The Invention of the Fortepiano as Intellectual History

Eleanor Selfridge-Field

Early Music, Volume 33, Number 1, February 2005, pp. 81-94 (Article)

Published by Oxford University Press

Eleanor Selfridge-Field

The invention of the fortepiano as intellectual history

In memoriam Sibyl Marcuse (1911–2003)

FROM the vantage point of the 21st century the piano can be viewed as the most popular musical instrument of all time. Within the microcosm of Italian history, however, the Cristofori fortepiano was all but stillborn. More than 30 years passed before any music for the instrument was published. Why was the instrument so ignored on its native soil? Why was its sound not found captivating? Why was its improved dynamic control not appreciated by a broad public?[1]

The answers that have been advanced emphasize organological and historical factors, but little mention is made of the immediate Italian intellectual context with which the instrument can be associated. Social histories of music enable us to see that, in general, musicians of the time occupied a relatively low socio-economic status. Instrumentalists around 1700 were often provided with room and board but little by way of payment. Yet the musicians for whom Cristofori's instruments were built were predominantly noblemen, among whom there was a fervent desire to acquire proficiency in playing instruments. (The modern pejorative implications of the term 'amateur' did not exist.) Many were also composers. Among composers who styled themselves dilettantes were the brothers Benedetto and Alessandro Marcello, about whom more will be said later. Noblemen who pursued a range of interests in the arts (drawing, painting, playing instruments, writing poetry and sometimes plays, translating ancient works, and of course reading) could focus the same wide-eyed gaze on matters scientific and technical. There was a social institution in which all of these interests converged—the learned assembly that convened weekly in most Italian cities. Multiple academies coexisted in many places. Confusingly, these gatherings were called *accademie*, even though they were virtual organizations rather than physical locations.

The Arcadian colony that was established in Rome in 1691 was devoted to promoting the values of ancient Greece (it had parallels in later times in Germany). Most of the focus was on literature, especially drama and poetry. The Arcadians invoked the 'purity' of ancient Greece by meeting in pastoral settings (weather permitting—they met indoors in the winter) and promoting pastoral ideas in many of their own creative works. Unlike the Florentine Camerata of a century before, their interests reached into many spheres of life. They met regularly during certain times of year, and new works were presented and discussed at every meeting. Their programmes could intersperse musical performances with poetry readings and debates. It is undoubtedly the case that a 'collector's mentality' was in course of formation. Assembled noblemen were eager to display their gathered antiquities as well as their inventions, for knowledge of the past was viewed as a stimulus to shaping the future. What differentiated the Arcadians from other academicians was that they rapidly formed a league of colonies. It produced, among others of great accomplishment, the Venetian dramatist and journalist Apostolo Zeno and a host of poets in other Italian cities.

The rise of amateur music-making and the formation of collections of musical instruments in parallel with the peak years of Arcadianism were pronounced

Early Music, Vol.xxxiii, No.1 © Oxford University Press 2005; all rights reserved
doi:10.1093/em/cah042, available online at www.em.oupjournals.org

phenomena. Reports of orchestras of a hundred strong are prolific in period sources from Rome and Venice. Although most scholars take these reports to be exaggerated, some Venetian documents indicate that orchestras for private concerts in palaces swelled as noblemen joined the ranks of professional musicians with their own string instruments.[2]

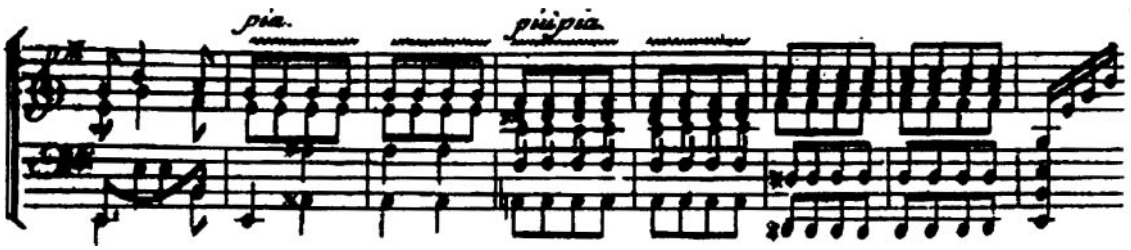
When the first publication of sonatas for the new instrument appeared in 1732, it was dedicated by a Brazilian priest, Don Joan [Giovanni] de Seixas,[3] to the Portuguese prince Don Antonio, son of King João V. It would be difficult to place the composer, Lodovico Giustini, within this Brazilian-Portuguese narrative were it not that Cristofori in his later years seems to have enjoyed the patronage of King João. Cristofori provided at least one fortepiano to the court in Lisbon while Scarlatti was resident there.[4] Although such evidence of his activity has been duly gathered, we possess relatively few basic facts about Cristofori's life.[5] Born and raised near Padua, he joined the court as keeper of the Medici instrument collection in 1688. He was well known for his *gravicembali*, some of which were quite unusual, but it was his construction of 30 or more fortepianos (Sutherland's estimate) for which he is best remembered.[6] Like the court musicians whom he served, he was extremely dependent on the whims and fortunes of the Medici household itself. Blessed with a long life (1655–1732), Cristofori must have witnessed the progressive physical decline of his principal patron, Prince Ferdinando (1663–1713).[7] Ferdinand's brother, the Grand Duke Gian Gastone, was to die without descendants five years after Cristofori himself, in 1737, and thus to bring Medici rule to an end.

It was probably the death of Cristofori in January 1732 that occasioned the printing of Giustini's collection of 12 sonatas (the *Sonate da cimbalo di piano e forte detto volgarmente di martelletti*).[8] The works may have been composed over many preceding years, but Giustini had failed to find the means to publish them before the arrival of Seixas. The sonatas themselves give us relatively slight evidence of the instrument's capabilities as understood by Giustini, but since they are the only surviving works that can be associated with Cristofori's own instruments, they bear close inspection. Their predominantly French textures would have suited the cultural persuasion of the Medici court in its final years. Among the clues to novelty of sound are the following musical features:

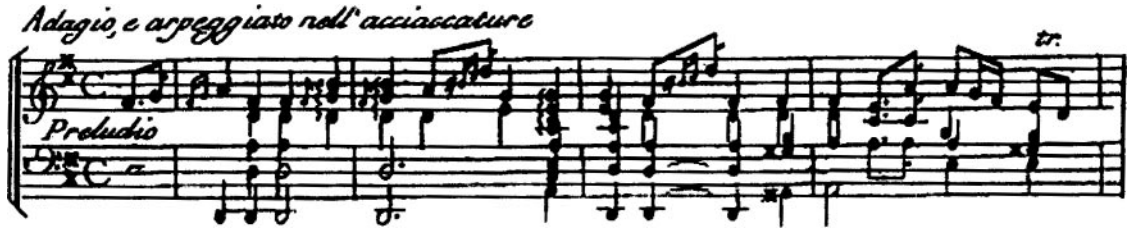
1 New degrees of subtlety in dynamic shading. For example, the dynamic level can be uncoupled from the number of notes being sounded simultaneously (ex.1).
2 Bass notes sustained long enough to provide support beneath a more rapidly moving treble (ex.2).
3 Treble foreground notes that can be played with enough relative loudness to make *cantabile* melodies stand out from the background accompaniment (ex.3). (A common way to give the impression of increased loudness on the harpsichord was to add notes to chords or cadential passages, but the particular patterning shown in ex.3 precludes such a practice. In ex.1 the indication for chords marked 'pia[n]', followed by fuller chords marked 'più pia[n]' defies the same performance convention.)
4 Indications for detachment of individual notes (′), a practice that contributes to foreground–background differentiation, and suggests some control over decay times (ex.4).

It can also be seen that features popular in the harpsichord repertory are not compromised by

Ex.1 Lodovico Giustini, Sonata no.7, from *Sonate da cimbalo di piano e forte*, op.1 (Florence, 1732), Corrente, bars 61–5

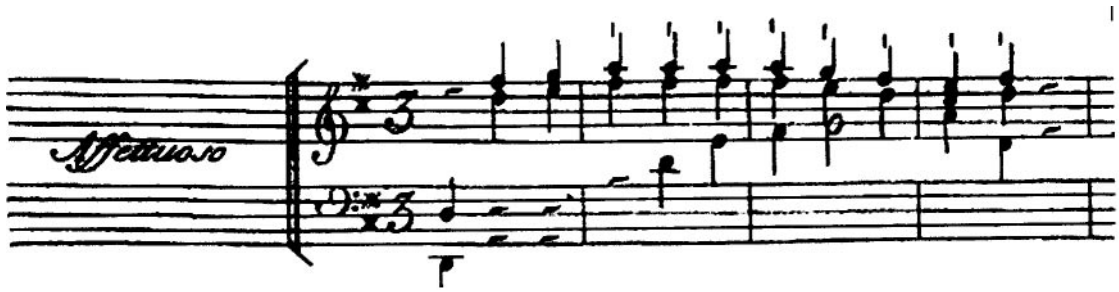


Ex.2 Lodovico Giustini, Sonata no.5, from *Sonate da cimbalo di piano e forte*, op.1 (Florence, 1732), Adagio e arpeggiato nell' acciaciature, bars 1–4



Ex.3 Lodovico Giustini, Sonata no.9, from *Sonate da cimbalo di piano e forte*, op.1 (Florence, 1732), Allemanda, bars 26–9

Ex.4 Lodovico Giustini, Sonata no.5, from *Sonate da cimbalo di piano e forte*, op.1 (Florence, 1732), Affettuoso, bars 1–4



the new fortepiano mechanism. For example, the ubiquitous ornamentation of French harpsichord music and the arpeggiation common to Italian string and keyboard works of the time can easily be accommodated.

Scientific enquiry in 17th-century Italy

The apparent indifference of rank-and-file musicians to the invention of the fortepiano may well be because it was principally identified as an invention of *scientific* rather than *artistic* importance. To all but those most closely associated with its actual construction, the fortepiano was in the first instance an invention for its own sake. There was no practical mandate for its use. Rather, its progressive development in a stream of one-of-a-kind models over Cristofori's lifetime parallels the development of scientific and mechanical *conversazioni* (academic gatherings) in Italy, particularly under the patronage of the Medici. From Galileo's invention of the telescope in 1610, the 17th century was rich in technological innovations that were in constant dialogue with rapidly evolving theories of light, sound, colour, waves and other phenomena of nature. To minds formed at the end of the Renaissance, all knowledge was linked. Inventions did not exclusively

belong, as they might today, to a particular science or art.

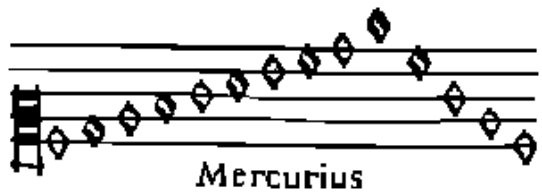
Italian intellectuals were particularly interested in instruments of measurement. Compasses, astrolabes and globes had been compelling interests of the Medici family in Florence since the 16th century. It was in Padua that Galileo invented the telescope. Finding the Venetian Senate indifferent to his discoveries, Galileo resigned his position at the University of Padua to become court astronomer of the Medicis with the official title of 'Philosopher and Mathematician'.[9]

Florence became the acknowledged home to many inventions of lasting value, among them the first microscope (1620), the thermometer (to which Galileo also laid claim)[10] and the barometer (by Evangelista Torricelli, 1643). What prompted the experimental mentality of the Florentines was an interest in evaluating the untested but long revered 'natural philosophy' of Aristotle. In 1657, 15 years after Galileo's death, Prince Leopold de' Medici formed the Accademia del Cimento (illus.1) to include many of the late astronomer's pupils.[11] The Academy lasted for only ten years (1657–67), but the stimulus given by the Medici household to the quest for discovery and control of natural phenomena took on a life of its own.

Musical interests were not particularly differentiated from other scientific interests, either in Florence or in Europe at large. Galileo's father, Vincenzo, was a noted music theorist, lutenist and proponent of monody. He championed its quasi-Aristotelian union of poetry and music. Following Zarlino's theories, Galileo's contemporary Johannes Kepler (*Harmonices mundi*, 1618) believed that geometrical theorems could explain relationships between the seven planets and the seven scales (illus.2).

The annals of music theory from all over Europe between 1550 and 1750 abound with major writings by scientists who also influenced musical thought. Examples includes Marin Mersenne's *Harmonie universelle* (1636–7) and Athanasius Kircher's more acoustically oriented *Phonurgia nova* (1673). All this research remained academic, however, with little thought for any immediate benefit to the ordinary man or woman.

1 A meeting of the Accademia del Cimento (1657)



2 Johannes Kepler's notation for the scale of the planet Mercury

One event that refocused widespread general interest in measurement was the publication in 1687 of Isaac Newton's treatise on mechanics, the *Principia mathematica*. Newton (who was born in 1642, the year of Galileo's death) was particularly preoccupied with questions of force and motion and the relationships between them. Newton's second law—that, for any given body, the acceleration produced is proportional to the strength of the external force—is directly demonstrated by the key

mechanism of the *fortepiano*.[12] His third law—which holds that to every action there is an equal and opposite reaction—is also applicable to piano-key action.

Newton's influence on European learned societies around 1700 was profound. A common denominator in many academic discussions was an interest in demonstrating the principles he had outlined. The study of mechanics not only offered explanations of the principles of force and motion but also gave clues to how to regulate such forces. The hammer mechanism of the fortepiano can easily be read as an exercise in Newtonian mechanics, even though it cannot be claimed that Cristofori intentionally developed the action to instantiate Newton's laws.

In addition to force and motion, academicians discussed oscillation (relevant to sound generation) and leverage (relevant to key action). Thus all four principles were arguably related to the construction of the fortepiano. In a word, the experimental design of an instrument employing the mechanical principles on which the fortepiano was based would have been ripe for conception anywhere within the Newtonian world of 1699, or arguably a few years sooner.

Scientific communication in Cristofori's time

Not all noblemen were rich, but nearly all valued learning. Besides cultivating ancient languages and translating them into the vernacular, academicians had an insatiable desire to understand how things worked or might be made to work. Three Italian academicians who figure in this account—Apostolo Zeno (1667–1750), Scipione Maffei (1675–1755) and Alessandro Marcello (1668–1747)—were noblemen from Venice or the Veneto.[13] From their origins on the shaded slopes of the Roman hill called the Janiculum,[14] the spreading Arcadian colonies converged in complex ways with the scientific curiosity of the time. The Arcadian colony that was organized informally in Venice in 1691 was not formally admitted to the network until 1697. Gio. Maria Crescimbeni's *L'Arcadia*[15] indicates that the first two of the 15 members admitted to the Venetian colony of Arcadia (the Accademia degli Animosi) at its initial induction of 29 April 1698 were Apostolo Zeno (under the pseudonym 'Emaro Simbolio') and Scipione Maffei ('Orildo Berenteatico'). Alessandro Marcello ('Eterio Stinfalico') was admitted on 10 July 1698. The Arcadians' lasting achievement, and the value which linked their interests in poetry and science, was their emphasis on naturalness and simplicity, in imitation of the pristine life of the fabled Peloponnese in its vague mythological past. Although the members were few and select, meetings (*radunanze*) of the Animosi drew as many as 400 persons.[16] These audiences included noblewomen and a small percentage of well-educated persons who were learned but not of noble birth. The less immediately visible activity of academicians all over Europe was to create periodicals which could disseminate news about both scientific and literary achievements to a broader public.[17]

Apostolo Zeno had hoped while at school to study mathematics and science, but circumstances dictated other directions. In 1696 he helped Girolamo Albrizzi, another Venetian nobleman with political ambitions, compile the first issue of the first scientifically oriented periodical in Venice, the *Galleria di Minerva, overo Notizie universali* (1697–1717). The *Galleria* aimed to discuss writings 'not only of the present century but also of those past, whether concerning sacred or secular subjects, including rhetoric, poetics, politics, history, geography, chronology, theology, philosophy, mathematics, medicine, law and finally every science and art, *whether mechanical or liberal*' (emphasis mine). Its small print described designs for the forerunners of typewriters and horseless carriages, for navigation routes, and for mechanical inventions—in short, for a multitude of objects that only the Industrial Revolution would be able to satisfy.[18]

In his proposed (Arcadian) reform of Venetian opera, Zeno called for a restoration of the Aristotelian unities of place, time and action and a purge of self-important distractions (i.e. comic scenes and excessively ornate singing). He was himself an active librettist from 1695 until the end of his life. In 1700 he joined the Accademia Fiorentina.[19] His many writings included a history of Italian academies.[20] In 1706 he obtained the position of ducal librarian through family connections.[21]

By 1710, when Zeno and Scipione Maffei began to publish the bimonthly *Giornale de' letterati d'Italia*, Zeno was looking for a more tangible and immediate way of communicating with the literate public than drama provided.[22] In a letter of 14 April 1703 to Anton Francesco Marmi he expressed the intention of creating a newsletter that would be not his, but that of all Italians. His hope was to create a collective sense of Italian identity (much as the Arcadian movement had aimed to do) among the intelligentsia. Only a year later he assumed new administrative duties as prior of one of Venice's two quarantine stations, the Lazzaretto Vecchio. In recognition of his immense learning, he was named court poet of the Austrian Empire in 1718 and moved to Vienna,[23] whereupon Arcadian values lost their Italian ethnocentricity and implanted themselves in imperial cultural endeavours for decades to come.

Maffei, a peripatetic Veronese marquis as well as a poet, soldier and archaeologist, had joined the Arcadian Academy at Rome in 1699. His direct collaboration with Zeno, which began in Padua in 1709, was short-lived, and so was his involvement in the *Giornale*. After a trip to Turin in 1710 he settled in Vienna (paving the way for Zeno's appointment in 1718), and devoted himself largely to the study of Italian drama. Returning to Verona, he filled his palace with archaeological treasures and built an observatory adjacent to it.[24] He did not abandon poetry, drama or music. (His *La fida ninfa*, for example, was set by Vivaldi for performance in Verona in 1732.)

Alessandro Marcello was a lifelong friend of Zeno. Even more fully than Zeno himself, Marcello characterized both the successes and the excesses of his age. Particularly between the years 1705 and 1720 he was a dilettante of practically everything of an artistic nature: he drew, painted and sculpted; wrote poetry; and composed cantatas and instrumental pieces.[25] He too developed links, after 1706, with the Accademia Fiorentina,[26] where he would have come into close contact with both academic thought and the cultural events associated with the Medici household.

After he moved to Vienna, Zeno became lavish in his praise for Marcello. In 1720 he wrote a laudatory description of Marcello's Latin epigrams (Paris, 1719). The *Giornale* anonymously noted the publication of Alessandro's *Cantate* 'of 1718' in 1720, some dozen years after their actual appearance (1708). Maffei's description of the *gravecembalo* from the *Giornale* was reprinted as a stand-alone publication in 1719,[27] perhaps on account of prompting by Zeno.

Marcello was in many ways a more striking figure than Zeno. He exhibited an exploratory approach to everything around him. He engaged in commerce and design, and even dabbled in scientific invention. His proposal for a system of invisible writing, reportedly developed in 1718, was published in the *Actorum eruditorum* (Leipzig, 1729). ('Invisible writing' systems were a staple of private military and diplomatic communications in an age paranoid about espionage and committed to enciphering diplomatic correspondence.) The *Giornale* described him as a 'Venetian gentleman who interposes among his serious obligations to the most important magistracies of this Republic, for his recreation and with great esteem, the pleasant studies of poetry, music, sound and painting', and noted that in addition he was 'exceedingly kind'.[28]

Maffei's account of the fortepiano

Maffei's pursuit of Arcadian values was so total that his interest became a sort of anxiety. Inducted into the Academy in Rome in 1698, he vigorously corresponded with many members of the Arcadian movement, among them Antonio Vallisnieri and Lodovico Muratori, with whom he began formal correspondences in 1707 and 1709 respectively. His first letter to Muratori came from Florence.[29] In 1707 he had also initiated a correspondence, and had probably met Zeno. It is believed that the plans for the establishment of the *Giornale* were laid by Zeno, Maffei and Vallisnieri by the spring of 1709. It was Maffei who then went to Florence to seek an endorsement of the enterprise from Prince Ferdinand.[30] He sent to Zeno the dedicatory letter and preface to the first issue before retiring to the baths at Lucca. Before the first issue appeared, he had travelled to Rome to dedicate a different book to the pope. Some of the anonymous writings in the *Giornale* may well have been by him.[31]

When we turn to Maffei's report of the 'new invention of a *gravecembalo* with *piano* and *forte*, to which are added some considerations on musical instruments', from vol.5 of the *Giornale de' letterati*,[32] we may be dealing with a document written in Florence during the spring of 1709. When we examine the content, we can see how many of the elements mentioned were intended to appeal to a scientifically literate public with an Arcadian orientation. The structure of the account exhibits a polished rhetorical sense: it lays out two chief features of the new design, enumerates and redresses the rebuttals of its detractors, and then gives the familiar mechanical description of its construction. Nested within this structure is reference to the rhetorical possibilities of dynamic control in musical performance.

Maffei's account of the fortepiano in the *Giornale* (1711)

If the value of an invention can be measured by its novelty and its difficulty, then the one we are about to describe is certainly not inferior to any others of our time.

Anyone who enjoys music will tell you that one of the principal sources of pleasure for listeners is the difference between softness and loudness (that is in [differentiating] [rhetorical] questions and answers [*proposte*, *risposte*], or when a diminution of sound is achieved by allowing the voice to fade little by little and then a sudden loudness occurs. This artifice is used frequently and to marvellous effect in the great concerts given in Rome, with incredible delight to whomever is pleased by the perfection of art.

Stringed instruments are excellent for these purposes, but the *gravecembalo* is deprived of the opportunity to effect them. Only he with an inordinately vain imagination would attempt to make a [keyboard] instrument with this capability. However, just such an invention has been not only happily conceived but also made in Florence by Bartolommeo Cristofali [*sic*], a Paduan, salaried cembalist of the Most Serene Prince of Tuscany. He has already made three at the normal size of other *gravecembali*, and all have been perfectly built.

The production of these loud or soft tones depends on the amount of force used by the player, such that besides hearing loud and soft sounds [the listener] will also hear the [same] degradation [gradual diminution of tone] and diversity [?] of the voice [as one might hear] in a cello.

Some teachers have withheld the great praise that such an invention merits [for several reasons]

First, because they have not appreciated the amount of ingenuity required to overcome the difficulties, and [second] the marvellous delicacy of the handiwork required to carry out the work;

The [resulting] voice of the [new] instrument, in contrast to that of the ordinary one, might be too soft and dull [*ottusa*] . . . but here you should be advised that it is best to listen to these instruments at a distance. Some oppose it because it is not as loud as other *gravecembali*.

Note that these are all very measured criticisms, framed in a general argument which is entirely symmetrical, according to the rhetorical models widely used by academicians. Maffei continues,

To the first I would respond that the instrument has enough voice to be heard if the keys are pressed properly, and secondly that one must use it on its own terms, not on those developed for other [kinds of] instruments.

This is properly speaking a chamber instrument and is not suited to music in church or for a great orchestra. Think of how many [other] instruments exist which can similarly not be used on such occasions but which are nonetheless delightful!

To accompany a singer, and to double an instrument, and also for a modest concert [this instrument] is perfectly suited, even though this intention may not have been the motivating force [behind its creation], which may have been to be played alone, like the lute, the harp, the six-string viols and others of the suavest instruments.[33]

But truly the major opposition that this new instrument has encountered is that no one knows on first encountering it how to play it, because it is not enough to [know how to] play ordinary keyboard instruments perfectly. Because it is a new instrument, it is necessary to find a person who is willing to make a particular study of it, in order to [learn to] regulate the application of diverse *misure* in playing the keys, and the precious degradation of time and place, in order to play it appropriately and delicately, and, when, under conditions of maximum independence [*massime spezzando*], making the voices [individually] audible, and to hear subjects [as they rove from part to part].

Coming now to the structure of this instrument, [I am happy to say] that he has known exactly how to describe it as well as he has made it. Thus it would not be difficult to enable readers to understand its artifice. Nonetheless, without having an instrument before one, it will still be difficult to understand the description entirely. [Discussion of hammer mechanism omitted here.]

This new invention can take its place beside the other inventions we commonly discuss.

In this account the sharp dynamic contrasts in performances involving as many as 100 instruments were an artefact of the Arcadian propensity for

outdoor concerts. Sound would not have carried at all well in the gardens of Cristina of Sweden, with which many accounts can be linked. So this pursuit of dynamic contrast was in its own way a by-product of Arcadian reform and a development parallel to that of the early *concerto grosso*, the first incontrovertible musical evidence for which also come from the years 1696 (Bonporti) to 1700 (Albinoni). Harpsichord players were inevitably left behind in works with an expressive emphasis. Given that the aim of music in the early 17th century had been to evince heart-rending emotion, there may well have been a sense of frustration among harpsichordists, who had to adapt their playing to feign methods of expression more easily employed on other kinds of instruments.

Maffei's emphasis on the use of the fortepiano as a chamber instrument would have been consistent with its appeal to the nobility and their preferred musical recreations. It is possible to imagine that between the lines of Maffei's account there was an attempt to offer a rational bridge between two apparently contradictory values in Arcadian culture: the actual musical practices of the Arcadian groves (from which apocryphal accounts of 'a hundred' stringed instruments playing in the *concerto grosso* manner are numerous) and the otherwise respected design of the harpsichord, which now required improvement from scientific quarters. Through its use alone the checkerboard contrasts of *ripieno* and *concertino* could now be simulated in the salon. The clearest clue to the instrument's initial reception is summed up in Maffei's affirmative final sentence: 'This new invention can take its place beside the other inventions we commonly discuss.'

The fortepiano of Alessandro Marcello

Not only a proficient musician and occasional composer, Alessandro Marcello was also a collector of musical instruments. His collection resided in Venice at the Marcello family *casino* (a summer-house, not gambling parlour) on the Fondamenta Nuove. The collection may have been started by his father, who died in 1707. The *casino armonico* is first mentioned in a document of 1711.[34]

It was in 1724 that Alessandro Marcello acquired a *fortepiano* from Cristofori. This extended account is given in the *Cerimoniali Gradenigo*:

> 1724. An instrument of great craftsmanship and value has reached Venice from Florence. It has been added to the gallery of the noted patrician and academic ser Alessandro Marcello, the son of ser Agostino of the [parish of the] Maddalena. It is a work of the famous Bartolomeo, the cembalo master of the Most Serene Grand Duke of Tuscany. Both for the perfection of the manufacture and the suavity of the harmony [this instrument] is considered a marvel, and it is the first of its kind to arrive in this territory.[35]

It had long seemed possible that the undecorated Cristofori fortepiano now in the Museo Nazionale degli Strumenti Musicali in Rome, which was built in 1722 (illus.3), could be the one that Alessandro received in 1724, but when I visited the museum in 1983 the curator (Luisa Cervelli), although unaware of this possibility, was perfectly happy to have me inspect it at length. Uncovering the trail of the instruments' travels between 1724 and 1965 was not the kind of research that falls in place quickly. When Alessandro died in 1747 he was buried at his family's countryside estate in Paviola (near Padua). According to the late count Alessandro del Maio Marcello, who was an octogenarian when I had interviewed him in 1977, the collection of instruments that Alessandro assembled had gone to the Marcello family villa at Strà during the lifetime of Alessandro's son Lorenzo Marcello. Lorenzo, who served as head of the Council of Ten in the 1760s, was buried on the grounds in 1780. The count remembered it as having been particularly rich in keyboard instruments. According to him the collection was sold at auction in England *c.*1911. There is neither confirmation from auction records nor any information to contradict the count's story.

The somewhat more interesting question is what happened to the collection between 1911 and 1965. It has two answers, and both, I think, are worth citing. What is undisputed is that in the early 20th century the collection belonged to Evan Gorga (1865–1957),[36] a famous tenor who sang as *Rodolfo* in the première performance of Puccini's *La Bohème* (Turin, 1896). This much was acknowledged when the museum collection was formed in 1964. According to the official story, which is the one related by Edward L. Kottick and George Lucktenberg,[37] the state bought

3 (a) Fortepiano by Cristofori dated 1722: (a) general view; (b) overhead view; (c) keyboard with maker's inscription; (d) action (Museo Nazionale degli Strumenti Musicale, Rome / Smithsonian Institution: photos by Hugh Talman)

3 (b) overhead view

the collections in the 1960s. This omits mention of the travails of the collection under National Socialism and its demise.[38]

In 1916 a museum was developed in the Palazzo Venezia, which had been built in the 15th century by the papacy and was donated in the 17th century to the Venetian government as the new official residence of its ambassadors. In 1929 it became the headquarters of Benito Mussolini and the symbolic centre of the National Socialist party. The museum, which already included portions of Gorga's collections as well as portions of collections formed by Kircher and previously held in the Collegio Romano at the time Mussolini occupied it, was closed to the public in 1930, although acquisitions continued to be made up to 1940.

In an interview given in 2000 Sibyl Marcuse (1911–2003) related that she had visited Gorga in Rome in 1948. She came at his behest, for he was attempting to sell the few instruments that were still under his control. Most, he said, had been impounded by Mussolini's government. As Marcuse conveyed the story, the collection fell into 'disputed ownership' after the Second World War (Gorga owed taxes on other property), and the instruments eventually became the property of the modern Italian state. The state relinquished the collection to the newly formed Museo Nazionale, which was provisionally housed in the Palazzo Venezia, in 1964. While Marcuse's statements cannot be verified, the nature of the surviving collection accords well with this sketchy history offered by Gorga in 1948.

3 (c) keyboard with maker's inscription

3 (d) action

A substantial proportion of the instruments now in Rome were made in Venice or the Veneto between the 16th and the early 18th centuries. The consorts of 16th-century wind instruments in the Gorga/Nazionale collection appear to be by the Bassanos (they carry the mark of the rabbit (*coniglio*), which is accepted as a mark of Conegliano, the Bassano family's place of origin). These were still known in Venice in the 17th century. The glassichord is suggestive of the kind of academic interest in acoustics that academicians are known to have had.

The Cristofori instrument in Rome is preserved with other instruments which would collectively have constituted just the kind of cabinet of instruments that Alessandro is said to have housed in his father's old

abode.[39] Such an instrument would have fitted easily into the gatherings held in the *casino armonico* in the 1720s, where serenatas and cantatas were performed. The exhibition and demonstration of rare musical instruments could easily have found a place in such venues.[40]

Conclusions

A. Rupert Hall could have been discussing the *fortepiano*'s history when he wrote of all the inventions that were discussed in scientific societies

> The . . . scientific societies, had little power to make science useful. . . . Their encouragement and recognition is deservedly linked with the finest intellectual achievements of the seventeenth century . . . [but] they were powerless to move society. . . . They had neither the money nor the administrative authority to push through major reforms in industry . . . even if they had possessed the knowledge to direct such reforms.[41]

In the case of the *fortepiano*'s fate we can conclude indirectly that it was very much tied up with the rise of Arcadia, which so strongly influenced the interests of Zeno, Maffei and Marcello. It was tangled up with the founding of the *Giornale de' letterati d'Italia* (1710) and to the uses and strengths of the instrument as enumerated in Maffei's account. The intellectual values of Arcadians were profoundly important in shaping musical values in Italy into the 1730s and in creating a sense of community among the noblemen and royalty who were Cristofori's exclusive patrons. Only the passing of the original generation of Arcadians liberated the instrument from these cultural constraints.

This parallelism begs an essential question: the dating (*c*.1698–1700) of Cristofori's initial attempt to build a prototype of what was to become the *fortepiano*, though fuzzy by the standards of modern bibliography, fits the coarser time-frame of the poetic moment when Arcadia had its greatest thrust in Italy, which can be roughly dated 1690–1710. Might the *fortepiano* have been conceived by academicians as a weapon in the Arcadian war on taste—one with the added virtue of resting on Newtonian mechanics? Such a stance would have suited those who had the earliest access to the instrument. Might what musicians regarded as the instrument's limitations—a volume that was relatively weak, a mechanism that was unfamiliar, and a professed association with works that were performed only in private—also have been virtues in the eyes of academicians? Such intentions will never be provable, but a consideration of their possibility can enrich our understanding of the instrument's curious early history.

Eleanor Selfridge-Field is Consulting Professor of Music at Stanford University. She is the author of numerous books and articles and has long written about Venetian music and about the social and intellectual history of early music generally. Her next book, The calendar of Venetian opera, *is forthcoming from Stanford University Press in 2005. esfield@stanford.edu*

This article was originally prepared as an illustrated lecture for the conference celebrating the 300th anniversary of the piano at the Shrine to Music Museum in Vermillion, SD. I should like to thank Laurence Libin, David Sutherland and Edwin M. Good for their comments.

1 The literature on Cristofori instruments is an embarrassment of riches, for many excellent studies have appeared in recent years. Among them I would call attention to S. Pollens, 'The pianos of Bartolomeo Cristofori', *Journal of the American Musical Instrument Society*, x (1984), pp.32–68, and S. Pollens, *The early fortepiano* (Cambridge, 1995) for their careful treatment of the Maffei text discussed here. Also D. Sutherland, 'Bartolomeo Cristofori's paired cembalos of 1726', *Journal of the American Musical Instrument Society*, xxvi (2000), pp.5–56, presents strikingly apt visual confirmation of the continuing Medici interest in astronomy: the instruments in question, now preserved in Leipzig, formed a 'conjugal pair'—both mechanically and decoratively. Valuable insight into mechanical issues is provided in E. M. Good, 'Reflections on a year with Cristofori', *Piano technicians journal*, xlv/12 (Dec 2002), pp.22–7; xlvi/1 (Jan 2003), pp.18–22, which refers to the instrument once owned by Alessandro Marcello and discussed later in this article.

2 Random examples between 1680 and 1740 are cited in E. Selfridge-Field, *The calendar of Venetian opera*, 2 vols. (Stanford University Press, forthcoming).

3 The visiting Brazilian has no demonstrated relationship to the important Portuguese keyboard composer José António Carlos de Seixas (1704–42), who may have been

a pupil of Domenico Scarlatti in the early 1720s.

4 In 1714 Domenico Scarlatti was appointed *maestro di cappella* to the Marquis de Fontis, the Portuguese ambassador to the Vatican. In 1719 he accepted the analogous position at the patriarchal chapel in Lisbon (where he was joined by Carlos Seixas in 1720) and remained there until 1728. He followed his prize pupil, the Infanta Maria Barbara, to the Spanish court and served there until his death in 1757. Good points out (private correspondence) that the 1767 Antunes in Vermillion 'has an action and hammer type exactly like the 1722 Cristofori'.

5 For a discussion of some conflicting elements of his biography, see the account in W. Kirkendale, *Musicians of the Florentine court during the Medici patriciate* (Florence, 1995).

6 Only three confirmed instruments survive today. They are in the Metropolitan Museum of Art, New York (1720); the Museo Nazionale degli Strumenti Musicali, Rome (1722); and the Museum of Musical Instruments in Leipzig (1726).

7 Ferdinand was a connoisseur of harpsichords and *prime donne*. The musical interests of the Medici household were greatly diminished by his death.

8 Facsimile edition (Florence: Studio per Edizioni Scielte, 1982).

9 Galileo attracted the attention of the Medici to his work by proposing to name all the constellations he could see after members of the Medici household.

10 Various models and dates. The instruments we know were refined in the 18th century, the Fahrenheit thermometer in 1714 and the Celsius in 1742.

11 Among them was Vincenzo Viviani, who noted the inventor's life-long musical interests in his biography. Viviani stated, 'His lute was so finely crafted that he, being an excellent player, could match voices exactly and make them sound like they had come from the reeds of an organ . . .' ('. . . e il liuto con tal arte fabbricato che sonandolo egli per eccellenza, cavava ad arbitrio suo dallecorde le voci continuate e gogliardiche come se uscissero dalle canne di un organo . . .').

12 See Good, 'Reflections on a year with Cristofori', pp.23ff.

13 Zeno and Alessandro Marcello were school contemporaries at the Collegio de' Cherici Regolari Somaschi in the Castello district of Venice. Maffei was born and raised in Verona.

14 It was established in 1998 that Galileo's telescope was first used nearby, at the top of the Janiculum, on grounds now owned by the American Academy.

15 (Rome: Antonio de' Rossi, 1711), pp.346f.

16 Initially the Venetian Arcadians met four times a year for recitations of poetry, oratory and music. An anonymous source of the early 18th century (Venice, Biblioteca Nazionale Marciana, Cod. It. x-95 [=6565]) reports, however, that meetings were held every other Thursday during Lent and on Fridays at other times of year. From 1 November until Easter they met at night, starting one hour after sunset. After Easter they met after the midday meal. This schedule should be understood to pertain to periods of the year when the government was in session; Venetian nobles tended to leave Venice when the government was not sitting (roughly from mid-June until early November).

17 Among the major outlets for lengthy reports were the *Journal des Sçavans*, established in 1665. Italy had spawned a similar publication, the Roman *Giornale de' letterati*, in 1668 (it continued until 1683), and it was only a few years before similar efforts were organized in Venice (1671), Ferrara (1688) and Parma (1690). A composite equivalent in Germany was the collected *Acta eruditorum*, published in Leipzig from 1682 until 1731. These collections of learned papers operated in parallel with monthlies in which news was aggregated from various sources. Such publications included *Le Mercure de France* (or *Le Mercure galant*), which began in 1672, and its Venetian imitation, *Pallade veneta*, which first appeared in 1687 (portions edited in E. Selfridge, *Pallade veneta: writings on music in Venetian society, 1660–1750* (Venice, 1985)). Short items of musical interest could appear there, but they were likely to focus on personnel, circumstances and opinion. The *Giornale veneto de' letterati* had died out in 1690, a year before the Accademia degli Animosi was organized in Venice.

18 Some literary and historical topics considered in the first issue were Dante, Guarini, Marco Polo and the Holy Bible in the vernacular. Among the scientific topics were a dialogue about acids and alkalis, a design for a horseless carriage started by turning a crank (perhaps designed by Vincenzo Coronelli; the context is unclear), and the function of (human) Malphigian tubes.

19 By retaining his membership in the Venetian Animosi he alienated them, and by 1717 was virtually at war with the Florentine Nation and the Accademia della Crusca (which concerned itself with language and lexicography) as well as the Pontifical Court.

20 *I-Vnm* Cod. It. V-347 (=7164).

21 Most of the biographical details given here are derived from F. Negri, *La vita di Apostolo Zeno* (Venice, 1816), *passim*.

22 The *Giornale* was more concerned with subjects of literary and artistic interest than the *Galleria*.

23 After Zeno moved to Vienna, his brother, a priest named Pier Caterino Zeno, took over the *Giornale*. From 1718 it was published at less frequent intervals, eventually becoming an annual publication. It continued under various auspices through 1739.

24 Maffei was engaged in archaeological research in France from 1732 to 1736, then travelled to Oxford to receive an honorary doctorate, and returned by way of Holland and Germany. In his final year of life he took up the study of Hebrew, which he claimed to have mastered.

25 Details are given in E. Selfridge-Field, *The music of Benedetto and Alessandro Marcello* (Oxford, 1990). See esp. pp.432–4, 442–5, 457–9. In 1705 he painted a cycle called the 'Quattro amori'. Among his lost works are allegorical paintings for the family's

parish church of San Marcuola, scenes from the life of Mary Magdalene for the church of Santa Maria Maddalena in Venice, a copper engraving called *Diana alla caccia*, and a painting of Cleopatra. In 1708 his *Cantate*, op.1 were published. Some of his Latin epigrams were written in 1708 and 1709, although the principal editions of them occurred between 1720 and 1730.

26 Here Zeno did not follow in suit: he later alienated the Florentine Accademia della Crusca (a self-appointed language-police agency) by criticizing its celebrated *Vocabulario*.

27 The independent publication was in turn translated into German and made public by Mattheson in his *Critica musica* (1725).

28 *Giornale de' letterati d'Italia*, xxxii, p.575.

29 G. Silvestri, *Un europeo del settecento: Scipione Maffei* (Treviso, 1954), p.13.

30 Detailed accounts in musical sources consider this visit to have occurred in the autumn, but biographical sources on Maffei allow for the possibility that it was in the spring of 1709. Since Maffei was so prone to be perpetually on the move, he could have passed through Florence twice in 1709.

31 Silvestri, *Un europeo del settecento*, pp.27f. L. Och, 'Bartolomeo Cristofori, Scipione Maffei e la prima decrizione del 'gravicembalo col piano e forte', *Il flauto dolce*, xiv/xv (1986), pp.16–23, speculates, however, that much of 'Maffei's' account of the *fortepiano* may have been written by Cristofori himself.

32 The issue is dated 21 April 1711.

33 Some readers have questioned my translations of the words *concerto* ('concert') and '[il più] soave' ('suavest'). The word 'concerto' in English has a much more restricted meaning than its generic usage in Italian, and the word *soave* has a much richer meaning than its English counterpart. Something that was *soave* was alluring, commendable and appealing, irrespective of its specifically musical qualities.

34 *I-Vas* Senato, Parte, Redecime di 1711, entry of 29 agosto. Some sense of the scope of collection can be gained by perusing L. Cervelli, *La galleria armonica: catalogo del Museo degli strumenti musicali di Roma* (Rome, 1994).

35 *I-Vmc* Cod. Gradenigo 200, ii, f.38*v*: '1724. È giunto da Firenze a Venezia un strumento di grande artificio, e molto valore, che à stato collocato nella Galleria dell'assennato Patrizio ed Accademico s. Alessandro Marcello, fu de s. Agostino della Maddalena; à opera del famoso Bartolomeo Maestro di Cembali del Ser[enissi]mo Gran Duca di Toscana, quale per la perfezione della manifattura, e p[er] la soavità dell'armonia riesce maraviglioso, ed è primo, che di tal sorta sia capitato in questa Dominante.'

36 Gorga was much more significant as a collector of medieval and ancient glass (150,000 pieces) and Renaissance pottery. These collections passed to the Museo Nazionale di Archeologia, also in Rome. Among the most important pieces of the first are some from 12th-century Constantinople.

37 E. L. Kottick and G. Lucktenberg, *Early keyboard instruments in European museums* (Bloomington, 1997), p.154.

38 Portions of the official story are related in Cervelli, *La galleria armonica*, pp.2f.

39 The frontispiece of several of his publications show a gallery of instruments. The drawings could be by Alessandro himself, for he was known as skilled at drawing and design.

40 Academicians with demonstrated musical skills indulged a degree of interest in earlier music and means of producing it. Benedetto composed a book of madrigals (1717) and left a transcription of Camillo Angleria's tract on counterpoint (1622) during a stay in Florence in 1706.

41 A. R. Hall, *From Galileo to Newton* (New York, 1963; rev. edn 1981), p.331.