–1730); Davitt Moroney, 'Alessandro Striggio's Mass in Forty and Sixty Parts', *Journal of the American Musicological Society*, lx/1 (Spring 2007), pp.1-70.

[71] Cited in Christina J. Faraday, *The Story of Tudor Art* (London, 2025), p.154.

[72] Anselm Hughes, *Catalogue of the Musical Manuscripts at Peterhouse Cambridge* (Cambridge, 1953).

[73] Thistlethwaite (2022), pp.26-27.

[74] Nicholas Thistlethwaite, *The organs of Cambridge* (Oxford, 2/2008), p.54.

[75] Loren Ludwig, 'The Curious History of the "Caveau" Viols', *EMAg*, xxxi/2 (May 2025), pp.16-21.

[76] David Lasocki and Robert Ehrlich, *The Recorder* (New Haven and London, 2022), p.230.

[77] Lasocki and Ehrlich (2022), pp.3-4.

[78] See James Fox, *Craftland: A Journey Through Britain's Lost Arts and Vanishing Trades* (London, 2025) and, more specifically, Dominic Gwynn, 'A Study of the Transmission of Organ-Building Knowledge in Early Modern England', *Journal of the British Institute of Organ Studies*, xxviii (2004), pp.165-173.

[79] See the Red List of Endangered Crafts, https://heritagecrafts.org.uk/skills/redlist.

[80] Johann Joachim Quantz, trans Edward R. Reilly, *On Playing the Flute* (London, 1966), p.59.

[81] See, for example, Grant O'Brien's detailed historical metrology work recorded at http://claviantica.com/Historical_Italian_Metrology.htm.

[82] The subject of a forthcoming article by Eleanor Smith-Guido.

[83] Laurence Libin, 'Three Spinets from the Workshop of David Tannenberg', *Early Keyboard Journal*, xxxiii (2024), pp.49-98.

[84] For a list of inauthentic Ruckers instruments, see Grant O'Brien, *Ruckers: a harpsichord and virginal building tradition* (Cambridge, 1990), pp.277-283.

[85] Edwin M. Ripin, *The Instrument Catalogs of Leopoldo Franciolini* (Hackensack, NJ, 1974).

[86] Ardal Powell, 'The Hotteterre flute: six replicas in search of a myth', *Journal of the American Musicological Society*, xlix (1996), pp.225-263.

[87] See Andreas E. Beurmann, 'Iberian discoveries: six Spanish 17th–century harpsichords', *Early Music*, xxvii/2 (May 1999), pp.183–210 and John Koster, 'A contemporary example of harpsichord forgery', *Early Music*, xxvii/1 (February 2000), pp.91–97. Faked violins form an entire category of their own.

[88] Martin Skowroneck and Tilman Skowroneck, '"The Harpsichord of Nicholas Lefebvre 1755": the story of a forgery without intent to defraud', *Galpin Society Journal*, lv (April 2002), pp.4-14.

[89] In extreme cases, doubting early sources could lead to paranoia: the eccentric French priest Jean Hardouin (1643-1729) believed that almost everything written before about 1300 was forged; Daniel J. Watkins, 'Skepticism, Criticism, and the Making of the Catholic Enlightenment: Rethinking the Career of Jean Hardouin', *Journal of Jesuit Studies*, vi/3 (August 2019), pp.486-504.

[90] See Murray Steib, 'A Study in Style, or Josquin or Not Josquin: The Missa Allez regretz Question', *Journal of Musicology*, xvi/4 (Autumn 1998), pp.519-544.

[91] https://www.haydn-institut.de.

[92] [Winfried Michaels (ed),] *Haydn, Sechs Sonaten für Clavier* (Winterthur, 1995); Frederick Reece, 'Composing Authority in Six Forged "Haydn" Sonatas', *The Journal of Musicology*, xxxv/1 (2018), pp.104-143.

[93] Conservation issues relating to the idea of 'working order' continue to engage modern Museum curators; John Watson (ed), *Organ restoration reconsidered* (Warren, MI, 2005).

[94] Jamie Savan and Ricardo Simian, 'CAD modelling and 3D printing for musical instrument research: the Renaissance cornett as a case study', *Early Music*, xlii/4 (November 2014), pp.537-544.

[95] See, for example, the Goetze & Gwynn organ restoration reports publicly available at https://www.goetzegwynn.co.uk.

[96] Photo from Michael Thomas, 'Harpsichords which have been found recently in France', *The English Harpsichord Magazine*, ii/7 (October 1980), pp.158-163 at 160. The instrument is Cité de la musique - Philharmonie de Paris, catalogue number 977.11.1. For surviving early keyboard specifications, see Donald H. Boalch, rev Charles Mould, *Makers of the Harpsichord and Clavichord, 1440-1840* (Oxford, 3/1995), now superseded by BMO, https://boalch.org.

[97] See Francis Knights, Mateo Rodríguez and Pablo Padilla, 'Reconstructing Renaissance Polyphony: comparing original and replacement', *NEMA Newsletter*, iv/2 (Autumn 2020), pp.43-51.

[98] James Cook, Andrew Kirkman, Kenneth B. McAlpine and Rod Selfridge, 'Hearing Historic Scotland: Reflections on Recording in Virtually Reconstructed Acoustics', *Journal of the Alamire Foundation*, xv (2023), pp.109-126.

[99] Pettegree and der Weduwen (2021), p.86.

[100] https://mappingmanuscriptmigrations.org/en.

[101] Pieter Dirksen, *Jan Pieterszoon Sweelinck: The Orpheus of Amsterdam* (Culemborg, 2026), p.135.

[102] See C. E. Wright, 'The Dispersal of the Monastic Libraries and the Beginnings of Anglo-Saxon Studies: Matthew Parker and His Circle: A Preliminary Study', *Transactions of the Cambridge Bibliographical Society*, i/3 (1951), pp.208–237 and James P. Carley, 'Monastic Collections and Their Dispersal', in John Barnard and D. F. McKenzie (eds), *The Cambridge History of the Book in Britain: Volume 4, 1557–1695* (Cambridge, 2014), pp.339-350.

[103] Milne (2025), ch.1.

[104] See R. M. Thomson, 'The Library of Bury St. Edmunds Abbey in the Eleventh and Twelfth Centuries', *Speculum*, xlvii/4 (1972), pp.617-645. In 1599 80 manuscripts somehow acquired from the former Abbey library were donated to Pembroke College, Cambridge, by William Smart, comprising the largest surviving remnant of a British monastic collection.

[105] Milne (2025), pp.36-37.

[106] Hubbard (1965), pp.286-319.

[107] See Charles Mould and Peter Mole, *Jacob Kirkman, Harpsichord Maker to Her Majesty* (Ellesmere, 2016). However, the work of David Hackett on Hitchcock numbering offers a cautionary tale: see 'The spinets of the Hitchcock dynasty: names, numbers, and dates', *NEMA Newsletter*, i/2 (July 2017), pp.14-21.

[108] A few instances show the number can sometimes be correct, as in the survival rate of the 1492 Trithemius pamphlet mentioned above; Pettegree and der Weduwen (2021), p.89.

[109] Schick (2022); see also https://www.leonardschick.com.