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Perspectives on Music, Sound and Musicology II

Sounding Images: Sights, Sounds and Sensualities

Springer

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Preface

The book *Perspectives on Music, Sound and Musicology II—Sounding Images: Sights, Sounds and Sensualities* is the culmination of carefully selected chapters contributed by invited authors whose research combines rigorous scientific methodology with boldness, innovation and avant-garde exploration.

Comprising a collection of independent essays, these chapters, while distinct, often interconnect to form a cohesive whole. Together, they significantly contribute to our understanding of music, image, sound, visuality and sensuality. The book advances new perspectives and intersections in scientific, academic and practical research, making it essential reading for musicians, researchers, educators, cultural agents and even non-specialized readers intrigued by these subjects and the unexpected intersections they reveal.

The research methodologies employed and reflections based on diverse sources result in a clearer and more comprehensive understanding of the role and presence of music in culture and society.

The book is structured into two parts:

1. Musical Iconography
2. Sound and Image

The first part delves into a domain often at the forefront of Musicology. This part, increasingly pivotal for musicologists and with a growing community of specialists, adopts a chronological organization to explore various iconographic-musical aspects intersecting with Historical Musicology, Organology, History and Art History. Geographically expansive, it traces developments from the Iberian Peninsula to Brazil and China.

The part commences with a systematic study by Gerhard Doderer of a harpsichord dated 1789 from the Antunes family, unveiling distinctive morphological and technical characteristics. Its 2019 restoration by Geert Karman brought forth unknown technical details, surprising acoustic and aesthetic features, accompanied by refined organological and iconographic analyses. Subsequent chapters include an exploration of bells in Braga as identity traits and aesthetic elements, by Elisa Lessa, shedding light on their musical iconography. In another study, Gorka Rubiales Zabarte delves

into spaces and performative practices at the Spanish court during the 1730s and 1740s, leveraging iconographic sources and archival records. The fourth chapter, by Ricardo Vilares, analyzes the journey and pictorial treatment of a harpsichord by José Antunes from 1785, offering reflections on the culture of the time. In the next chapter, Sónia Duarte takes an artistic approach to the relationship between Portugal, China and Macau, exploring Chinese motifs (*Chinoiserie* and *pseudo-Chinoiserie*) in Portuguese art nationwide. Gilberto Vieira Garcia and Aline Montenegro Magalhães explore the trajectory of death masks belonging to Brazilian musician José Maurício Nunes Garcia, intertwining musical iconography with museology. The seventh chapter, by Ana Ester Tavares, provides a novel approach to the work of Amadeo de Souza-Cardoso, encompassing themes of music and guitars through the lens of vanitas. The following two chapters shift focus to textiles, with the first, by Luísa Correia Castilho, analyzing sound motifs in Castelo Branco embroidery and the second, by Cláudia Sousa, concentrating on the tapestry of Portalegre. In the tenth chapter, Beatriz Silva draws on the significant iconographic-musical collection of the Kwok On Collection (Orient Foundation, Portugal) and analyzes propaganda posters from Mao Zedong's government during the Cultural Revolution. This chapter explores how opera serves as a mechanism for mass propaganda. The final chapter, by Luzia Rocha and Pilar Lorente, dedicated to public art in the post-pandemic era, provides three considerations on two murals by artist Mário Belém. Intersecting the realms of city life, art and music, it challenges public art as a stimulant for local history and power, with music and musical iconography assuming a central and influential role.

The second part of the book is dedicated to the study and creative practices of the intersections between sound and image. It presents a collection of ten chapters by authors whose artistic or theoretical research explores and analyzes possible intersections of music and sound with the visual image, in some way dealing with the deconstruction of traditional notions and formats of the audiovisual object. The perspectives and works described represent a wide range of disciplines, including installation art, digital arts, film, theater, drawing and architecture. It begins with a study by Andreia Nogueira and Filipa Magalhães on the preservation of music theater performances as an object of intertextual study, supported by an analysis of the work Libera me by the Portuguese composer Constança Capdeville. In the second chapter, Hanns-Werner Heister presents an in-depth analysis of the formal dimension of the musical work, focusing on its various pictographic manifestations as one of the thirteen "forms of existence" proposed by the author. Diogo Alvim explores the relationship between drawing and music creation by discussing different perspectives on notation, graphic scores and performance. Personal examples illustrate the results of various compositional graphic methods. The following chapter, by Sofia Balbontín, approaches the act of listening as a way of dematerializing architecture, transforming a constructed reality into a perceived reality, proposing an aesthetic practice described as "aural architecture" in which sound shapes spatial experience. In the fifth chapter, Steve Whitford emphasizes location-based sound recording's significance in realist filmmaking, proposing a redefined approach that integrates immersive audio such as ambisonics. This innovation unlocks fresh creative avenues

grounded on the unique experience of geographic location and physical event. Samuel Van Ransbeeck provides an insight into the different typologies and related issues associated with data sonification as a means of communicating data and creating data-driven sound art and presents several examples of different approaches and applications, ranging from functional applications to artistic explorations. The last four chapters converge more explicitly in the digital arts. In the seventh and eighth chapters, respectively by Pedro Alves da Veiga and André Rangel, respectively, the authors explore the relationships and the synaesthetic nature of the connections between image and sound in the digital arts, presenting analytical perspectives on the nature of the relationship between the auditory and the visual, endowed with digital means. Gustavo Costa addresses the perception of music as a multisensory phenomenon through three artworks developed by the Sonoscopia collective, illustrating the use of unconventional approaches expanding traditional audiovisual and listening concepts. In the last chapter, Rodrigo Carvalho examines the relationship between sound and image in interactive audiovisual projects, addressing the conceptual and aesthetic premises as well as the technological strategies in the development of real-time and performative digital artworks, based on four of the author's projects.

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Musical Iconography

What Does the Restoration of the 1789 Antunes Harpsichord Reveal to Us?

Gerhard Doderer

Abstract There are several 18th-century harpsichords produced by members of the Lisbon Antunes family. The last of these instruments is dated 1789 and shows some striking morphological and technical characteristics distinguishing it from other Portuguese harpsichords which survived from the Antunes workshops as well as from other artisans working in Portugal's capital. The restoration realized in 2019 by Geert Karman revealed unknown aspects of technical details, as well as surprising acoustic and aesthetic features.

Keywords Harpsichord building Portugal eighteenth century · Antunes family

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Harpsichord João Baptista Antunes, 1789 (Photo Cl. Carvalho)

1 Introduction

The carrying out of an act of restoration act always implies more or less invasive interventions reducing, a priori, a portion of the testimonial value of the body in question. In fact, one can respect rigorously the "status" of an instrument only by taking into consideration exclusively its importance as a documental item, even with all the traces which are part of its *curriculum vitae.* On the other hand, deciding carry out not just a simple restoration but rather more a recovery of the sound and the functional capacity of the instrument, demands conscience and responsibility together with a proven professional ability. In any case, it should always be the instrument itself which must determine the kind of procedures to be considered.

2 Historical Context

In eighteenth-century European music, stringed keyboard instruments played a particularly important role, not only for solo performances but also in their multiple functions of accompaniment. In that way, the contemporary Portuguese scene did not diversify from the other countries of the continent, where musical performances have been based, nearly always and everywhere, on stringed or plucked instruments with keyboard(s). The second half of the eighteenth century is characterised by the coexistence of the two "large" keyboard instruments i.e., the harpsichord and the fortepiano. The term of these two instruments is quite the same: the "cravo" produces sounds by means of quills ("cravo de penas") or hammers ("cravo de martelos"). Insofar as only the external appearance of the body is kept as the principal characteristic, it is not possible to distinguish the mechanical process of the sound production by mere morphological aspects. The Italian designation "Cimbalo" which may refer to the plucked instrument as well as to the hammered one (in that case with the little terminological addition "di piano e forte") was known in Portugal, but was not in use very often during the first half of the eighteenth century. Due to the instruments of Bartolomeu Cristofori (1655–1731) in existence at the Portuguese court in the late 20s and early 30s of the century, as well as through the influence of the *Sonate da Cimbalo di piano, e forte* published in 1732 at Florence[1] and dedicated to Infante D. António, King John's V brother we frequently find after some years just the simple designation "pianoforte". Without reducing the important role of the clavichord in the more intimate musical ambience we can point out that it was, in fact, the harpsichord ("cravo de penas") which went on to occupy its predominant place in the drawing rooms of the aristocracy and the middle class, as well as in the halls of institutions and the monastic communities. The omnipresence of this instrument during the whole second half of the 18th and the beginnings of the following century is proven by many descriptions of private and public events. In the 1790s, the harpsichord was still frequently mentioned in printed periodicals, e.g. in the important *Gazeta de Lisboa*. In this context the sudden increase of English and French harpsichords and fortepianos that entered the national market is surprising.

The duality harpsichord/fortepiano is also clearly reflected in the technical and stylistic character of hundreds of manuscript pieces in which no explicit indication as to which of the afore-mentioned instruments is given. Even in the two Lisbon collections of keyboard sonatas published around 1765/77 the fortepiano style unmistakably shines through, albeit that in the title pages of the *Dodeci Sonate*[2] and of the *Sei Sonate*[3] only the attribution "per cembalo" appears.

[1] Giustini di Pistoia, L. (1732). Sonate da Cimbalo di piano, e forte detto volgarmente di martelletti, Firenze (Ed. G. Doderer, Rio de Janeiro 2002), Preface.

[2] Baptista, F. X. (ca. 1765/77). Dodeci Sonate, Variazioni, Minuetti per Cembalo. Lisboa.

[3] Gomes da Silva, A. G. (ca. 1765/77). Sei Sonate Per Cembalo. Lisboa.

A considerable number of eighteenth-century Portuguese string keyboard instruments survived; the majority of these clavichords, harpsichords and fortepianos[4] are kept in the Lisbon *Museu Nacional da Música* (MNM). During the reigns of John V and José I followed by the arrival of the countless Italian musicians, Portuguese harpsichord and fortepiano making was deeply influenced by Italian patterns,[5] particularly those designed by Bartolomeu Cristofori and Giovanni Ferrini (body, keyboard, action). As far as harpsichords are concerned,[6] ten instruments are conserved, some of them originally conceived as harpsichords and others later on converted into fortepianos.[7]

Harpsichord José Calisto, 1780 (Photo NMM Vermillion)

[4] Doderer, G. and Van der Meer, J. H. (2005). Cordofones de tecla portugueses do século XVIII: Clavicórdios, Cravos, Pianofortes e Espinetas/Portuguese String Keyboard Instruments of the 18th Century: Clavichords, Harpsichords, Fortepianos and Spinets. Lisboa.

[5] Koster, J. (2007). Towards an optimal instrument: Domenico Scarlatti and the new wave of Iberian harpsichord making. *Early Music* XXV: 575–603.

[6] All these instruments are extensively described in Doderer and Van der Meer (2005): 97–101/391–394, 118–121/410–412, 121–124/412–415, 124–127/415–418, 127–132/418–22, 132–135/422–425, 135–139/426–429, 139–143/429–433, 144–147/439–441, 147–152/437–441.

[7] There are five Portuguese pianofortes preserved in their original condition as "cravos de martelos" produced in Portuguese workshops namely by Manuel Antunes (atrib., ca. 1750), Henrique van Casteel (1763), Joaquim José Antunes (1767), Mathias Bostem (1777) and unknown builder (Joaquim José Antunes? Henrique van Casteel?, after 1770 and with following major interventions).

Harpsichord converted into a fortepiano, Mathias Bostem, 1789 (Photo G. Doderer)

- Octave harpsichord, Manuel Ângelo Villa?, Lisboa?, first half of eighteenth century, Musical Instrument Collection of the Staatliches Institut für Musikforschung Berlin;
- Harpsichord without identification of the builder, after 1725, MNM 681;
- Harpsichord converted into pianoforte, unknown builder, after 1725, MNM 456;
- Harpsichord, Joaquim José Antunes, Lisboa 1758, MNM 372;
- Harpsichord converted into a pianoforte, José Cambiazo, Lisboa 1769, private property, Brazil;
- Harpsichord, José Calisto, Lisboa 1780, National Music Museum, Vermillion, USA;
- Harpsichord, Joaquim José Antunes, Lisboa 1785, Karen Flint Collection, Wilmington, Delaware, EUA[8];
- Harpsichord converted into a pianoforte, Mathias Bostem, Lisboa 1786, MNM 648;
- **Harpsichord, João Baptista Antunes, Lisboa 1789**,[9] MNM 373.

[8] This instrument belonged to the collection of Richard Burnett, Finchcocks, Kent

[9] Doderer, G. and Karman, G. (2021). O Restauro de um Cravo Português—João Baptista Antunes 1789/Another Portuguese Harpsichord Restored. Lisboa (private edition).

After 1986, some of these instruments have been restored, namely the harpsichords of Joaquim José Antunes (1758,[10] 1785[11]) and José Calisto.[12] In the fourth place stands the object of the presented article i.e., the harpsichord of 1789 restored in 2019 by Geert Karman (Cascais, Lisbon) and being declared National Treasure in 2020.

Harpsichord J. B. Antunes, 1789 (Keyboard, wrest plank, soundboard. Photo Cl. Carvalho)

3 Authorship

Some members of the Lisbon family Antunes,[13] especially Manuel (1695–1766) and his sons Joaquim José (1733–1801) and João Baptista (1737–1822) produced in their workshops in the Portuguese capital harpsichords and fortepianos with typically national patterns as far as morphology, aesthetics, use of tropical woods and, principally, the sound character are concerned. Overall, these elements in the field of string keyboard instrument building (plucked or hammered) define a genuine Portuguese tradition which diverges clearly, albeit in different grades of intensity, from other

[10] 1986–87, Wolf-Dieter Neupert, Bamberg (Germany).

[11] 1988–89, Christopher Nobbs, London (England).

[12] 1985, Bernhard v. Tucher, Leitheim (Germany).

[13] Details of the life and professional activities of Manuel and Joaquim José Antunes were given firstly in the chapter "Construtores portugueses de cordofones de tecla no século XVIII" by Doderer and Van der Meer (2005): 17–20, 317–320. There, various family informations need to be corrected as a result of recent and in depth investigations carried out by Cristina Torres and very kindly colocated at our disposal. For a detailed study concerning the 18th and 19th century activities of the Antunes family see Tudela, A. P. (2019). Os Antunes. Mestres portugueses de fazer cravos, pianofortes e pianos—Séculos XVIII e XIX. Lisboa.

handcrafted traditions, such as the Italian, French, German or English. Our harpsichord bears only the inscription "1789 Antunes" which can only—twenty three years after the death of Manuel—point to his sons, in particular Joaquim José, who in 1785 still signed a large harpsichord with his (complete) name. However, a certain lack of handicraft quality to be verified in the 1789 instrument and contrary to the standards of the former Antunes instruments, raises doubts concerning the authorship of Joaquim José Antunes appointing with more probability to his younger brother João Baptista. Besides, it is easy to recognize the graphological design of his surname's signature when compared with the one of his brother Joaquim José as it shows up in a family document of 1783.[14]

Nevertheless, there are elements like the inner layout, the sound construction system (stops, soundboard) and the special use of certain woods which are conferring to this harpsichord its value as a genuine representative of the Portuguese harpsichord building tradition standing up, at the same time, as an example for the final stage of the that national handcrafted production.

Criteria like the robustness of the corpus and the unusual layout of the inner construction, the extension of the vibrating string measurements and of the keyboards let us recognize that in these years the Portuguese builders tried to face the impact of imported harpsichords and fortepianos.

4 Provenance

Very little we know about the trajectory of the harpsichord from the time of its construction until its final integration into the Music National Museum's collections having taken part of the group of historical instruments exposed, from 1946 onwards, in the Instrumental Museum of the National Conservatory, Rua dos Caetanos in Lisbon. The harpsichord of João Baptista Antunes belonged to this group. At that time the instrument did not have neither a music desk nor jacks, a few iron strings obviously seemed to be still original. During a long odyssey which took the whole collection to several places in order to build up occasional expositions or to remain kept at storage, the two supports of the harpsichord got lost whereas the original jacks have been recuperated sometimes ago.

We do not know for whom the harpsichord has been built. However, in a 1795 documentary appears a list with descriptions of Francisco Xavier Baptista's[15] belongings including some details referring to a harpsichord which could be eventually our Antunes 1789 (there are some not coincidental details like keyboard range or stringing). At a later stage, the instrument is mentioned as making part of the Count of Castelo Branco's patrimony.

[14] Tudela (2019): 158.

[15] Italian Oboist of the royal chamber orchestra, father of the famous pianist and teacher João Domingos Bomtempo (1775–1842).

5 Short Organological Description (Before Restoration)[16]

The instrument is well preserved but not in playing conditions, it was apparently abandoned in the late 18th or early nineteenth century. The stand and the music desk are missing. On key levers 1 and 65 the signature "1789 Antunes" is written twice in ink.

The case is in very good condition but the quality of the woodwork is a little puzzling. All the joints were well executed and very robustly glued. There were only minor deformations that can be attributed to string tension. The instrument shows signs of having been built with little attention. The case sides for example are differing considerably in height but the bottom is almost straight. Also, the spine at the key well is not at a straight angle to the bottom, the top side of the spine is not straight bending inward and outward in an S-shaped way, however, the soundboard along the spine follows these bends.

The instrument is painted on the outside of the case and lid with a dark green paint. Under this layer a lighter green layer is visible, of the same colour as the inside of the lid. The dark green paint on the veneer of key well and the veneer of the front rail of the key frame shows that this paint was applied rather carelessly at a later stage.

Harpsichord J. B. Antunes, 1789 (Hinge of main lid with two layers of external painting. Photo Cl. Carvalho)

The bottom of the instrument consists of two parts. Both parts are joined at the lower belly rail. The lid has the usual construction; the flap is attached to the main part by means of two hinges with riveted fittings.

The top of the case sides is veneered with Brazilian rosewood (Dalbergia nigra), the interior of the case is veneered with Brazilian tulipwood (Dalbergia decipularis). The top surface of the jack rail, the outer surface of the rail above the keyboard and

[16] Based on an earlier description published by Doderer and Van der Meer (2005): 433–437 and further observations made by Geert Karman.

the molded rail in front of the keyboard have a slightly more complicated veneer: five rectangular panels of mahogany, surrounded by a purfling of boxwood, are inlaid in strips of rosewood.

The lower belly rail does not reach up to the upper belly rail. Five braces on the bottom plank connect the spine with the bent side, eight diagonal struts run from the soundboard liner to the bottom plank.

There are nine soundboard ribs and another small supplementary one more or less perpendicular to the spine and crossing the bridge. The soundboard itself with some small cracks has rather wide annual rings and is marked by many repairs consisting of rectangles of spruce of several centimetres long and wide.

Judging by the grain of the wood, there were evidently knots that were cut out and filled up with small bits of soundboard wood. Many rectangles were painted over with flowers, the repairs are doubtlessly original from the Antunes workshop. The joint between the first two strips along the spine had opened up almost completely from the belly rail right up to the tail. Many planks in that area had warped.

The wrest plank is trapezoid. The soundboard and the wrest plank veneer show a rather naive painting of red and blue flowers with green stems and leaves; this decoration may be original, as the nut and the bridge sometimes cut through the decoration.

The nut and the bridge are made of walnut. The nut is straight, the bridge S-shaped and double-pinned throughout. The hitch pin rail made of mahogany is wide with a molded edge, but not undercut.

The compass of the keyboard is FF—a^3 (65 keys).

The keyboard is in general in a rather good condition. The pivot pins and guide pins, all in iron, had rusted over time, causing that most of the keys were stuck. The instrument seems not to have been used much in former times, because the key-coverings of both naturals and sharps show no signs of wear. Originally the keyframe had three prolongations towards the rear, one behind both lateral rails and one behind the central rail. These fitted into three slots in the lower belly rail immediately above the bottom plank.

The covers of the naturals and the arcaded fronts are made of boxwood. The covers of the sharps consist of two layers, one of rosewood and the other of African black wood. The keys are guided by iron pins in mortises. The keyboard is not very carefully cut, but there is a tendency towards wide naturals C–E, slightly narrower naturals F–B and narrow sharps.

Disposition $^{8'}\!<\!/_{8'>}$. The jacks are made of orange wood with tongues of beech, springs of brass (in part wire, in part lamina) and single dampers. They are numbered in ink and are wider and thicker at the top than at the bottom end.

There is a buff stop on the shorter 8' stop.

There are two levers of iron, both with brass knobs, through the front wall; the one on the bass side handles the buff stop, that on the treble side the front 8'. The rear 8' is operated by two brass knobs, one on each side of the jack slide.

A different stop was added obviously at a later stage. Judging by the adaptations that were made to the instrument for the mechanism to let the keyboard rock up and down, this was implemented after the construction of the instrument. Maybe the

intention was to vary the distance between the quills and the strings in an attempt to allow for more dynamics with a harder attack. Another possibility is that by lowering the keyboard, the quills of the front register would not be able to reach the strings anymore switching from the two to a single register and thus operating as a “piano” stop. Actually there are no parts left of such a supposed mechanism. In any case, this rocking mechanism may have been installed by Antunes himself.

Harpsichord J. B. Antunes, 1789 (Interior with bottom plank and belly rail. Photo G. Doderer)

Trimmings: black cloth on the upper and lower surfaces of the front and rear rails of the key frame, on the ends of the key levers under the jacks and on the lower surface of the jack rail.

Obviously, this instrument was built to be strung mainly in iron.

Some measurements (given in mm):

Length of spine 2612, of cheek 596, of tail 298.
Case width 1023, height 215.
Thickness of spine 18.5, of cheek 17.8, of bent side c. 16.8, of tail 15.5.
Width of wrest plank 256 (bass)—240.
Width of keyboard 916.
Length and balance points of naturals 464 (187)—451 (187), of sharps 428 (168)—419 (170).
Length of heads of naturals 34.

Length of covers of naturals 129 (bass)—132 (treble), of sharps underneath 84—above 77.
Three octave span 481.

Vibrating string lengths and plucking points:

F	2017	(176)	2009	(196)
C	1758	(161)	1700	(182)
F	1455	(150)	1421	(170)
c	1133	(135)	1103	(148)
f	921	(125)	897	(139)
c^1	661	(107)	639	(126)
f^1	507	(98)	486	(115)
c^2	349	(83)	335	(100)
f^2	265	(72)	250	(89)
c^3	176	(53)	167	(72)
f^3	129	(42)	122	(61)
a^3	102	(36)	93	(53)

6 Restoration Work[17]

Harpsichord J. B. Antunes, 1789 (During restoration. Photo Cl. Carvalho)

[17] This section is based on the chapter VII of Doderer and Karman (2001): 105–112 with special regard to Karman's description of the restoring process itself.

There were no signs of restorations in recent times. Except for the changes to accommodate for the rocking mechanism, it seems to have been conserved without alterations after its construction. Also, apart from a few jacks, wooden blocks of the buff stop and key fronts that were missing, it was complete. A restoration to retrieve the sonority and the musical functionality of the instrument seemed therefore a perfectly viable task. The biggest worry was if the internal structure was still sound enough to hold the string tension.

The internal structure of the instrument revealed to be very robustly constructed. However, the workmanship was carried out with some carelessness.

Harpsichord J. B. Antunes, 1789 (Interior structure with bottom brace and double strut. Photo G. Doderer)

Consequently, no repair works on the internal structure were necessary. The bottom planks themselves had been attacked by woodworm especially near the joints between them.

Concerning the wrest pin block, despite the fact that it had been attacked by woodworm, there was no indication that this had led to severe consequences in its structural integrity. No signs of woodworm were found at the underside of the block and no hollow areas could be detected. It was decided to leave it as it was.

Soundboard

There were nine ribs almost perpendicular to the spine across the whole width of the soundboard, with a cutout under the bridge, and no cut-off bar, all original. The ribs were secured by irregular patches of linen, glued over the ends and to the soundboard. The ribs that had come off the soundboard were glued back in place, the ends covered with linen tissue very similar to the original.

The long opening in the joint near the spine had the appearance of being the result solely of the influence of humidity or liquid water and subsequent contraction and warping of the wood. This joint was nowhere supported by ribs or other reinforcements. It also ran just next to the end of the bridge, thus leaving one long strip of thin soundboard wood without any support. To repair the long opening in the joint near the spine, three small support blocks were glued on the liner along the spine.

Harpsichord J. B. Antunes, 1789 (Soundboard with fourth and fifth rib. Photo G. Doderer)

The soundboard planks that were warped had to be straightened out, afterwards, the remaining gaps were filled in with narrow strips of soundboard wood. The glue lines were strengthened at the bottom side with strips of linen tissue.

Harpsichord J. B. Antunes, 1789 (End of the bent side rib, secured with linen cloth. Photo G. Doderer)

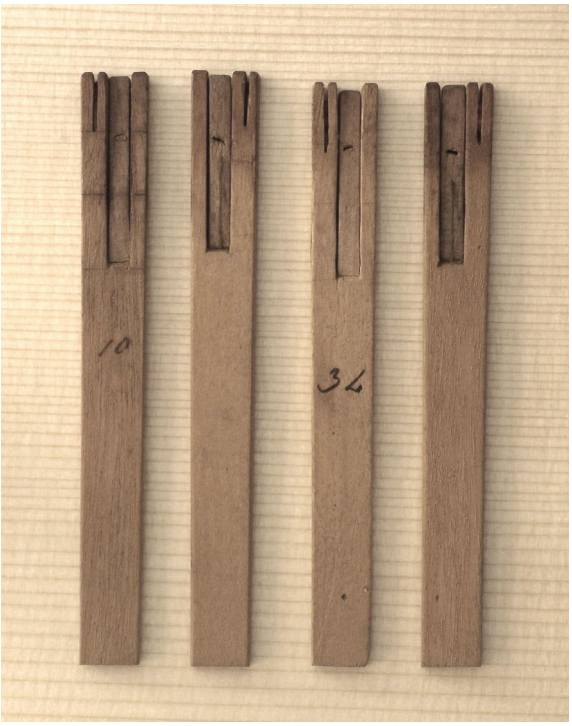
The bulge visible from the top side was caused by the rib nearest the belly rail showing signs of having been crudely cut that was pressing against some internal members. Still, it was not enough to avoid touching the struts that run from the belly rail to the first bottom cross beam, and it pushes the soundboard some 2 mm up. It was decided to leave this the way it was, as it presents no danger to the construction or further cracking of the soundboard and can be considered as a peculiarity that has always constituted a characteristic of this instrument.

The bass end of the bridge was repaired with a small bit of walnut of the same appearance as the bridge itself. The bridge at this end was also glued back to the soundboard. New pins were put in place of the missing ones.

The soundboard was cleaned by using a solution of natural turpentine and alcohol, diluted with water with a trace of acetone. The flower painting was completed on top of the inserted areas.

Jacks

Many of the jacks were not in functioning order and a great number of the axles, in iron, had rusted so much that the tongues were not pivoting anymore. It was decided to make a new set of jacks, replicas of the originals.



Harpsichord J. B. Antunes, 1789 (Original jacks. Photo G. Doderer)

The original jacks show some variation in thickness and width, the new jacks were fitted to the mortises with about the same play as the original jacks. The joints of the register slides that had opened up and that had been repaired with nails were glued together again. New wooden blocks were made to replace the missing ones of the buff stop, glue traces showed the exact positions.

Keyboard

As it was not possible to ascertain what the rocking mechanism exact purpose was, it was decided to remove it altogether. In installing the rocking mechanism, the protrusions of the keyboard frame at the rear had been cut away, and thin wedge-shaped pieces of wood had been glued underneath the lateral and middle rails to lift the keyboard at the rear end. To remove those pieces would still have been a straightforward task. However, in the existing situation the rear end of the keyboard was able to move sideways a few centimetres. How the rocking mechanism can have functioned well with this sideways leeway is still not understandable.

Since the bottom boards under the keyboard had cracked and warped so that the frame was not sitting flatly on the bottom board, it was decided to have the keyboard tightly in its spot, both vertically and horizontally. Two shims of wood, about 1.5 mm in thickness, were glued under the fallback rail to have the frame sit tightly on the bottom board and have the height defined. To the sides of the frame two blocks

of lime were glued that fitted with a small tolerance between the two supports of the wrest pin block to the bottom, in order to define the lateral position.

All balance and guide pins were cleaned. The guide rack was lubricated with graphite from a crayon to avoid squeaking noises. Some keys needed to be straightened out by slightly bending them over a hot iron with a wet cloth. The loose key fronts were glued back onto the keys. Copies were made of the fronts with the common design to replace the missing ones.

Four keys were not falling back completely due to an incorrect distribution of the weight over the front and the rear part of the key. To repair this shortcoming, it was necessary to add a little bit of weight to the rear part of the key. This was done by gluing a little piece of boxwood on the top surface somewhere behind the balance pin, in a place where there was no writing. The boxwood is secured by only two small drops of fish glue, it can easily be removed to bring these keys back in their original state.

Harpsichord J. B. Antunes, 1789 (Keyboard. Photo G. Karman)

The key coverings were cleaned with a solution of pH-neutral soap in water. Afterwards they were rubbed with cloth wetted in a 50/50 mix of linseed oil and turpentine.

The original cloth of the keyboard frame was too degraded to be of any use for an instrument in playing condition. New cloth was bought from Graham Walker in England, who produces a pure woollen cloth very similar to what was used in early nineteenth century pianos.

The washers at the balance pins were also renewed. Two layers of cloth were used throughout the whole keyboard. Afterwards, the heights at the fronts were aligned with paper and cardboard washers. This way all keys will have the same feeling of elasticity at the balance points.

The vertical key movement in this harpsichord is checked in the Italian way i.e. by one or more layers of cloth on the keyboard frame under the front part of the keys. The key depth was chosen such that in the bass the top surface of the sharps when pressed down is just above the surface of the naturals. In the middle and treble region, the key depth was made slightly less. This resulted in a key depth of about 6.5 mm in the bass to 5.5 mm in the treble.

Stringing

The tuning pins were cleaned with a very diluted (1%) solution of vinegar and corrosion was removed. Copies of the original tuning pins were made to replace the broken ones.

In principle the stringing was done following the stringing table of Malcolm Rose and David Low and the thickness verified during the restoration process. However, to avoid high stresses on the instrument, it was decided to string with thicknesses slightly thinner than the suggested ones.

For the iron strings so called P-wire from Stephen Birkett was used, for the bass strings Malcolm Rose's yellow brass.

Voicing and regulation

The mortises of the jacks of the rear register are positioned more to the right in the space between the two eight-foot strings and the mortises for the front jacks more to the left. It is clear that the rear jacks were meant to pluck the longer strings and the front jacks the shorter strings.

On the cheek, a piece of wood (about 3 mm in thickness) had been glued inside the gap to limit the movement of the registers to the right. On the spine, the off position of the front register was limited by a shim of about 0.5 mm thickness.

Voicing was made with seagull feathers, as strong as practically possible with the given key depth. Modern cloth of 1 mm thickness was used for the dampers, since many original jacks had still little bits of damper cloth inside the damper slits with the aspect very similar to the modern weaved woollen felt, red on the outside and white on the inside ("casimira"). The side of the damper that sits on the string was cut slightly oblique, with an angle of about 30º with the horizontal.

The original sets of jacks showed that the front jacks were consistently about 1 mm shorter that the rear jacks. Therefore, the rear register plucks first and the front register second. There is no guarantee that the original staggering of the instrument was in that same order, since the jacks have been shortened very probably when the rocking mechanism was installed.

Referring the buff stop register it is not at all clear how it had originally been devised. After some experimenting, little strips of very soft dear leather, cut in a wedge shape so that only a small part near the nut pin would touch the string produced a satisfying effect. However, it is doubtful that this arrangement corresponds to the original.

Music desk and stand

The music desk and the stand were made new, copies from the Antunes instrument of 1785.

Harpsichord J. B. Antunes, 1789 (After restoration. Photo Cl. Carvalho)

7 Evaluation

As a result of the restoration the harpsichord's robust construction and excellent playing condition must be well underlined.

The dark character of the sound is reminiscent of the pianoforte that was getting so popular around the time this instrument was built. Keeping its identity as an instrument with strings being plucked and not hammered, and having been escaped from transforming interventions as known from some converted harpsichords produced in the contemporaneous Mathias Bostem's atelier, our 1789 instrument shows nevertheless signals of the times demanding for changes in the sound aesthetic fields. The rocking mechanism, the existence of a kind of lute stop as well as the complete unusual extension of the keyboard from FF to a^3 must be understood as ingenious purposes if not desperate intentions struggling against the remarkable presence of the French and English instruments.

The dark green outface painting exposes the traditional Portuguese conceptional characteristics of the instruments which had their origin in the Antunes' and other Lisbon based artisans' workshops. They stand in opposition to Bostem who used not rarely English styled outfits for his harpsichords, pianofortes and spinets dated between 1770 and 1790. But even in his dark green painted instruments he could not resist to hang on to the very rich use of tropical woods for the interior parts as we are

used to see in all 18th-century Lisbon instruments. The 1789 Antunes harpsichord integrates itself fully in this traditional line of Portuguese artisanal awareness.

But apart from being beautiful, it is especially interesting in several other aspects. When playing a scale, one notices that almost every single note is slightly different from the anterior or the following. However, the instrument as a whole presents a wonderful and coherent musical unity.

This great quality in sonority came a bit as a surprise. The quality of the soundboard looked excellent, the somewhat crude execution of the case work and the straightforward appearance of the keyboard did not inspire total confidence. Also, the simple barring system of the soundboard, a layout that is unknown know from other harpsichords, would lead to a less favorable judgment. Yet, the acoustic result is exceptional.

The action, although executed with the same nonchalance as the case work, is very direct and effective in transforming the intentions of the player into a musical expression. It is up to the task of the most technically demanding pieces. It is true that the regulation and voicing of the instrument are made somewhat difficult because of the irregular string spacing and placement of the jacks. But if executed well, the resulting touch is very inviting for the player with a curiosity to explore the musical possibilities of this unique instrument.[18]

[18] Two CDs were produced with this harpsichord, i.e. Araújo, José Carlos (2019). Carlos Seixas—Sonatas (VIII), Melographia Portugueza 22, Edição MPMP and Janeiro, João Paulo (2020). Alberto Gomes da Silva (Lisboa †1793), Harpsichord Sonatas, MAACedita.

Searching for the Sound of the Past: Towards the History of the Bells in Braga—Portugal

Elisa Lessa

Abstract This essay reflects the peculiar look on one of Braga's urban landscape's identity traces and aesthetic figures—his bells. Contemplating some Braga's Archdiocese's churches and their respective bell towers—including the bells of both former São Martinho's Monastery and Bom Jesus do Monte's Sanctuary-, this study aims to patent data about the musical iconography relating the Braga's bells' heritage.

Keywords Landscape · Bells · Heritage

1 Introduction

In its 32º session—held in Paris between September 29th and October 7th, 2003—the General Conference of the United Nations Educational, Scientific and Cultural Organization (UNESCO) defined the concept of intangible cultural heritage: practices, representations, expressions, acquisitions and skills—as well as cultural instruments, objects, artifacts and spaces which are associated to it—that are recognized by communities as being part of their cultural heritage. In the adopted Convention, it can be read that intangible cultural heritage, transmitted from generation to generation, is recreated by communities and groups according to their environment, their interaction with nature and history, and grants a sense of identity and continuity, then contributing to the promote the respect for cultural diversity and human creativity. The second point of its 2º article, it was also written the *safeguard understanding* as a measure aiming to ensure the viability of the intangible cultural heritage, including the identification, documentation, investigation, preservation, protection, promotion, appreciation, transmission—essentially through formal and informal education—and revitalization of the various aspects of this heritage. Braga, Portugal's northern city known as the City of the Archbishops, owns more than one hundred churches and chapels with their bell towers. Its bells are the identity mark and sound aesthetic figure in the landscape of Braga's *urbe*, composing a rich musical heritage.

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