Harpsichord by Gommaar van Everbroeck, 1659
(NMM 3985, Rawlins Fund, 1986)
Description and Analysis
by
John Koster

Text adapted from
“Two Antwerp Harpsichords from the Second Half of the Seventeenth Century,”
in J. Lambrechts-Douillez and J. Koster, Mededelingen van het Ruckers-Genootschap 8
(Antwerp: Ruckers Genootschap, 2009)
Introduction

Harpsichords by seventeenth-century Antwerp makers who were not members of the Ruckers/Couchet family are extremely rare. From Cornelis and Simon Hagaerts, treated in volume 2 of the Mededelingen van het Ruckers-Genootschap, only two harpsichords and two virginals are known still to exist. From the makers treated in volume 8 of this series, instruments are known to survive only from Gommaar van Everbroeck and Joris Britsen III, one harpsichord by each, as well as two octave virginals by the latter.

The van Everbroeck harpsichord is especially significant in that it comes from a most obscure period in the history of harpsichord making in Antwerp. If the end of this extended period is marked by the existence of three impressive harpsichords made in 1745 by Johann Daniel Dulcken, its beginning is marked by the deaths of Andreas Ruckers the Elder (by 1653), his son Andreas the Younger (by 1659), and Joannes Couchet (in 1655). From the nine decades between the mid-1650s and the mid-1740s we have only the two harpsichords by Van Everbroeck and Britsen and four or five by Couchet’s sons or successors. Unlike the generally standardized products of the Ruckers workshops in the first half of the seventeenth century, no two of these later instruments are of the same model. Thus, each individual instrument is of extraordinary importance in elucidating the history of harpsichord making in post-Ruckers Antwerp. Altogether they seem to have been born of the same spirit of innovation introduced by Joannes Couchet, who, as a contemporary noted, was “much more studious of mind” than his late master and uncle, Joannes Ruckers.

The loss of all adult harpsichord-making members of the Ruckers family in the 1650s provided an opportunity for less prominent members of the trade to fill the void. Simon Hagaerts, perhaps the most important of the makers who had worked under the Ruckers’s shadow, entered into a contract with Couchet’s widow, Angela vanden Brant, to teach her twelve-year-old son the craft of harpsichord making and to supply her with harpsichords, presumably to be sold under the Couchet name. According to recently discovered documents, Joris Britsen II, still described in 1649 as a cabinet maker, as his father had been, entered the Guild of St. Luke as a harpsichord maker in 1649 as a cabinet maker, as his father had been, entered the Guild of St. Luke as a harpsichord maker in 1655/56, followed three years later by his son, Joris III. Quite likely Joris II, perhaps already his father, had learned the craft by making cases and other wooden harpsichord components for the Ruckers family, either as a direct employee or as a subcontractor. Also joining the Guild in 1655/56 as a harpsichord maker in his own right was Gommaar van Everbroeck. Angela vanden Brant’s standing as godmother to van Everbroeck’s twin sons born in 1649 suggests that he was then one of Couchet’s employees. Van Everbroeck’s close association with Couchet’s circle is also indicated by his employment of the same painter who had decorated soundboards for Couchet.

The design, construction, and materials of the van Everbroeck harpsichord are closely related to those of the Ruckers family. Certain minor differences from standard Ruckers practice are also found among the handful of surviving instruments made either by Joannes Couchet in his later years or by his successors. These include the one-piece lid, the lack of a tool compartment with a door in the spine, and the orientation of the roses, with the angel and initials to be viewed and read by one standing at the bent side, not at the keyboard. The van Everbroeck harpsichord, like one made as late as 1680 by Joseph Joannes Couchet, has the conventional Ruckers single-manual disposition of a single 8’ stop and a 4’.

Much of the demand for harpsichords in Antwerp and its environs in the second half of the seventeenth century and the early eighteenth must have been met by the continued use and ravalement of old Ruckers instruments. Nevertheless, the present scarcity of instruments newly made during that period is probably misleading. The number st / 7 written on several parts of the van Everbroeck harpsichord of 1659 indicates he had made no fewer than seven steertstukken
(harpsichords) during the three or four years since he had joined the Guild. The total number of his harpsichords might actually have been considerably higher, since the number on an instrument might refer only to its own particular model. In view of the generally dismal survival rate of Antwerp harpsichords from this period, the survival of even this one by van Everbroeck is fortunate. All the more remarkable is that it has survived essentially in its original state, musically and decoratively.

1. Plan view
(photo by Bill Willroth, Sr.)
Description and Analysis

Inscriptions:
- GOMMARVS • VAN • EVERBROECK • FECIT • ANTVERPLÆ • (on the name batten in red paint on a gold ground; Figure 2);
- GVE (cast into the gilt lead rose, 73½ mm in diameter, around a putto facing forward and playing the harp; Figure 3);
- 1659 (painted on the soundboard between the bass end of the 8' bridge and the spine; Figure 4).
- st / 7 (written in ink on the back of the name batten, the bass sidepiece of the keyframe, and the GG/BB key; Figure 5).

2. Keywell with the maker’s inscription
   (photo by Bill Willroth, Sr.)

3. Rose
4. Date painted on the soundboard
(photo by Bill Willroth, Sr.)

5. The maker’s number st / 7, written on the key frame

Principal dimensions: Length 2093 mm; width 795; height of walls without bottom board 252; length of cheek 585; length of tail 245; width available for the keyboard between the end blocks 723. Tail angle 63½ degrees.

Construction:
In general, the materials and construction of the case and soundboard conform to the style of Ruckers-family harpsichords. The walls and bottom are of poplar; thicknesses: spine 16½ mm near the front, down to 15 at the middle and tail; cheek 16½; bent side 16¾ near the cheek, down to 15¼ at the middle and 14½ at the tail; tail 16; bottom (not original) 11 to 12. The walls are joined in the Ruckers manner: the spine-tail corner mitered, the tail-bentside and bentside-cheek with the characteristic miter on the inside portion and lap on the outer. The bottom is attached to the underside of the walls. The wrest plank, 198 mm wide, is of quarter-sawed oak, tapered in thickness from 40½ mm at the nameboard to 21 at its rear edge (both measurements including the veneer of soundboard wood, about 3 mm thick). As in Ruckers harpsichords, the upper belly rail is set at an angle and held in slots in the spine and cheek liners, which continue to the wrest plank.
The soundboard and wrest-plank veneer are of quarter-sawed spruce. The nuts are of beech; the 8' bridge is of cherry sawed to its curve; the 4' bridge is a modern replacement. At the bent side and tail, the 8' hitch pins are driven into molding, 5½ mm high, glued to the edge of the soundboard along these walls and along the spine and cheek. The 8' bridge is back-pinned from GG/BB to B₅. (Although back-pinning of the bass octave is to be expected, the pins themselves are modern and are driven into the bridge uncharacteristically low, about midway between the upper and lower edges of the bridge. There certainly never were any back pins in the usual position. Because the tail section and the treble end of the 8' hitch-pin molding have been replaced, one cannot judge the plausibility of whether the maker might have relied on side-draft rather than back pinning to keep the bass strings in firm contact with the bridge.) Internally, there are three lower braces and three upper-level struts (see Figure 6).
The only significant deviations from normal Ruckers construction is the lack of a tool compartment with its door in the spine. The first lower brace, which in Ruckers harpsichords runs at an angle between the spine and cheek and serves as a wall of the tool compartment, is here, like the other braces, perpendicular to the spine. On the underside of the soundboard are the usual heavy 4' hitch-pin rail, cutoff bar, and four ribs between the latter and the spine liner. As in some Ruckers harpsichords, a block is glued to the soundboard and bent-side liner in the bass (Figure 7).

7. Detail of the interior, showing the presumably original block glued to the bent-side liner and the soundboard (photo from the NMM archives)

Action and disposition:
The instrument retains its original disposition of a single manual with compass GG/BB to c³ (50 notes; Figure 8).

8. Keyboard
There are two registers arranged so:

\[
\begin{align*}
&< 4' \\
&\phantom{<} 8' >
\end{align*}
\]

The ends of the two registers project through the cheek. There is an undivided buff stop for the 8', moved by gripping a tab at the bass end of the batten.

Note names g, a, and h written in ink behind the 8' and 4' wrest pins indicate that the apparent BB\,\!\!\!\!/uni266E key in the short octave was tuned to GG, C\,\!\!\!\!\!/uni266F to AA, and E\,\!\!\!\!\!/uni266D to BB\,\!\!\!\!\!/uni266E. The key levers are of poplar variably 13 to 14 mm thick. The natural covers are of bone, with heads variably 39 to 39½ long, decorated with four scribed lines and notches similar to those on Ruckers keys. The key fronts are decorated with modern arcades. The sharps are the originals of bog oak, 64½ mm long. The three-octave measure of the natural heads is 503 mm, while it is 498 at the distal end of the levers. The key frame is very similar to those in Ruckers single-manual harpsichords, also with the balance rail originally angled such that the balance points in the treble are slightly more distant than those in the bass. Measured from the front of the natural covers, the GG/BB balance point is 138 mm, \textit{c}\,\!\!\!\!\!/uni266C is 148; from the balance point to the distal end of the lever is 243 at GG/BB, 238 at \textit{c}\,\!\!\!\!\!/uni266C. From the balance point to the center of the main gap (i.e., the point between the 8' and 4' jacks) is 212 at GG/BB, 202 at \textit{c}\,\!\!\!\!\!/uni266C. The line of balance pins for the sharps is 12 mm behind the naturals.

The gap between the wrest plank and upper belly rail is 36 mm wide. (The edges of the soundboard and wrest-plank veneer probably overlapped the gap originally but have been trimmed flush.) The two upper guides and the jacks are modern replacements, but the lower guide is original. In the Ruckers style, it is of soundboard wood, 3½ mm thick, covered with leather on top and parchment underneath, and its front edge is reinforced by a rib. The longer slots, 15½ mm, for the front row of jacks, confirm that this was the 8' set, while the back row, with slots 12½ mm long, was for the narrower 4' jacks. Presumably the jacks were like those of the Ruckers, with two dampers in the 8' and only one in the 4'.

<table>
<thead>
<tr>
<th>Table 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Harpsichord by Gommaar Van Everbroeck, Antwerp, 1659</td>
</tr>
<tr>
<td>String lengths and plucking points (all measurements in millimeters)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>8'</th>
<th>4'</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>length</td>
<td>plucking point</td>
</tr>
<tr>
<td>c,!!!!/uni266C</td>
<td>172</td>
<td>53</td>
</tr>
<tr>
<td>f,!!!!/uni266F</td>
<td>232</td>
<td>–</td>
</tr>
<tr>
<td>c,!!!!/uni266C</td>
<td>323</td>
<td>67</td>
</tr>
<tr>
<td>f,!!!!/uni266F</td>
<td>467</td>
<td>–</td>
</tr>
<tr>
<td>c,!!!!/uni266C</td>
<td>678</td>
<td>87</td>
</tr>
<tr>
<td>f,!!!!/uni266F</td>
<td>913</td>
<td>–</td>
</tr>
<tr>
<td>c</td>
<td>1178</td>
<td>110</td>
</tr>
<tr>
<td>F,!!!!/uni266F</td>
<td>1466</td>
<td>–</td>
</tr>
<tr>
<td>C</td>
<td>1618</td>
<td>138</td>
</tr>
<tr>
<td>GG/BB</td>
<td>1628</td>
<td>140</td>
</tr>
</tbody>
</table>
Scaling and layout:

String lengths and plucking points are given in Table 1. Pairs of holes from pins used to position the 8' bridge are visible at c\textsuperscript{3} and f\#\textsuperscript{2}. The three-octave measure of the lateral spacing of the strings at the registers is 498 mm.

9. Plan of a typical Ruckers transposing double (by Andreas Ruckers, 1608, in the Russell Collection, Edinburgh; reconstruction of the original state, drawn by the author) superimposed on the plan view of the Van Everbroeck harpsichord
The outline of the case and the layout of the wrest plank and soundboard of the van Everbroeck harpsichord are very similar to those of a standard Ruckers two-manual harpsichord, as can be seen by superimposing plans (Figure 9). There are, however, some subtle differences in the designs. While the positions of the nuts in the van Everbroeck harpsichord are very close to those of Ruckers doubles (see Table 2, columns A-C), the bridges are, in most places, slightly in front of the Ruckers bridges. Therefore, van Everbroeck’s strings are somewhat shorter, as can be seen in Table 2 (columns D-F) and in a comparative graph (Figure 10). The maker undoubtedly did this deliberately so that the instrument could be tuned to a somewhat higher pitch than the usual chorista of Antwerp harpsichords, “Ruckers reference pitch,” about a\(^1\) = 410 hz.\(^{11}\) Throughout the compass, van Everbroeck’s string lengths fall between normal Ruckers scaling and that of an undated Couchet harpsichord (Table 2, column G) clearly intended to be tuned a tone higher than chorista, to about a\(^1\) = 460 hz, the same pitch as that of Ruckers 5-voet virginals.\(^{12}\) Thus, it seems, the van Everbroeck harpsichord, like a Joannes Couchet double of 1646 with similar intermediate scaling (Table 2, column H), was intended to be tuned a semitone above chorista.\(^{13}\)

### Table 2

Comparison of nut pin positions and string lengths in various harpsichords:

<table>
<thead>
<tr>
<th>Nameboard to nut pin</th>
<th>String lengths</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>AR 1608</td>
</tr>
<tr>
<td>A</td>
<td>156</td>
</tr>
<tr>
<td>B</td>
<td>138</td>
</tr>
<tr>
<td>C</td>
<td>117</td>
</tr>
<tr>
<td>D</td>
<td>95</td>
</tr>
<tr>
<td>E</td>
<td>67</td>
</tr>
<tr>
<td>F</td>
<td>194</td>
</tr>
<tr>
<td>G</td>
<td>186</td>
</tr>
<tr>
<td>H</td>
<td>179</td>
</tr>
<tr>
<td>c</td>
<td>170</td>
</tr>
<tr>
<td>c(^3)</td>
<td>162</td>
</tr>
</tbody>
</table>

*The author’s reconstruction of the original state.
‡Measurements by the author.
§Measurements from Meeûs, op. cit., p. 29.
To scale harpsichords and virginals for various different pitches, the Ruckers and other Antwerp makers shortened or lengthened their standard string lengths for *chorista* by the appropriate ratio, such as 8:9 for a whole tone higher or 4:3 for a fourth lower. Because the scaling of the van Everbroeck harpsichord, like that of any individual Ruckers instrument, is not perfectly accurate from note to note or octave to octave,\(^\text{14}\) the particular ratio that he used for raising the pitch by a semitone is not immediately obvious. There are several possibilities. It is quite unlikely that any maker of this period would have used the factor of an equal-tempered semitone (the twelfth root of two), but he might have used the close approximation of this by the ratio 17:18, widely known since Vincenzo Galilei recommended it in 1581 for fretting lutes and viols.\(^\text{15}\) More likely, however, van Everbroeck would have used one of the common approximations for the two different semitones of quarter-comma meantone temperament, either 15:14 for the diatonic semitone (also called the major semitone, the interval, for example, between B\(\#\) and C) or 24:23 for the chromatic semitone (also called the minor semitone, the interval, for example, between C and C\(\#\)).\(^\text{16}\) The 15:14 ratio had, indeed, been used by sixteenth-
century Antwerp makers for instruments tuned a semitone below *chorista*. Nevertheless, if we reverse the process with van Everbroeck’s string lengths and, through multiplication by each of the three likely factors, convert them back to their putative values for *chorista*, we find that the 24:23 ratio yields the best agreement with standard Ruckers scaling: compare columns D and E in Table 3. The same can be said of the scaling of the Couchet harpsichord of 1646 (column I).

Table 3
String lengths (in mm) of high-pitch harpsichords by Gommaar Van Everbroeck, 1659, and Joannes Couchet, 1646, converted to their equivalents one semitone lower in pitch through multiplication by three possible factors for semitones of different sizes:
- 15/14 (the diatonic or major semitone of quarter-comma meantone temperament)
- 18/17 (a common approximation of the equal-tempered semitone)
- 24/23 (the chromatic or minor semitone of quarter-comma meantone temperament)
for comparison with a standard double by Joannes Ruckers, 1638. For both the Van Everbroeck and Couchet instruments, the values converted by the factor of 24/23 (shown **bold** in columns D and I) agree best with the standard Ruckers scaling (also shown **bold** in column E). This suggests that Van Everbroeck and Couchet intended these instruments to be tuned a minor semitone below *chorista*, the standard Ruckers pitch.

<table>
<thead>
<tr>
<th></th>
<th>Van Everbroeck 1659</th>
<th>Standard Ruckers (IR 1638)</th>
<th>Joannes Couchet 1646</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
</tr>
<tr>
<td>actual</td>
<td>× 15/14</td>
<td>× 18/17</td>
<td>× 24/23</td>
</tr>
<tr>
<td>c⁴</td>
<td>76</td>
<td>81</td>
<td>80</td>
</tr>
<tr>
<td>c⁴</td>
<td>170</td>
<td>182</td>
<td>180</td>
</tr>
<tr>
<td>c</td>
<td>338</td>
<td>362</td>
<td>359</td>
</tr>
<tr>
<td>c⁴</td>
<td>591</td>
<td>633</td>
<td>626</td>
</tr>
<tr>
<td>C</td>
<td>904</td>
<td>969</td>
<td>957</td>
</tr>
<tr>
<td>8'</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c³</td>
<td>172</td>
<td>184</td>
<td>182</td>
</tr>
<tr>
<td>c⁴</td>
<td>323</td>
<td>346</td>
<td>342</td>
</tr>
<tr>
<td>c</td>
<td>678</td>
<td>726</td>
<td>718</td>
</tr>
<tr>
<td>c</td>
<td>1178</td>
<td>1262</td>
<td>1247</td>
</tr>
<tr>
<td>c⁴</td>
<td>1618</td>
<td>1734</td>
<td>1713</td>
</tr>
<tr>
<td>4'</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c⁴</td>
<td>76</td>
<td>81</td>
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</tr>
<tr>
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<td>362</td>
<td>359</td>
</tr>
<tr>
<td>c⁴</td>
<td>591</td>
<td>633</td>
<td>626</td>
</tr>
<tr>
<td>C</td>
<td>904</td>
<td>969</td>
<td>957</td>
</tr>
</tbody>
</table>


Although the scaling of the van Everbroeck harpsichord as a whole suggests that the maker designed it to be tuned a chromatic semitone higher than standard models, he was not very rigorous in its execution. The 8' strings around c² are notably shorter than the theoretical ideal. Another problematic aspect of the instrument’s design or execution is the curve of the 4’ hitch-pin rail, which seems rather too close to the 8' bridge from about a¹ to a² and would still be too close even if the bridge in this area had been positioned farther back, as in standard Ruckers doubles.
Decoration:

In general, the decoration, which remains substantially intact in its original state, is in the manner of Ruckers harpsichords. The case was made with the usual moldings, left unpainted along the upper edge. The molding at the bottom in front of the keyboard is a recent replacement. The flowers, birds, fruit, a shrimp, a snail, and a caterpillar on the soundboard and wrest-plank veneer are attributed to the same anonymous painter who decorated the late instruments of Joannes Ruckers and his successor Joannes Couchet. As in the Couchet of 1646, there are no borders around the bridges and edges nor any arabesques. Block-printed papers cover the nameboard and line the interior of the case around the wrest plank and soundboard (Figures 11 and 12).

11. Decorative paper on the nameboard

12. Decorative paper on the interior of the case, around the soundboard and wrest plank

These two patterns, a third used as a border on the interior of the lid (Figure 13), and a fourth used as a border on the front flap (Figure 14) were printed in red on white paper (now yellowed). Only the last of these is similar to a pattern found in Ruckers instruments. On the nameboard paper, there is a green line painted above and below the main pattern and a red line at the outer edges of the border pattern. The interior surfaces of the key cheeks are papered but if there is a printed pattern, it cannot be seen under the blue paint, possibly original, covering the paper. Above the paint layer, the cheeks are decorated with four narrow strips of paper printed with a rope pattern in red, continuing the red and green lines painted on the nameboard paper. The endblocks are decorated with red arabesques on an off-white ground (Figure 15).
13. Decorative paper used as a border on the lid interior

14. Decorative paper used as a border on the front flap

15. The bass end of the keywell
The lid, as in some late Couchet instruments, is a single panel, without the separate hinged flap over the jack rail, wrest plank, and keyboard. The interior, within the border, is covered with paper printed with an ochre-colored wood grain (Figure 16), similar but not identical to the familiar paper of Ruckers lids.

16. Paper with wood-grain pattern on the lid interior

On this paper, within a narrow black border stripe, are red painted arabesques and the motto written in black:

LAVDE TVA, LECTOR, NON INDIGET AVTHOR; OPVSVE:
HOC OPVS AVTHOREM LAVDAT, HIC AVTHOR OPVS

Reader, neither the author nor the work requires your praise: the work glorifies the author; the author [glorifies] the work.²⁰

Written in red on a ground of ocher-colored paint within the borders of the fallboard hinged to the edge of the bottom in front of the keyboard is the motto:

NON NISI MOTA CANO

Not unless stirred do I sing.
The exterior of the lid (Figure 17) is painted with a black border surrounding simulated marble, red with black and white streaks, rather less skillful than the marbling on Ruckers harpsichords. Originally the exterior of the case was would have been painted similarly, but this was removed, probably long ago, and black borders were repainted around each surface. The brass hinges and the escutcheon and hasp for the lock are modern replacements. The outlines of the somewhat similar original hinges can be seen on the lid (Figure 18).
Condition:

The instrument is substantially in its original state. Repairs, mostly done during a
restoration in France in the 1970s, have included replacement of the bottom board; reinforcement
of the cheek and spine by battens at their front edges and vertical pieces inset on the exterior near
the ends of the nameboard; reinforcement of the lid by three battens screwed across its exterior;
provision of new upper guides, jacks, and jack rail; replacement of the tail section of the 8' hitch-
pin molding and several short sections along the bent side; reinforcement of the soundboard,
somewhat weakened by woodworm, with strips of cloth on the underside; and, evidently to
prevent contact of the 4' strings with the distorted soundboard, installation of a new 4' bridge
higher than the original and raising the 4' nut by regluing it atop a thick shim. At some time, a rib
was glued between the cutoff bar and the 4' hitch-pin rail under the 4' bridge in the tenor,
presumably to counteract its sinking. The stand was made at the NMM in the 1980s.

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2. A harpsichord by Simon Hagaerts (with a false Joannes Ruckers inscription and date 1632; in
the Musée de la Musique, Paris) is described by Josiane Bran-Ricci, in Lambrechts-Douillez,
Klavecimbelsbouwersfamilie Hagaerts, pp. 25-28. A virginal by Cornelis Hagaerts, 1636 (in the
Rockoxhuis, Antwerp), is described by Cornelis A. Bom, ibid., pp. 29-49. (This is the same
instrument as the Cornelis Hagaerts virginal sold at Sotheby’s in 1980 and listed separately in
Donald H. Boalch, Makers of the Harpsichord and Clavichord, 1440-1840, 3rd rev. edition,
a muselar of 1641, described in Alain and Marie-Christine Anselm, “La collection Yannick
Guillou,” Musique-Images-Instruments 2 (1996), pp. 118-121. By Simon Hagaerts there is an
undated harpsichord in the Muziekinstrumentenmuseum, Brussels (no. 2931). A non-existent
harpsichord by Cornelis Hagaerts, 1652, is mentioned erroneously in Giulia Nuti, “At the Piccola
Accademia di Montisi: Interview with Alan Curtis and Bruce Kennedy,” Harpsichord &
Fortepiano 12, no. 1 (Autumn 2007), p. 20; I am grateful to Mr. Kennedy for the information
that he was misquoted.
3. The Britsen harpsichord of 1681, in the Museum Vleehuis, Antwerp, is described in my “Two
Antwerp Harpsichords from the Second Half of the Seventeenth Century,” in J. Lambrechts-
Douillez and J. Koster, Mededelingen van het Ruckers-Genootschap 8 (Antwerp: Ruckers
Genootschap, 2009), pp. pp. 105-127. About the octave virginals of 1676 and 1686, see Grant
University Press, 1990), pp. 35 and 287-289. A virginal with rose initialed PDB
(Muziekinstrumentenmuseum, Brussels, no. 2925), thought to have been made by (Peter) Daniel
Bader, is, I believe, entirely a crude nineteenth-century fake.
4. One must emphasize that the reservations expressed in Boalch, Makers of the Harpsichord, pp.
55 and 308, about the authorship, date, and original state of this instrument are completely
unfounded.
5. For documents referring to Andreas Ruckers the Elder and Younger as deceased in these years
see Jeaninne Lambrechts-Douillez, Mededelingen van het Ruckers-Genootschap IV: Andreas
Ruckers de oude, Andreas Ruckers de jonge (1984), pp. 30 and 49; for Couchet see the same
Dulcken’s oeuvre is described in detail in Jean Tournay, *Archives Dulcken, Volume 1* (Brussels: Musée Instrumental and Tutzing: Hans Schneider, 1987).


7 See Lambrechts-Douillez, *De familie Couchet*, pp. 24-29.

8 See the documents about the Britsens as published by J. Lambrechts-Douillez in *Mededelingen van het Ruckers-Genootschap* 8, pp. 13-27.

9 See the biographical discussion and newly discovered documents about van Everbroeck ibid., pp. 6-7 and 80-83.


11 *Chorista* was the term used in Antwerp by G.F. Duarte for “the natural pitch of this country” in a letter of 5 May 1648: see Jonckbloet & Land, *Musique et musiciens*, p. cxcii; also O’Brien, *Ruckers*, p. 305. Following evidence, albeit scant, of the pitch of organs in the region, it would have been slightly lower than O’Brien’s estimate of $a' = 413$ to $419$ hz in *Ruckers*, p. 62.

12 The Ruckers system of instruments of different lengths tuned to different pitches is explained in O’Brien, *Ruckers*, chap. 4.


14 For example, the $8' c^2$ string in two well-preserved standard single-manual harpsichords by Andreas Ruckers varies from $359$ mm in an example made in $1607$ (NMM 7384) to only $348$ mm in another made in $1637$ (in the Germanisches Nationalmuseum, Nuremberg; see O’Brien, *Ruckers*, p. 265).


