In Search of the Secrets of Medieval Organs: The European Summer of 2012

A Report and Some Reflections

By David Rumsey

On Friday and Saturday, June 9 and 10, 2012, a concert and workshop focusing on the medieval organ were held at the Basel (Switzerland) Peterskirche. They dealt with concepts, designs, repertoire, and the medieval organ used in ensemble. Another symposium and series of concerts was later organized in and around East Friesland (Rhede), commencing Monday, September 3, 2012, running until Sunday, September 9, dealing with much the same topics. Some instruments and participants were common to both events. Elsewhere Kimberley Marshall played and held courses in Sion (Switzerland) during October 2012. Other events in Europe during the summer of 2012 dedicated to the medieval organ included one arranged by Jos van der Giessen in the Netherlands.

Kimberly Marshall’s 1989 book, Iconographical Evidence for the Late-Medieval Organ in French, Flemish and English Manuscripts, was of seminal importance to much of this blossoming culture. It was the most oft-quoted work at the Basel and Rhede conferences. A colophonium in 1965 at Royaumont (France), two years after an 11th-century Théophilius organ had been reconstructed there by Antoine Massoni, was a most important sequel. Marcel Pérès, responsible for the Royaumont Théophielus organ, also played in Basel during August 2011. The 2012 events were significant vantage points in an ongoing search for the Holy Grail of understanding medieval organs and performance practices. They continued to push back through the 15th, 14th, and 13th centuries, even to the 3rd in Rhede.

The Phenomenon

The observant phenomenologist might well note something in the air—music has now spread both forwards and backwards in time—from a “Bach-falken” that began with Mendelssohn, S.S. Wesley, et al. in the early 19th century. By the late 20th century it had reached Fortepiano, early Strauss, the “real” Wagner orchestra, and even Stravinsky’s Le Sacre du printemps, where authenticity of instruments used was a measure of performance excellence. Concurrently, moving back to ever earlier eras, the music of Buxtehude, Frescobaldi, Couperin, Correya de Araujo, and Sweelinck—among many others—has been vigorously regenerated through performance on historic organs, careful emulation of their temperaments, key proportions, wind quality, specifications, tonal and mechanical attributes, all of which illuminate performance practices.

Other 19th- and 20th-century contributions to this historical consciousness included the continuums of English choral music, the rediscovery of Palestrina, and parallel developments in Gregorian chant. In the educational arena it seeped into musical institutions such as Eugène Gigout’s 19th-century Organ School in Paris or the early 20th-century Schola Cantorum Basiliensis, not to forget the work of Solesmes and similar centers. In the educational arena it seeped into musical institutions such as Eugène Gigout’s 19th-century Organ School in Paris or the early 20th-century Schola Cantorum Basiliensis, not to forget the work of Solesmes and similar centers. In the educational arena it seeped into musical institutions such as Eugène Gigout’s 19th-century Organ School in Paris or the early 20th-century Schola Cantorum Basiliensis, not to forget the work of Solesmes and similar centers.

Attendees came from Germany, Netherlands, Scotland, Switzerland, Australia, Czech Republic, USA, and Scandinavia. At the outset Harald Vogel made the poignant observation that this unusual gathering of medieval organs was an exceptionally important event in the history of the instrument, a hitherto virtually unthinkable assembly. It was organized by the Werner Organeum, Winfried Dahlieke in charge, supported by a squadron of organists, organbuilders, and others whose burning curiosity clearly motivated them strongly.

Dr. Vogel inaugurated the “Rims” instrument, made for a German organist by Orgelbaumeister van der Putten after a mid-14th-century practice, scaled, two 8′s in parallel (effectively 9′ II-ranks), always playing, no stop control) and a 6′ (on a separate register, slider...
above the winchesters. The resemblance to an organ described in the 10–12th-cent. Secular Manuscript gives its S°/S° specification full credibility.8 The prototypical culture that inspired the Rims instrument used lead as pipe material, constant scaling after the 11th-century Berne Anonymous MS,9 and keys as described by Praetorius for Halberstadt.10 Its Gamba-Quintadena-like bass tones with Principally-Flutey trebles were an experience all of their own. They came into good use during the symposium in Cregernian alternations, bordun supporting chanters, and works such as medieval Redenutus with long-held bass notes under more agile trebles. This instrument presented a left-hand cantus firmus of an early Felix namque 12.21

Much of the woodwork is Lebanese cedar, again contributing scents to the total experience. It was used in every concert and demonstration and featured twice on the cover of the flyer. (Ryss was the third.) The two Rims flyer photos were taken at the Basel event by Jo van der Giessen where the Peterskirche appropriately provided a neatly framed, truly “Gothic” background. The positive was moved from Laufen (Switzerland) near Basel to Rhiade (Germany), then Huzinge (Netherlands), Ryss (Germany).
around gothic pipe-making, wind pressures, voicing, registration, performance practice, the problems and advantages in the anachronous use of tuning slides in modern copies of early organs, the towering figure of Arnaud de Zwolle, medieval organ design (cases, windchests, specifications, keys), the Blockwerk, surviving literature, touch sensitivity on portatives, the use of bells with medieval organs, Pythagorean tempering, and much more.

Time simply ran out. The richness of thematic material, available expertise, the many discussion by-products, and the ravenous cultural, intellectual, and musical hunger of all gathered together for this event turned out to be quite overwhelming for the organizers. Some speakers and players had to seriously curtail their offerings. Frustrating though this was, it should be no enduring problem as long as the need for more is acknowledged.

Thus it was that, on Saturday afternoon, September 8, 2012, momentarily lacking a program, I turned to Jos van der Giesen and asked, “When does this finish?” Even the fascinating unchorded double sonatas by Koos van de Linde (Netherlands/Germany) resulting from Arnaud de Zwolle to the much-discussed Utrecht Nicolaarkerk organ restoration was not fully done. Three more speakers were impossibly scheduled in the 30 minutes before the clock at 4:30 pm. My question was intended to be “When does this session finish?”—but the response fittingly, amusingly, and intentionally summed up the spirit which had been engendered by all the 2012 events: “Never, I hope!”

For the phenomenologists, at least four medieval organ events in around four months—Basel, Netherlands, Rhede, Sion—must be something of a landmark for 2012.

Immediately following the Rhede Symposium, on Sunday, September 9, after the closing church service in Bysum, a further concert was held in Groningen’s De Oosterpoort Concert Hall. Arrangements had been made that my instrument would remain in the Netherlands for a few days before being returned to Switzerland. Janekes Braaksma (Netherlands) and Tomas Fleget (Czech Republic) played it with the group Vox Resonans, the ensemble adding that sparkly and transformed sound that has been frequently noted with this organ: those who had attended both events were still commenting on Tobie Miller’s hurdy-gurdy playing in Basel and the amazing soundscapes created when organum and organum are played in ensemble. The dance group, RenaiDanse, led by Yvonneke Danes (Switzerland), and instrumentalists also featured in two of the Rhede Symposium concerts as well as this Groningen event. They all earned a double standing ovation in Groningen—one after the concert, another after the encore. The calcant (the organ’s builder), physically exhausted and suffering from a serious workshop injury, attended both events were still commented on this two ends of a historical progression and clearly distinguished between the organ’s two instrument types. Simple, well-intended, and correctly discriminated between the nicknaming of the Rulland Psalter copy as a “Theophilus” organ. Of course, with hindsight, we can now view this as two ends of a historical progression and clearly distinguished between the organ’s two instrument types. Simple, well-intended, and correctly discriminated between them. Another habit of this kind began to be formed at these conferences when—rightly enough as a new venture in recreating pipe-making history—the so-called “pigeon’s egg” registers (three on the Rums organ, one on the Runsey organ) were referred to just so “pigeon’s egg ranks.” The term comes from the 11th-century Codex Bern (see endnote 9), where the measure of pipe diameters is explained as “the width of a pigeon’s egg.” Yet the eggs chosen were different and correctly discriminated between the eggs the two instrument types represented. Thus the ranks were not scaled to the same widths. The terminology really should have been “constant-scaled.”

After that we might talk ancient treatises and ornithology. Likewise, in discussing the “wolf” in Pythagorean tempering, the interval really should have been referred to as “h to g,” rather than “h to f.” And what were referred to as “pure thirds” are in fact just ever so slightly inacoustically, since they are really Pythagorean diminished fourths, e.g., d–f, which are 384.36 cents, whereas a truly pure major third is 386.31 cents. Theory since both the presentation of ancient Pythagorean temperament and clear distinction between them. 22 Again, strictly speaking, the hydraulics presented was played by one hand because the other is too far removed to help out, then how can the thumb not be used, especially if the keys are substantially wider than modern keys and there is no pedal? (Horror of horrors: was the rule of exclusivity men’s hands, and even answer some, at least in the short term. But long-term answers are needed, since both the practice and the research is relatively recent, tends to be revelatory, and is ongoing—very much an eternal part of the phenomenon. There were questions posed about the nicknaming of the Rulland Psalter copy as a “Theophilus” organ. Of course, with hindsight, we can now view this as two ends of a historical progression and clearly distinguished between them. Simple, well-intended, and correctly discriminated between them.

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Quo vadis?

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Medieval Tuning and Tempering

Essentially, tuning and temperament are two sides of the same coin: tuning reflects temperament and vice versa. Tuning is the process of adjusting the pitch of a musical instrument or the scale of a musical instrument so that the desired musical qualities are achieved. Temperament, on the other hand, is the process of adjusting the intervals between the pitches of a musical instrument so that the desired musical qualities are achieved. The two processes are closely related, and changes in one will affect the other. The most common types of tuning and temperament include just intonation, mean-tone temperament, and equal temperament. Just intonation is based on the perfect fifth and octave, which are the most perfect intervals in Western music. Mean-tone temperament is based on the Pythagorean comma, which is the difference between a perfect fifth and a major third. Equal temperament is based on the equal division of the octave into 12 equal parts, which is the most equal temperament, and is the standard tuning for most modern instruments.

The ancient Pythagorean temperament was used in ancient Greece and Rome, and was based on the concept of the “music of the spheres.” This concept was based on the idea that the planets and the stars move in perfect circles, and that these movements are reflected in the musical structures of the universe. The Pythagorean temperament was based on the idea that the scale should be divided into 8 parts, with each part being a perfect fourth. This results in a scale that is based on the purest possible intervals, but it is not used in modern music.

In medieval times, there were many different temperaments used, and the choice of temperament depended on the type of music being played. For example, the C major scale was divided into 8 parts in some temperaments, and into 12 parts in others. The choice of temperament also depended on the type of instrument being used, with pipe organs often using mean-tone temperament and harpsichords using equal temperament.

In the Renaissance period, the concept of equal temperament became more popular, and it was used in many different kinds of music. This was because equal temperament allowed for greater flexibility in playing different keys, and it also allowed for greater freedom in composing music. However, equal temperament also has some disadvantages, such as the fact that it is not based on the purest possible intervals.

In the Baroque period, the use of temperament became more common, and the most common temperament used was a combination of equal temperament and mean-tone temperament. This allowed for greater flexibility in playing different keys, while still preserving the purest possible intervals.

In the Classical and Romantic periods, the use of temperament continued to evolve, and there were many different temperaments used, such as the Werckmeister temperament, the Wellenberg temperament, and the Kirnberger temperament. These temperaments were all based on different ways of dividing the octave into parts, and they all had different advantages and disadvantages.

Today, the most common temperament used is equal temperament, which is used in most modern music. However, there are still many different temperaments used in different kinds of music, and the choice of temperament often depends on the type of music being played, the type of instrument being used, and the preferences of the musician.
constant”—that can produce this effect. Essentially all early scaling practices do to varying degrees, but the more scaling practices approximate modern schemas such as Töpfer’s norms, the less marked this effect becomes, and the music ends up sounding relatively flat and lifeless.

Metallurgy—copper, lead, tin, and alloys—plays a most critical role. The use of wood for pipes is another question, particularly the issue of its first clearly recorded use—Italy, late 15th century.26 The Sion (Switzerland) Valorta organ has a “Copol” made from wood, now dendrochronologically dated from around early 15th century.27 Of course, wood was introduced at some stage between the hydraulics and Amant de Zeytville as a material replacing the earlier copper/bronze variants used in making windchests.28 Similarly, early conical metal pipe forms and the potential confusion they cause in the iconography with wood needs investigation.29 The relics at Hamar, Norway, may eventually provide a key.

The apparently sudden change from copper/bronze to lead at the turn of the 13th century is an interesting phenomenon that lead was far more malleable than copper may have been a driving motivation clinching change. But the tonal effect was so strikingly softer and sweeter that this was expressly noted in many contemporary tracts.30 It must have come as a profoundly exciting development, part of the Ars Nova/ Ars Antiqua watershed. Notated organ music first consistently appeared just after the change—some of it might suit the sound of tin or copper but most of it plays remarkably well on lead pipework. Did the notion of accompanied voices rather than alternation also receive some kind of stimulus here? And the desire to separate a single 8’ out from a Blockwerk was this also part of the switch to greater emphasis on the organ as a “solo” instrument, such as Doof, hint at this, for the softer tones of lead must have seemed “deaf” compared even to the organ compass of its contemporaries. But it is also indicative of a new respect for the limits of what could be built and played to suit the style. The iconography, inter alia, shows ears is, however, protected from weather change compared to ours in air-conditioned buildings today.

Thus: were their tolerances of pitch and tuning, including in ensemble, and with bells, more flexible than ours are today? Within limits, slight differences actually make these organs more interesting, as do historical tuning techniques—particularly the lack of total control with wide-open footheads, lesser quality of the pipe material and allowable pitch from 27mm constant-scaled lead pipes is about modern (A440) tenor E, With 33mm it extends down to B, a fourth lower. Thus, pitches of organs produce differing manual compasses, or a few low pipes with ears needed to make them speak. As Winold van der Putten pointed out in Basel, “Medieval organ builders were no fools: it only takes cupping a hand around a pipe noth to make it speak.” Iconography showing ears is, however, extremely elusive—punny out, experimentation and investigation still in. If, as seems likely, constant scaling was perpetuated well after the 13th century, whence these “pigeon’s egg” figures derive, then diameters could be increased in time, allowing lower bass ranges and even more blooming trebles. The iconography, inter alia, suggests that this trend could have persisted until early 15th century as diameters apparently became wider.31 A targeted study of this is overdue.

If we retain all the parameters noted above, then reduce the size of the pigeon’s egg to 7.5mm, as with the Buxheimer Orgelbuch and Flöte des Klosters Adelbergen, we arrive at a more believable pitch. As Winold van der Putten pointed out in Basel, “Medieval organ builders were no fools: it only takes cupping a hand around a pipe noth to make it speak.” Iconography showing ears is, however, extremely elusive—punny out, experimentation and investigation still in. If, as seems likely, constant scaling was perpetuated well after the 13th century, whence these “pigeon’s egg” figures derive, then diameters could be increased in time, allowing lower bass ranges and even more blooming trebles. The iconography, inter alia, suggests that this trend could have persisted until early 15th century as diameters apparently became wider.31 A targeted study of this is overdue.

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A sequel?

Thus, there was a consensus that intellectual and musical exchange should not simply vanish after this flush of medieval organ symposia during the European summer of 2012. Several events are already known to be foreseen. Of considerable interest will be a major symposium planned for the Amsterdam Orgelpark, June 6–8, 2013.5 Whatever future events are held, it would be most welcome if they were not primarily talk-fests, but also included strong performance components. One small criticism of the Rhedense Symposium was its predominance of talk over music. A four-way balance will always be needed with medieval organ cultures: talk, solo organ, alternatim, and in ensemble. In the way, these instruments were born to work in alternation with speech, chanting, silence, and possibly bells. It is particularly in ensemble that the iconography, literature, and extant music seems to suggest the way ahead. Both Basel and Rhede showed that all four are needed for a completely balanced presentation of this highly fascinating culture. Basel strongly promoted alternatim and ensemble, and so did Rhede, the latter chiefly in concerts where dance was also represented. Would the miracle or mystery plays of the era be a good suggestion for some future events? The Mainzer Hofkapell in 1184 is usually reckoned as the greatest medieval festival in history. It was here that Friedrich Barbarossa knighted his sons, Heinrich VI and Friedrich V. A contemporary description of it included these lines:48

Diew spry eule gesan, Eul behart ende draen, Pipp en ende singen, Veelen en eul spypyn. Orgenu ende seiptn, Meneguer slachten frouden vle.

There was playing and song. And pushing and slaving. Piping and singing. Fiddles and dancing. Organs and strings playing. Many joyful things insinuating.

Epilogue

The standing ovations in Groningen mentioned above had something of a cathartic feel to them, reflecting the exegesis of medieval organbuilding and musical performance that has taken place over the past several decades, especially in the events described above. Winold van der Putten’s organs were not at all alone in this, but he and his work were at the center of two of these conferences. His 1999 realization of the copy of the Rutland Darley organ was an important trailblazer. This instrument was featured at the Rhede conference, along with some portatives for Jankees Braaksma and his group, Super Lahn.49 These were prototypes for most of what has followed as van der Putten and others investigated, experimented, and cracked the codes of medieval organbuilding and voicing. His recent constant-scaled ranks for myself and the Rims instrument were essayed only after much investigation and experimentation. In their own way, they alone deserved their rightful share of those standing ovations. Medieval organ scaling of this kind now seems set to be one of the next “revelations” in the performance of this music—not least in portatives where, oddly enough, it remains relatively untried.

Jaap van de Putten is born and educated in Sydney, Australia. He studied with Anton Heiller and Marie-Claire Alain in Europe 1963–66, then returned to a position at the University of Adelaide. Moving back to Sydney in 1999 he established a Department of Organ and Church Music, which now has the focus of research on Australian educational and research funding cuts. For over 25 years, until 1998, he was the regular organist with the Sydney Symphonic Orchestra and as such frequently performed over the Grand Organs of Sydney Opera House and Sydney Town Hall. Associations with multimedia events have included performances of the Saint-Saens “Organ Symphony” to 100,000 people with the orchestra in the Sydney Domain, the organ via microwave link from Sydney Town Hall. In 1998, he wrote, produced, acted, and performed in a highly successful 14-hour musical and dramatic spectacle on the life of J.S. Bach, with actors in period costume from the National Institute of Dramatic Art (MUS), and musicians playing period instruments. He resigned his post in Sydney in 1998 and moved to Basel, Switzerland, where he continues working as an organist and concert director, and as a Senior Researcher at the University of Bern. Since 2007 he has been responsible for the editing and CD-production of historic organ recordings released under the OehmsClassics label using the historic Wohlauer organ and its players-rolls at Sonnen (SO-CH) and is regarded as an authority on aspects of medieval organ culture. He is organist at Herz Jesu Kirche in Laufen (BL-CH) and in-house consultant and organist at the Museum der Musikantenkunst, Sonnen (SO-CH).50

Acknowledgements


Thanks to John Liddy, Jos van der Giessen, Marc Lewon, and Elizabeth Rumsey for their help with this article, and to all who contributed photos and good advice. My apologies to Walter Chinaglia for not writing more about his organ di ammonite—space allocation just became too acute and this instrument really belongs to a slightly later epoch than the one mainly under discussion here. A fuller report on it can be seen at http://www.davidrumsey.ch/Craiglin.htm.

Notes

1. Some details are available at www.davidrumsey.ch/Medieval.php.
2. www.organa.it
5. www.organa.it
Another essay, by Margo Schulter, can be found on the webpage for The Diapason, "Positive Organ of Lorenzo da Pavia (1494)," in exploring a hypothesis that meantone temperings—seen as part of a transition to meantime—hanging, e.g., on some features of minor tuning in some Brudin and early Bach organ works.

David Rubsam to play the Rysum organ Sunday September 9, 2012 (photo: Jos Nijhuis)

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1. Anonymous (of Bern) or Cods Berne, Anonymous (of Bern), etc., excerpt from De organo segmenti de organo.
3. David Rubsam about to play the Rysum organ Sunday September 9, 2012 (photo: Jos Nijhuis)
4. www.orgpark.org/page/home
7. The sizes of pigeons' eggs are discussed in Chapter 5 of Rahbee and the author dating June 28, 2011.
8. E.g., in a series of e-mail exchanges between Rahbee and the author dating June 28, 2011.
9. The only significant assertion he makes is that most of Buxheim seems "... in certain cases..." to lead so strongly (and e.g., not to wood)?
10. In a series of e-mail exchanges between Rahbee and the author dating June 28, 2011.
11. Oxford Douce MS 381
12. An important aspect on the subject is that most of Buxheim seems "... in certain cases..." to lead so strongly (and e.g., not to wood)?
13. Also Oxford Douce MS 381
14. The sizes of pigeons' eggs are discussed in Chapter 5 of Rahbee and the author dating June 28, 2011.
15. The sizes of pigeons' eggs are discussed in Chapter 5 of Rahbee and the author dating June 28, 2011.
16. See also David Rubsam's "tempora mundi.pdf"
17. Really not a quint at all, but a diminished fourth
18. The only significant assertion he makes is that most of Buxheim seems "... in certain cases..." to lead so strongly (and e.g., not to wood)?
19. This currently allows any of the following -E,-E sharp,-F, sharp,-G, sharp,-A, sharp,-C, sharp,-G, flat,-F, flat,-C, flat,-G,-F,-C,-G,-D,-A,-E,-B,-F,-C,-G,-D,-A,-E,-B,-F,
20. See also David Rubsam's "tempora mundi.pdf"
21. See Friedrich Jakob et al. in 'Ileborgh Tablature'– E. g.:'Ileborgh Tablature'
22. See also David Rubsam's "tempora mundi.pdf"
23. See J. G. Törpe, Leben der Orgel, 4th ed., 1868, p. 5, and especially p. 444, where metal scaricites in the middle ages are said to have driven the change away from wood, etc. (cf. pp. 198).
24. See also David Rubsam's "tempora mundi.pdf"
26. See also David Rubsam's "tempora mundi.pdf"– E. g.:'Ileborgh Tablature'
27. Thumbs and fifth fingers are used in the direction of movement and keeping the fingers parallel, the keys are in touch in the outgoing 16th century, their relative employment before that is a matter of speculation; Santa Maria and Divina were in disagreement about this. Thumb and fifth fingers are in touch in both hands (especially the left) when larger intervals require them. The iconography indicates use of left thumb when hand played longer note values in three parts. Improvised parallelism of fingers must need such exceptions. Prohibition of using the same finger in succession is not enounced in Quoted in Jean Perrot, The Organ, From Its Invention in the Hellenic Period to the End of the Thirteenth Century (London: Oxford University Press, 1971), p. 189 (D184-5), trans. Norma Dean, p. 268. Perrot is sourcing this from Th. Gévèrc, La Clé de sol (Paris: Champion, 1941), p. 419.
28. Robert Dow-B, B, C D E F G B D F G C
29. wolf tuning) quasi-pure major thirds of e.g., an A-major or D-major triad (a perfect fifth, where the pipe tops appear cylindrical, but lower down, under the hat, seem square.
30. See also David Rubsam's "tempora mundi.pdf"
31. Peter Williams, ed., The Organ Yearbook #73 (Lausanne: Organ Yearbooks, 1977), pp. 4-15
32. With B-G, wolf tuning (quasi-pure major thirds (really diminished fourths) on A D, E and B as opposed to the four (from a G sharp–E flat wolf tuning) quasi-pure major thirds on B, C, D, and F as also noted 22) This awareness in the potential adaptation of Pythagorean–B–G tuning—such as part of a transition to meantime—hanging, e.g., on some features of minor tuning in some Brudin and early Bach organ works.
33. See Friedrich Jakob et al. in 'Ileborgh Tablature'
36. E.g., see www.davidrumsey.com/index.php
37. See Peter Williams, ed., Organ Yearbook #33 (Lausanne: Laubher, 2000), p. 27, and the general discussion involving issue when keyboards came to be divided into 12 or more discrete notes.
38. The only significant assertion he makes is that most of Buxheim seems "... in certain cases..." to lead so strongly (and e.g., not to wood)?
39. Thumbs and fifth fingers are used in the direction of movement and keeping the fingers parallel, the keys are in touch in the outgoing 16th century, their relative employment before that is a matter of speculation; Santa Maria and Divina were in disagreement about this. Thumbs and fifth fingers are in touch in both hands (especially the left) when larger intervals require them. The iconography indicates use of left thumb when hand played longer note values in three parts. Improvised parallelism of fingers must need such exceptions. Prohibition of using the same finger in succession is not enounced in Quoted in Jean Perrot, The Organ, From Its Invention in the Hellenic Period to the End of the Thirteenth Century (London: Oxford University Press, 1971), p. 189 (D184-5), trans. Norma Dean, p. 268. Perrot is sourcing this from Th. Gévèrc, La Clé de sol (Paris: Champion, 1941), p. 419.
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42. See Peter Williams, ed., Organ Yearbook #33 (Lausanne: Laubher, 2000), p. 27, and the general discussion involving issue when keyboards came to be divided into 12 or more discrete notes.
43. www.superlibrum.nl
44. www.davidrumsey.com/index.php