Mathias Bostem: Remarks about a Little Known 18th-Century German Keyboard Maker in Portugal

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I. OFFSPRING AND VITA

In spite of being relatively well-known to Portuguese scholars, Mathias Bostem (also Bosten) has not received very much attention as far as his organological legacy is concerned. The reason might be the simple fact that of his four surviving instruments, only one is in playable condition and can "viva voce" testify its author's skill and importance. Besides a fortepiano in its original state (1777, Municipal Museum of Torres Novas, Portugal), two harpsichords are preserved converted into fortepianos (Museu da Música, Lisbon, *MM 648, 833*), as well as a bentside spinet from 1785 (Petrópolis/Brazil, Museu Imperial). It is this last instrument which can be appreciated by means of a Brazilian recording and—it should be pointed out due to its media impact—as background music for several episodes of the extremely popular Brazilian soap opera "Chica da Silva."

From the German village of Hosten, Bostem claims in his will (vd. infra) to have been born in Hosten "in the territory of Aix-la-Chapelle." Indeed, in 1806, when the will was drawn up, the German territories to the West of the Rhine had been annexed by France, and then Hosten lay in the territory of Aix-la-Chapelle. However, when Bostem was born (which must have been some time before 1740) Hosten, being situated some ten miles to the North of the town of Trier on the Moselle, belonged to the Electorate of Trier.

In Portugal he appears for the first time in a document testifying his marriage to Sabina Leonor David in the parish church of the Mercês on September 3, 1757 (Mercês, *Baptismos*, box 16 *de 1697 a 1762*, 2º book, fol. 264). In 1768, he established himself as "qualified maker" in the Rua Direita of St. Catherine's (Historic Arquive of the City of Lisbon, *Casa dos 24*, cód. nº 92 *Livro 1º de matrícula dos oficiais e aprendizes do ofício de carpinteiros de móveis e ensemblagem (1768–1783)*, p. 4) and was admitted to the Guild of Mechanical Crafts in 1773 among the furniture-makers and joiners (Langhans 1943 I: 509–510). A first mention of an instrument from the workshop of Bostem dates from 1756, when he received 288,000 réis for a harpsichord made for Queen Mariana Vitória (Brito 1989: 157).

We do not know when Bostem began the real marketing of his instruments. It seems that he started only after the year 1770; in this year the privilege of Manuel Antunes expired. The Lishon based Antunes family, represented by harpsichords and fortepianos built by Manuel and his older brother Joaquim José between—as far as we know today—1758 and 1789, produced a great number of most significant harpsichords and fortepianos of the 18th century in Portugal (Doderer & van der Meer 2005). The 27th of July

1773, in the *Gazeta de Lisboa*, the sale of a forte-piano made by Bostem was announced together with his final address Rua da Emenda no. 17:

[...] Whoever wishes to purchase a new five-octave harpsichord with hammers, the soundboard made of fine wood, bordered by wonderful fillets, finished with unsurpassed perfection by its maker Mathias Bostem, harpsichordist to His Majesty, may go or send an expert to see it at the residence of the harpsichordist referred-to who lives in the Rua da Emenda, where one may also find out who the owner is in order to make a bargain with him.

Besides being responsible for the upkeep of the harpsichords in the royal palace from 1769 onwards for a fee of 6,400 réis a year, Bostem also took upon himself the function of "harpsichord player of the Royal Chamber" for a salary of 3,200 réis a month (Santos 1958–67 IX: XXI, XLIV).

After the death of his only son in 1790 Bostem became involved in a lawsuit with Agostinho Garrido, father-in-law of the deceased António Bostem, rooted in various disagreements between the heirs of the estate of his son (D. P. *Estremadura*, no. 1730, doc. no. 86). He died on August 15, 1806, and was buried in the Church of Nossa Senhora da Encarnação (Vieira 1900: 420, 482–483; Encarnação, *Óbitos*, no. 013, box 0023 *de 1780 a 1808*, fol. 393v).

He was a widower and indicated his heirs in his will. The heirs auctioned off the instruments that were still unfinished at the death of the maker, as well as the house, where he had lived (Viterbo 1901).

[...] On the 10th, 11th and 12th of the current month around three o'clock in the afternoon an auction will take place of the furniture of Mathias Bostem, recently deceased, namely in the house that used to be his in the Rua da Emenda no. 17. Amongst all furniture there can be found twenty harpsichords and pianoforte instruments manufactured by the same master, as well as many tools and factory belongings, and all these can be inspected there during the three days preceding the auction. (Gazeta de Lisboa, 07.11.1806)

[...] In the afternoon of the 24th and 25th of the current month the whole property of the house in Rua da Emenda no.17 will be put out for auction. These were the property of Mathias Bosten recently deceased, they are free of tax or any additional charges and can be visited during the days preceding the auction and bids which, by coincidence, will also take place there. (Gazeta de Lisboa, 18.11.1806)

II. DOCUMENTATION

Mathias Bostem's Will, Executor João Frederico de Penau, a businessman living in Calçada dos Caetanos, civil parish of Nossa Senhora das Mercês in this town.

In the name of the Holy Trinity, the Father, the Son and the Holy Ghost, three different persons all in one true God, who is true God in his own self, I, Mathias Bostem very well and truly believe as a faithful and true Christian that I am determined to give voice to my will and do so as follows: firstly I send my soul to Our Lady who created it and saved it with her pure precious blood and only begotten son Jesus Christ Our Lord. I also ask him and beg of him and of his great Holy Mother and of all Saints in the skies to mediate for my soul so that one day when I die it may be given a happy afterlife for which it was created. I hereby declare that I was born in Hosten, Aix-la-Chapelle, that is in Germany; although at present lies in the French Empire, I am firmly attached to my German nationality. I am a widower with no sons alive, my parents are dead and therefore I have no direct heir to my possessions and property. Being able to legally put all my belongings and small fortune entirely at my own discretion, and according to my free will, I shall do it in this manner: I command to offer 12$800 *reis* to the local Priest of my Parish, and all matters and costs regarding my wake, funeral and prayers I shall leave up to my executors to decide: they are nominated below; I recommend to them, that the ceremony be a simple, moderate one with no pomp, no vanity nor circumstance. I shall leave to Maria S. José the sum of three hundred thousand *reis* as a token of gratitude for her kind companionship and work over the years as my maid. I also declare that the legacy referred-to is intended for my maid and her husband and that the sum of money mentioned is to be handed over to her all at once. I leave to my servant Gertrude the sum of fifty thousand *reis*, also at once. I leave to Manoel António Peixoto, son of Joaquim José Peixoto the sum of two hundred thousand *reis* all at once. I leave to Maria Justina, widow of João Henriques Hanswichel the amount of 300$00 *reis*, to be handed over all at once, and another 300$00 *reis* to each of her three daughters, this sum to be given also at once. From the remainder of all my belongings, rights and shares I pronounce my brother Leonard Bostem and my sister Maria Bostem, both like myself born in Hosten, my universal heirs, and if either one is already deceased, their sons and daughters or their legal heirs. I pronounce Mr. João Frederico de Penau and Mr. António Henriques Hanswichel executors of my will, whom I ask all that concerns my will to be thoroughly

fulfilled. I hereby end this will and wish it to be carried out in accordance to its contents as this is my great last wish. And since I cannot write, I begged Mr. António Lopes da Silva to write this for me, and with his consent to sign it for me.

Lisbon, August 4, 1806

I wrote faithfully and at the request of Mathias Bostem. António Lopes da Silva.

Approval

May all who read this deed of approval know that in the year of Our Lord Jesus Christ 1806 on the fourth day of the month of August in this city of Lisbon in the Rua da Emenda and in the house of Mathias Bostem, master tuner of the harpsichords of the Royal chamber to where I, notary, came, and he being present, who on my good faith I believe to be the said person, and being of sound mind though sick in his bed and by him from his hands to those of myself, being a notary: before the witnesses named below this testament was given to me and the questions which I asked before the same witnesses as required by law; to wit, whether this was his testament, whether it was as he desired and he wished to approve it, and being quite definite and valid, he responded to me: yes—that this was his testament, that at his behest it had been written and signed by Antonio Lopes da Silva on his behalf, as testator, being unable to write because of his sickness, to whom, on completion of the same, it was read in its entirety, and who finding it very much according to his will now approves it and ratifies it as being his true testament, a codicil and which in law be definitive, who wills it that only that be fulfilled as is contained therein, this being his final wish: and I declare in the presence of myself, notary and the witnesses; that as well as the bequests bestowed above: He would leave to Filicia, daughter of João Henriques Aixwinckel one of the harpsichords that he has in his house, and made by him, and this as well as the bequest in money of which mention is already made in this testament to be left to him, to which were present as witnesses Christianno Henriques Fermekren, merchant and living in the Rua do Loureiro, Luis Gonçalves Teixeira de Barros, merchant living in the Rua dos Calafates, Luis dos Santos da Costa, living in the Rua das Parreiras; Matheus Francisco Lima with a wooden abode and living in this Rua da Emenda, Francisco Heinswinckel living in the Rua do Loureiro, who have signed here testified to the impossibility of the testator signing himself owing to his infirmity, which prevents him from doing so, it has been signed at his behest by António Lopes da Silva living in the Rua do Jasmin after this was read by me Thomaz Izidoro da Silva F., public notary in this city of Lisbon, who enacted this deed on behalf of His Royal Highness, and I sign it in public in the house of the said person. Place of the public signing: I declare it to be true.

Thomas Isidoro da Silva F. at the behest of the testator since he asked it of me, being unable to write: Antonio Lopes da Silva.

Luis Gonçalves Teixeira de Barros. Cristiano Vermecken. Luis dos Santos da Costa. Francisco Hensvinckel. Matheus Francisco Lima.

Opening

I, Luis Manuel Gomes, rector, *locum tenens* of the parish Church of Our Lady of the Incarnation in this city, certify that this testament with which Mathias Bostem departed from this world was delivered to me on the 15th day of this month and year, written on five leaves of paper by António Lopes da Silva among which there is also the document of approval by the Notary Tomas Izidoro da Silva F. leaving nothing open to doubt, closed and sealed in the usual manner and being true I write this: Lisbon, August 15, 1806. The *locum tenens* rector Luis Manuel Gomes. Nothing is further contained in the said will, its approval and opening, the propriety of which I have registered, wherein I found no blot, correction between the lines or anything else, that might cause doubt, the envelope being written and signed by the same Notary, who performed the deed of its approval. It was presented to me by João António da Silva Braga to whom I sent it back, and he signed that he had received it.

Lisbon, August 23, 1806.

Joaquim Ignácio da Rocha P. M....[?] of the General Register of Wills and Testaments of this city and on behalf of his Royal Highness Our Lord the Prince Regent, whom God may preserve, I have written, conserved and signed.

On behalf of the Keeper of the Ministry of the Realm
Joaquim Ignacio da Rocha
João Antonio da Silva Braga

[General Register of Wills and Testaments, Book 357, ff. 35v–36v]

III. PRESERVED INSTRUMENTS

(vd. also Doderer & van der Meer 2005: 429ff, 439ff, 472ff, 484ff).

1. Harpsichord converted into a fortepiano

(Lisbon, Museu da Música, *MM 648*)
Made as a harpsichord by Mathias Bostem, Lisbon 1786.

The signature MATHIAS BOSTEM FECIT LISBOA 1786, with two fleur-de-lis one above the other at the beginning, at the end and between the individual words, is stamped into the wrestplank.

The instrument, apart from being converted from a harpsichord into a fortepiano, has a strongly cut-down case. Originally the case was c. 660 mm longer. The present tail and the hitchpin rail along it are not original. The bridge has been changed by detaching the rear part with the bent bass portion and attaching it to the soundboard in such a way that there is now an angle between the treble part of the bridge in its original position and the bass part in its new position.

Harpsichord converted into a fortepiano, 1786. Photograph: Gerhard Doderer.

There is now an angle of 90° between the spine and the tail. The bottom plank is made in two pieces, both with the grain parallel to the spine and the cheek. The lid consists of a main part and two flaps, the middle flap covering the portion of the case from the jack rail to the front wall, the front flap covering the keyboard. In what remains of the case there are two diagonal braces on the bottom plank and, moreover, three struts, of which two run from the soundboard liner along the bentside to the spine and one runs from this part of the soundboard liner to the lower bellyrail. It can at this moment not be ascertained, to what extent this inner construction belongs to the original parts of the instrument.

There are three blocks running parallel to the bellyrails, attached to the lower surface of the bottom plank: one near the tail and one each near the front corners of the case; into these three non-original turned legs are screwed. Initially this instrument very probably had either a Portuguese-type stand like Bostem's fortepiano of 1777, or else a stand resembling the one in his instrument of 1789.

The outer surfaces of the case walls, the mounts for the front slide, the front slide itself, the entire lid and the non-original legs are painted green. On the upper edges and the inner surfaces of the case walls, on the inner surfaces of spine and cheek beside the keyboard, on the three surfaces of the front wall, on the detachable board above the keyboard and on the upper and inner surfaces of the jack rail supports there is a veneer probably of myrtle.

The soundboard is provided with a wide cut-off bar and seven ribs parallel to the bellyrails in the triangle marked off by the cut-off bar, the spine and the bellyrails.

The wrestplank, originally trapezoid in shape, is made of coniferous wood in three layers. The gap between the wrestplank and the soundboard was widened during the conversion of the instrument into a fortepiano. There are now four iron braces running towards the rear from the wrestplank.

The nut and bridge are made of fruitwood; their cross-section is bevelled roof-shaped with a weak cut moulding. The nut is slightly bent towards the gap.

The two parts of the hitchpin rail are made of walnut; the part along the tail is, of course, not original.

The original compass of the keyboard was GG–g^3. When the instrument was changed into a fortepiano, the compass was at the same time extended to GG–c^4 by the addition of five keys. In connection with the compass extension the whole of the key frame was moved towards the bass. The balance rail is made of chestnut and is bevelled on both sides. In the bass a portion was taken off, so that now the GG pin is perilously near the edge. In the treble a portion, also made of chestnut, was added for the balance pins of the five added keys. The pin-rack is made of the usual two layers with mortises of a triangular cross-section.

The original key levers GG–g^3 are made of coniferous wood, numbered and have three score-lines along the rows of balance pins. The covers of the naturals are made of boxwood in two pieces with four score-lines on the heads. The naturals have fronts made of boxwood with horizontal mouldings in the English style. The covers of the sharps are made of strips of ebony on walnut stained black.

The disposition of the keyboard seems to be: D wide, naturals E–C considerably narrower and sharps narrowest. The keys, however, seem to have been cut down, when the instrument was converted.

The hammer shanks are flat, made of mahogany and narrowed down towards the ends. They are fixed to the proximal edge of the soundboard with twelve screws. The shanks are inserted into the hammer heads made of walnut and covered with one layer of suede leather. The hammer rest rail is made of coniferous wood. The hammer hoppers are inserted into the rear arms of the key levers and consist of a thick iron wire with a head made of walnut with leather covering. They are not guided. The row of dampers is situated along the distal edge of the wrestplank. The upper part of each damper is part of the original jack made of fruitwood. The lower part of the damper is a thick iron wire inserted into what remains of the jack and reaching down to the key lever.

The upper damper guide is the upper jack guide of the rear register, consisting of a comb made of chestnut and a capping of coniferous wood. The dampers only run from GG to c#². On the upper edge of the dampers there is a strip of morocco leather as in Viennese pianos. The lower damper guide, attached to the distal surface of the wrestplank, is a wooden rail with holes to let the iron wires pass.

Measurements:

Length of spine now 1789
of cheek 600
of tail now 334
Case width 943
height 232
Thickness of cheek 20.4
of spine c. 19
of bentside 15.5
of tail now 19.3
Soundboard below top edge of case 67
Width of wrestplank originally 215 (bass)–193;
now 144 (bass)–195
Width of gap originally c. 60; now 130–60
Width of original jack rail c. 77
Nut width 15.5–13.4; height 16.1–15
Bridge width 18.5–10; height 16.1–15
Width of keyboard originally (GG–g^3) 831; now 891
Length and balance points of naturals GG–g^3
438 (195)–412 (178)
of sharps GG#–f#³
403 (172)–378 (157)
Length of heads of naturals 36
of covers of naturals c. 131
of covers of sharps underneath 85
above 81
Width of naturals between sharps: D 14.1
E–C 12.5
of sharps C# and E♭ 12.2
F#, G# and B♭ 11.7
Width of heads of naturals 22.5
Three octave span 486
Vibrating lengths of longer strings of each choir now:

GG	1383
C	1346
F	1281
c	987
f	795
c^1	509
f^1	437
c^2	299
f^2	229
c^3	139
f^3	115
g^3	87

Probably the original vibrating lengths of c^2 lay around 254 mm, so that the instrument was initially meant for brass stringing.

2. Harpsichord converted into a fortepiano
(Lisbon, Museu da Música, *MM 833*)
Made as a harpsichord by Mathias Bostem, Lisbon 1789.

This instrument shows some elements that differ from those described above. The instrument was originally a harpsichord, but was later converted into a fortepiano. The case has been foreshortened, so that part of the bentside and the hitchpin rail along this section have disappeared, and the tail and the hitchpin rail along it are not original. The nut, the bridge, the keyboard and the action are missing.

The bottom plank is made of coniferous wood in two parts: the rear part from the tail to the lower bellyrail, the front part from the lower bellyrail to the front edge; both parts have the grain parallel to the spine and the cheek. The lid consists of three parts: the main part, the middle flap from the gap to the front wall, the front flap over the keyboard. The whole lid is made of mahogany.

Unfortunately, the instrument is now little more than a shell, as the nut, the bridge, the keyboard and the action are missing. Nevertheless, the shell does, indeed, convey a certain amount of knowledge concerning the stages the instrument went through and concerning the work of the later Bostem.

Harpsichord converted into a fortepiano, Mathias Bostem 1789. Photograph: Gerhard Doderer.

The instrument was originally a harpsichord and suffered some severe interventions during the conversion process. So far there is no essential difference between this instrument and the preceding one. There are, however, certain dissimilarities that are probably to be attributed to English influence:

- the whole of the case is veneered; the veneers are made probably of myrtle, walnut and a slightly more complicated veneer on the outer surfaces of the case walls, of the front slide and of the lid as well as on the three surfaces surrounding the keyboard; furthermore mahogany is applied in the front rails of the mounts for the front slide, the front slide itself and the lid;
- on the right (treble) side of the main part of the lid a separate section wide c. 460 mm, joined to the main part with two brass hinges, can be opened, while the main part of the lid itself covers the strings; obviously this construction was inspired by the nag's head swell, applied by Jacob Kirckman from 1754 at the latest, but never patented;
- the stand is no longer of the Portuguese type; it is made of mahogany with a four leg table in front, a two leg section in the rear and a top rail—probably foreshortened with the instrument—connecting the rear section with the front table; the legs are tapered and have brass rollers;
- there is a mahogany pedal, joined to a cross-rail of the table, with a metal rod; it probably operated the nag's head swell. When the instrument

Harpsichord converted into a fortepiano, Mathias Bostem 1789. Photograph: Gerhard Doderer.

was converted into a fortepiano it may have served to raise the dampers.

It seems probable that, alongside these English-influenced elements, the fronts of the naturals were not arcaded, but had an English-type moulding like the fronts of the naturals of Bostem's instrument of 1786.

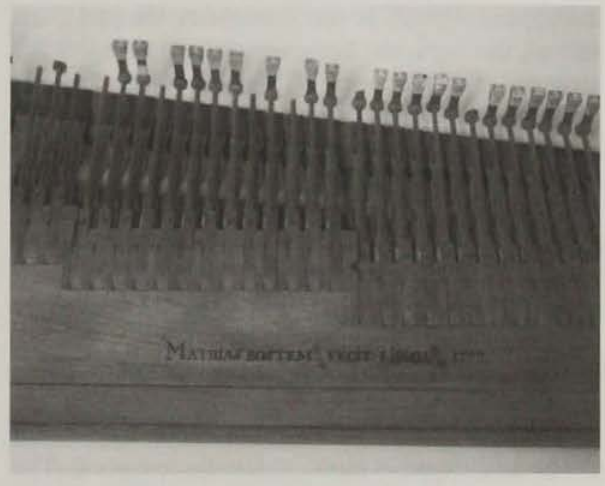
The soundboard is made of fine-grained coniferous wood. The wrestplank is slightly trapezoid and is entirely made of coniferous wood with a central nucleus, a lower layer and a veneer on the top surface. The tuning pins are arranged in two straight rows slanting away from the front wall from bass to treble. The original gap between wrestplank and soundboard slanted slightly towards the front wall from bass to treble. The hitchpin rail along what remains of the bentside is original and made of walnut. After the conversion the hammers were attached to the proximal edge of the soundboard by hinges of leather or parchment, of which there are still traces.

The instrument must have had a fairly long measure with c. 340 mm for c^2, obviously suggesting a stringing largely in iron. The application of the long iron measure is probably the consequence of a general trend and need not necessarily be attributed to English influence.

Fortepiano, 1777. Photograph: Rui Esteves.

Measurements:

Length of spine now 1867
of cheek 595
of tail now 335
Case width 955
height 227
Thickness of cheek 22
of spine 19
of tail now 17
of bentside 15.5
Width of wrestplank now 190–175
Width of notch for jack slides 83
Width of gap now 98
Nut width 19.5–11.6
Bridge width 18.5–13.5
Width of opening for keyboard 870

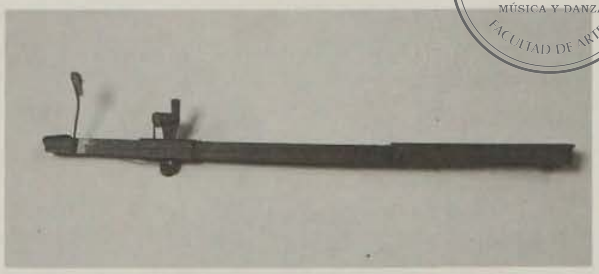


Fortepiano, 1777. Photograph: Rui Esteves.

3. Fortepiano

(Museu Municipal, Torres Novas, Portugal)
Mathias Bostem, Lisbon 1777

The instrument seems to be a *de luxe* model without painted surfaces. All visible surfaces are veneered: the outer surfaces of the case walls, the surfaces of the spine and the cheek beside the keyboard, the damper rail, the rail in front of the keyboard, the end blocks, the lid with the flap, the stand of the instrument and the front plank of the drawer are veneered with mahogany; the mounts for the front slide and the



Fortepiano, 1777. Photograph: Rui Esteves.

front slide itself with rosewood; the top edges and the inner surfaces of the case walls above soundboard and wrestplank, the surfaces of the front wall with its yoke, the keyboard brackets and the damper rail supports have a veneer with tulip wood. The music stand is veneered with rosewood and tulip wood with moulded edges of mahogany.

The soundboard is made of coniferous wood. As far as can be ascertained, the instrument has a wide curved cut-off bar, three cross bars slanting from the cut-off bar to the spine towards the rear, and one rib parallel with the spine.

The wrestplank is made of walnut with a veneer of mahogany on the upper surface. There are three iron semicircular gap spacers between the wrestplank and the upper bellyrail. In this fortepiano, therefore, the strings, the keys, the hammers and the dampers are arranged in four groups of 14 + 13 + 13 + 13. The bichords are not visibly paired, the strings are equidistant, but the grouping of the strings is visible by means of the gap spacers.

The nut and the bridge are made of walnut; the nut is slightly curved towards the gap. The bridge is sawn and double-pinned throughout. The nut has a chamfered roof-shaped cross-section; the bridge has a rounded upper surface.

The hitchpin rail is made of walnut and undercut down to the soundboard liner.

Compass: C–e^3 (53 notes).

The key frame is made of coniferous wood. The balance rail made of chestnut is bevelled on both sides. On both lateral rails there is a support for the hammer rack, made of walnut, with two mortises, into which the tongues on the lower surface of the hammer rack fit. They are guided by posts made of fruitwood inserted into a rail made of chestnut glued onto the rear rail of the key frame. The key levers are cut out around the posts.

The key levers are made of chestnut, cut with an exceptionally beautiful workmanship. They are numbered 1–53 and have no score-lines.

The covers of the naturals—made of boxwood in two pieces—have four score-lines on the heads. In this arrangement of the score-lines a grouping in 2 + 2 is to be observed, slightly reminiscent of the heads of the naturals of Antwerp harpsichords. The naturals have arcaded fronts made of boxwood. The sharps have solid ebony covers. There are clearly wide D's, narrower naturals E–C and sharps narrowest.

The escapement jacks are made of chestnut and pass through a mortise in the key lever. Each jack is pressed down over a metal staple driven into the lower surface of the key, after which a slip of wood is pressed up the slot at the lower end of the jack to secure it. The mortises are oversized: on the upper and lower surface of the key levers they are covered with morocco leather to guide the jacks. At its lower end each jack is bent towards the rear of the instrument; here a brass spring is inserted, running under the lever towards its rear end and inserted into the lower surface of the key lever, therefore, not passing through the complete thickness of the lever. There are the usual escapement jack rests (a leather pad on a piece of morocco leather, forming the head of a thick brass wire). Into each lever there is also inserted a hammer check consisting of the same elements.

The hammer rack consists of a front block made of coniferous wood, two lateral rails and a rear rail, all made of chestnut. To the rear rail of the hammer rack the intermediate levers, numbered 1 to 53, are attached by means of morocco leather hinges, fastened by means of iron staples. The intermediate levers, made of coniferous wood, have lateral cutouts and are provided with small blocks of chestnut, where the escapement jacks touch them.

The hammers are attached to a comb in the front block. In correspondence to the trapezoid shape of the hammer rack the hammer heads form a slanting line. However, here, too, the hammer butts are tiered, in this case arranged in four groups of 14 + 13 + 13 + 13. Each group has its own brass pivot rod through the hammer butts.

The hammer butts are made of pearwood and numbered 1–53 on the upper edges. The hammer shanks are made of coniferous wood; the heads seem to be of mahogany. On the top and lateral surfaces of the heads near the upper edges a slip of wood is fixed laterally under the covering of suede leather.

The upper and lower damper guides are made of coniferous wood; there is a covering of morocco leather on the top surface of the upper guide. The dampers consist of a narrow jack made of fruitwood inserted into a wedge-shaped head of chestnut. The damping is effectuated by a strip of red cloth that originally passed through a horizontal slot in the jack immediately below the head. The dampers are numbered 1–53 on the heads.

There is a provision for *una corda* by sliding the keyboard to the left. A thin plank made of tulip wood in the normal position of the keyboard is slid between the key frame and the spine; in the *una corda* position it is inserted hetween the key frame and the cheek.

Trimmings:

- red felt: on the front rail of the key frame;
- black felt: on the back rail of the key frame;
- red felt with a covering of black felt, fixed with an iron staple: on the key levers under the dampers;
- red cloth: on the damper heads;
- brown leather (presumably sole leather): on some key levers around the guide posts; under the small blocks on the lower surfaces of the intermediate levers;
- red morocco leather: on the upper and lower surfaces of the key levers covering the mortises for the escapement jacks; the upper surface of the upper damper guide; the hinges of the intermediate levers, fastened by iron staples;
- leather pads on a base of red morocco leather: the heads of the escapement jack rests and of the hammer checks;
- white leather: on the front edges of the intermediate levers, where they touch the hammer butts, and as hammer head covering;
- cork: the bushing of the hammer pivots.

Measurements:

Length of spine 2242
of cheek 608
of tail 263
Case width 834
height 218
Width of keyboard 724
Thickness of spine 19
of cheek 25
of tail 23
of bentside 21
Thickness of soundboard c. 2.5
Soundboard under top edge of case 72
Width of wrestplank 200 (bass)–170 (treble)
Nut width 9.5–8.7; height 8.5–7.3
Bridge width 17–10.6; height 17.9–13.6
Hitchpin rail width along tail 56
along bentside 51 (bass)–35 (treble)
Length and balance points of naturals 430 (172)–342 (134)
of sharps 394 (153)–311 (118)
Length of heads of naturals 38
of covers of naturals c. 136
of covers of sharps underneath 81
above 76
Width of key levers at the level of the sharps D 15.3
naturals E–C 12.7
sharps 11.4
Width of heads of naturals c. 22.5
Three octave span 491
Vibrating string lengths and striking points:

C	1750	(170)
F	1507	(154)
c	1052	(127)
f	753	(110)
c^1	541	(90)
f^1	391	(73)
c^2	265	(57)
f^2	197	(40)
c^3	134	(27)
e^3	110	(20)

This instrument has a comparatively small pitch c. The two other wing shaped instruments by Bostem (from 1786 and 1789 respectively) have or had longer pitch c's. These two instruments were originally harpsichords and, as such, obviously intended for stringing in iron.

4. Bentside Spinet

(Museu Imperial, Petrópolis, Brazil)
Mathias Bostem, Lisbon 1785

The case has an obtuse angle (c. 110°) between the front and the bass wall. The front wall consists of three parts: to the left of the keyboard there is the bass part, to the right of the keyboard the treble part, and over the keyboard the central part. The bottom plank is continued up to the front edge of the keyboard protrusion, is made of mahogany and consists of two parts: the division line runs parallel to the front wall from about the middle of the spine to approximately the middle of the bentside.

The case walls, with the exception of the central part of the front wall, have a mahogany veneer on the their top edges, fastened with wooden plugs, and a veneer of rosewood on the inner surfaces above the wrestplank and the keyboard. The keyboard brackets have the same mahogany veneer on the slanting and

Bentside Spinet, 1785. Photograph: Gerhard Doderer.

Bentside Spinet, 1785. Photograph: Gerhard Doderer.

the vertical edges; on the inside surfaces there is a veneer of rosewood with an inlaid vein of ebony in the shape of a triangle, separated from the rosewood on both sides by a vein of boxwood.

The removable nameboard has a rosewood veneer on the rear surface. On the front surface there is a mahogany veneer, in which a vein of ebony in the shape of a triangle is inlaid, separated from the ebony on both sides by a vein of boxwood. This veneer corresponds to that on the inner surfaces of the keyboard brackets, so that there is a unity of ornamentation around the key well. The mahogany veneer on the front surface of the nameboard, moreover, has an inlay in the shape of a garland of bell-shaped flowers and a cartouche, both of boxwood. The cartouche contains the signature of the builder.

The lid consists of a main part, covering the whole instrument with the exception of the protruding keyboard, and the flap over the keyboard.

In the first half of the 19th century the instrument was outwardly redecorated in the following manner:

- the outer surfaces of the case walls and the keyboard brackets with the bottom and the middle rail are entirely gilded; the space between the bottom and the middle rail has red garland-like ornaments, the surface above the middle rail has masks in the style of the late renaissance and bunches of musical instruments, all on a gilded background;
- the lid has a main part with an outer surface with red garlands along the edges on a gilded background and an inner surface with a landscape painting with a gilded border; the flap has an outer surface conceived as a continuation of the ornamentation of the paintings on the outer surfaces of the case walls.

Instead of the two-piece stand that the instrument probably had in its original form, there are now four fluted and gilded legs.

The soundboard is made of coniferous wood. The wrestplank is made of chestnut and slightly trapezoid, contracting towards the treble. The tuning pins are arranged in two parallel rows along the bass and the front wall.

The nut is made of chestnut and straight, the bridge is made of a dark tropical wood and S-shaped. The hitchpin rail is made of the same dark tropical wood as the bridge. The strings for GG–e♭ are hitched along the tail, those for e–g^3 along the bentside.

Compass of the keyboard GG–g^3 (61 keys).

The key frame is of chestnut (front and lateral rails) and coniferous wood (back rail). The balance rail is made of chestnut and slightly bevelled towards the rear. The pin-rack consists of a rear part made of coniferous wood with a horizontal grain and a front part made of chestnut with a vertical grain.

The covers of the naturals are made of ivory in two pieces; there are 2 + 2 score-lines on the heads, 3.5 mm, 5 mm, 7.5 mm and 9 mm respectively from the dividing line. The fronts of the naturals are made of mahogany and are moulded in the English style. At a later date the fronts were painted white, probably to suggest that they were also made of ivory. The covers of the sharps are of massive ebony. The key levers date from one of the restorations (1971, 1972,

1975) and are made in such a way that they fit under the original covers. They are now guided by strips of boxwood in the mortises of the original pin-rack. The division of the widths of the key levers at the level of the sharps is very reminiscent of Bostem's fortepiano of 1777: wide D's, narrower naturals E–C, sharps narrowest.

The jack guides are made of wood, the upper guide with a covering of morocco leather on the upper, the lower guide with a similar covering on its lower surface. The mortises are notchless. The original jacks were discarded in one of the restorations the instrument underwent.

Measurements:

Length of front wall 1094
treble part of the front wall 62
central part of the front wall over the keyboard 872
bass part of the front wall 160
bass wall 123
spine 1823
tail 289
Distance between the tail–bentside and the bentside–front wall angles 741
Angle between the front and bass wall 110°
between bass wall and spine 90°
between spine and tail 78°
Depth of protruding keyboard 131
Height of case 213
Thickness of spine, tail and bass keyboard bracket c. 15.2
of bentside 15.2/16.5
of treble keyboard bracket 14.3
of bass wall 13
of central part of front wall 11.8
Soundboard under top edge of case 67
Width of wrestplank 135–92
Nut width 13–10, height 16–14
Bridge width 14–11.3, height 17.7–11.8
Width of keyboard 836
Length and balance point of naturals 316 (125)–270 (121)
of sharps 279 (101)–234 (94)
Length of heads of naturals 39
of covers of naturals 122
of covers of sharps underneath 80
above 75
Width of keys at level of sharps: D 14.3
naturals E–C 12.3
sharps 12
Width of heads of naturals c. 22
Three octave span 491
Vibrating string lengths and plucking points:

GG	1545	(161)
C	1510	(226)
F	1361	(242)
c	1036	(206)
f	887	(193)
c^1	583	(156)
f^1	485	(141)
c^2	329	(112)
f^2	249	(98)
c^3	154	(66)
f^3	121	(54)
g^3	104	(48)

The instrument was obviously strung for a large part in iron.

IV. FINAL APPRECIATION

Bostem's activity in Lisbon must be seen in a continuous line of German craftsmen establishing themselves as organ and harpsichord builders in the Lusitanian capital from the 1700s onwards. Especially under King John V's rule the arts started flourishing considerably and his wife, the Austrian archduchess Marianna, greatly favoured musical activities both in the royal palace and in the numerous monastic and secular churches of the country. There is still very obviously the influence of the Northern German organ dating from the 1710s through Heinrich Hulenkampf and, somewhat later by others like Filipe and John Cunha (the latter two apparently having adapted the original German form of the their names "Keil" into the Portuguese translated "Cunha").

Due to the lack of preserved instruments it is not clear what kind of influence the builders from the German speaking countries, like the documented João Esvenich could have left in the Lisbon harpsichord building world. The Portuguese harpsichords we know nowadays date back no earlier than the first or second quarter of the 18th century, reproducing mainly Italian features. Only with Bostem's instruments can we verify that Portuguese traditional craftsmanship suffered considerable modifications especially as far as elements of the appearance of the harpsichord and fortepianos are concerned: the very typical light or dark green painting of the outer surfaces, the Portuguese type supports with the upturned hearts' outcuts, the arcaded key lever fronts and the application of the tropical wood veneers now to be found for all the outer surfaces of the instruments. Besides, the harpsichord converted into a fortepiano *MM 833* shows very delicate marquetry inlays with multiple flower and arabesque motifs, unknown so far in Portuguese string keyboard instruments.

Needless to say, the above mentioned Bostem-harpsichords converted into fortepianos—a phenomenon which we can observe as well in other cases as e.g. reported by Doderer & van der Meer 2005: 412ff, 418ff—do not at all seem to have suffered such changes by Bostem himself; the quality of craftsmanship does not imply this hypothesis and suggests much more a later period for such an intervention.

Bostem's inner construction concepts, mechanic and soundboard system do not indicate greater differences compared with the preserved instruments from Lisbon builders before the last quarter of the 18th century. In this way, he kept on the proper Portuguese national tradition of string keyboard building. However, the escapement jacks of his original fortepiano (1777) are not as Manuel Antunes used them in the 1760s, but are following the Cristofori outlay. As far as we know from documents, Bostem reached with his instruments the early 19th century, touching in the same tragic way, just as his contemporary foreign colleagues, the landmark which points to the end of the period lasting over 300 years of European harpsichord building.

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