The Walnut Revisited

The large harpsichord now in the Württembergisches Landesmuseum, Stuttgart and previously belonging to Alan Rubin, London, is certainly worth revisiting, time and again. Alternately known as the so-called French, The Big Walnut or "das süddeutsche Cembalo" and considered by Frank Hubbard (Three Centuries of Harpsichord Making, Harvard University Press, 1967, p.l00) along with the other 17th. century french instruments, the origin of this harpsichord has been the subject of much conjecture. Both its restorer, Christopher Nobbs, London, and I consider it to be German or at least Germanic. Indeed, my first unqualified and unrequested comment to Mr. Nobbs while then visiting his shop was 'that smells of south German or Alsacian organbuilder against the wind'. Mr. Nobbs has stated some reasons in a very good article (The English Harpsichord Magazine). Although my first impression was very intuitive, I later realized that the similarities with Friedrich Ring, organbuilder in Strasbourg and immediate predecessor to Andreas Silbermann as well as with Heinrich Silbermann could not be overlooked. The discussion was renewed by the statement that there is supposed ("supposed" because I have not seen it or received firsthand knowledge from those making the statement, but, then who am I?) to be a parallel and signed Instrument in southern France. The present whereabouts doesn't say anything about the origin as can be seen with the Walnut, which spent most of its' life in France. Except for Mr. Nobbs' observations on furniture detail (op cit), all of this is wintery ambiguity. I must throw more "wood" on the fire.

Instrument makers, like all craftsmen, were real people (more so than now) living in a real world. For them, the concept of divine proportion, of numerical necessity was a reality, part of a system larger than they. That the keyboard octave has 7 + 5 keys or the overtone row is built up of consecutive fractions (1:1, 1:2, 2:3, 3:4, 4:5, etc.) was not a matter of chance or physics but of divine necessity. Indeed, they had no method of working with irrational (unreal) numbers except when expressed in rational numbers as fractions. For their designs, they relied on geometry and number series such as the overtone row or primes or Fibonacci numbers because they believed these mirrored the natural order or harmony of the world.

A good example and proof of this belief is the Golden Section which, as everyone knows, was used extensively although it is an irrational number: 618:1000. It can, of course, be arrived at geometrically, but there is another method. The ratio of two consecutive Fibonacci numbers approaches, the farther removed it is from 1 the more exact, the Golden Section: 2:3 = .667; 3:5 = .600; 5:8 = .625; 8:13 = .615; 13:21 = .619; 21:34 = .618; 34:55 = .618; 55:89 = .618! And, of course, they measured using the arbitrary unit given in their locality, but these varied widely.

With this in mind, I will attempt to arrive at the proportion and measure used in the Walnut as a possibility of determining where it might have been made. First some proportions:

length:width = 3:1
height with lid:width = 1:3
height:width at tail-bentside joint = 1:1
1/2 width at 2/3 of length
distance frontedge-bellyrail:width = Golden Section
    "   "   -wrestplank:width = 1:3
inside height: length = 1:13
width of wrestplank:width = 1:4

If by no means all, these are enough examples to show that the design was arrived at using proportions. As absolute numbers, they have nothing to do with units of measure.

Especially with organbuilders, I have found it consistent that the octave span is 12 x 1/2" or 6". In this case, that would be

$$156.5:6 = 26.08mm$$

and would give a hypothetical line (1/12") of 2.17mm and a 12" foot of

$$313mm$$

Does this fit reasonably well the given measurements?

length 2500:26.08 = 95.859" = 8'
width 837:26.08 = 32.094"
height 275:26.08 = 10.544
length of tail 390:26.08 = 14.954
width of wrestplank 209:26.08 = 8.014
thickness " 33:26.08 = 1.265 = 1 1/4"
keyhead lengths 1 1/4" & 1 1/3"= 1"3''', 1"4'''

It is very common in German instruments, especially clavichords, with a scaling for steel strings to double the length less 1 unit for each octave.

scaling taken as the mean between both strings:

c^3 - (187+179:2):26.08 = 7.017

C^2 - (354+340:2):26.08 = 13.305

c^1 - (660+632:2):26.08 = 24.770

$c°$ - (1255+1220:2):26.08 = 47.450

Here, we have 7", 13", 25", 48" or exactly this system although, of course (2x25)-1 is not 48 but 49, close enough, considering how far down this note is along the compass of this admittedly very long instrument. That the hypothetical foot fits this scaling and the other measurements so well is reason for me to believe that it is correct.

This 313mm foot is the Rhein Foot, also used in Dijon and probably in most of what at one time was Burgundy. In the seventeenth century this was not French.

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William Jurgenson