Jan van Call and the age of the pendulum clock in the Netherlands

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The signature of Jan van Call, best known for his work on turret clocks, appears on a controversial wall clock that was the subject of a symposium held at the British Museum in 2011. At this symposium, the author sketched van Call’s documented biographical data against the colourful background of Anglo-Dutch history. This article, a much reduced version of that presentation, focuses on Van Call’s specific achievements and preserved heritage.

From Kall to Nijmegen

Jan van Call was born in Kall in the German Eifel and moved to Batenburg near Nijmegen in the Dutch duchy of Guelders (since 1814 Province of Guelderland). This old capital of the duchy had a rich medieval history, renowned among art historians as the birthplace of the Limburg brethren, court illuminators of at least two Books of Hours for the Duke of Berry. Nijmegen had an impressive medieval castle known as the Valkhof, once inhabited by emperor Charles V who made the old duchy another part of his Habsburg realm. The earliest reference to, we assume, ‘our’ Jan van Call is a document dated 4 March 1627 in which he is called ‘Johannes Urwerckmeister aus Kall’ (Johannes clockmaker from Kall).1 In Batenburg he became clockmaker and surveyor. On 2 February 1651 he invoiced 350 guilders for the local church clock. On 18 August 1644 he was appointed by the town’s magistrates as clockmaker, surveyor and artisan for an annual salary of 30 guilders and free living quarters for the duration of no less than fifteen years.2 In 1646 he earned 600 guilders providing a (now lost) turret clock with carillon in the town of Grave in the province of Brabant. The brass drum had twenty-four holes on one rule of about 45 cm. On 1 January 1647 Jan Becker van Call was granted citizenship in the town of Nijmegen, by which time he must have moved from Batenburg to the capital. Amongst other constructional work he produced pumps, drains and waterworks.3

Repairing a monumental clock

In the year in which he officially became a citizen of Nijmegen, Jan van Call repaired, for the fee of 280 guilders, a sixteenth-century monumental clock in the shape of the town’s bell tower.4 It had been bought by the town in 1646 for 300 guilders and stood in the ‘Schepenhal’, a representational part in the townhall. Unfortunately this clock was lost in a fire during World War II, but in archival photos (Figs 1 and 2) the framed dial can be distinguished, which had both an hour ring and a gilded astronomical chapter ring. According to contemporary sources, it was signed ‘J. Gront fecit, in usum Johannis Hartij, civitatis Noviomagensis a secretis, 1597’ (Made by J. Gront for Johan de Hardt, secretary of the town of Nijmegen, 1597). It is curious

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2. Administrative Archive of the Town of Nijmegen, 1196-1815 (previously Old Archive Nijmegen (OAN)), inv.nr. 99, Raadsignaat 18 August 1644, Jan van Call is mentioned here for the first time under letter B – Burgeren (=Citizens), “Van Call, Horlogiemaker te Batenburg, hier te doen komen wonen, tegen sekere vrijheid en recognitie, 18 Augustus 1644” (“Van Call, Clockmaker at Batenburg, to be urged to come and live here against a certain freedom and recognition, 18 August 1644.”) In this Administrative Archive he is also mentioned under the names of Jan Becker van Call and Jan van Batenburch.
3. J.A. Schimmel, Burgerrecht te Nijmegen 1592-1810. Geschiedenis van de verlening en burgerlijst ( Tilburg 1966) mentions on p. 199: no. 2053: Jan Becker van Kall. Ingeschreven als burger op 1 januari 1647. Available in the reading room of the Regional Archive of Nijmegen. This reading room supplies a card index of the so-called Raadsignaten and town’s invoices which produces a large quantity of cards with the name of Jan van Call, referring to the various archives with documents about this clockmaker. http://www.huisvandenijmeegsegeschiedenis.nl/info/Call_Jan_gives a good biography of Jan van Call.
that, when shown upside down, this dial shows a great similarity with the disputed wall clock now in the British Museum.

The St. Jacob’s turret clock and carillon

Between 1648 (the year of the Munster Peace Treaty) and 1651, Jan van Call built and installed a new turret clock for the Church of St. Jacob’s in Utrecht (Fig. 3). This large turret clock can be regarded as one of his true masterworks. For this commission he received the impressive sum of 6,000 guilders. His experience in Grave must have qualified him to execute this job. The clock, signed ‘TOT NIMAGEN BY IAN VAN CALL ANNO 1650’ on the 8.6 cm wide upper frame strip, originally had a large brass drum barrel. The diameter would have been at least nearly 160 cm. The weight of the brass barrel was estimated at 1,000 pounds, but finally turned out to be almost half as heavy again, weighing in at 1,418 pounds. Adding extra weight was nothing unusual for a clockmaker trained in the tradition of turret clock making and familiar with both wrought iron and brass. The total weight of movement and carillon of twenty-five bells was 11,596 pounds. It played every fifteen minutes.

The semi-latinised spelling of Nijmegen as Nimagen (after Neomagens) instead of Nimegen resembles the German town Neumagen. This is perhaps influenced by the German origins of van Call, but we must also bear in mind that in this period, spelling of personal and geographical names was not yet standardised. In 1651 Simon Douw was called in to verify the performance of the clock and judged it successful. In 1659-60, van Call was commissioned to supply and install a pendulum to regulate this clock. For decades the clock has been

5. Municipal Archive of the Town of Utrecht. Heleen van der Weel, Klokkenspel, het carillon en zijn bespelers (Hilversum 2008). The restoration was completed in January 2012.
dismantled and kept at the municipal shipyard. Until recently it was stored in the bell tower of the Buurkerk at Utrecht, the accommodation of the National Museum from Musical Clocks to Street Organ. Only recently, the impressive clock has been restored and positioned on the ground level of the bell tower of St. Jacob's. The drum is an optical reconstruction in bronze coloured wood. For this reconstruction, a drawing of a similar but lost turret clock with carillon, constructed in 1670 in Darmstadt (Germany) by Jan van Call's son Peter, was used as a reference.

The undated St. Martin's turret clock

In 1652 the town of Arnhem (Province of Guelderland) commissioned van Call to produce a new turret clock for the church of St. Eusebius, which has been lost. Fortunately, the turret clock in the church of St. Martin's in Ophemert (municipality of Neerijnen, Province of Guelderland), which Jan van Call
Fig 4a-b. The un-restored turret clock by Jan van Call, probably dated 1654, in the bell tower of the church of St. Martin’s in Ophemert, and a detail of the inscription on the upper frame strip. Photographs by the author.
the inscribed year predates the (documented) actual installation by one year. The posthumous year of 1676, documented in the National Monument Register, coincides with its application of the anchor escapement, but was nine years after van Call is assumed to have died.

Anyhow, this rare, undocumented and comparatively unknown clock has survived over the centuries almost intact, waiting to be rediscovered and restored by a new generation of appreciators. Although put out of use and positioned one level lower of the bell tower, it is the only in situ surviving van Call clock in the Province of Guelderland, where this renowned master executed most of his work.

Introducing the pendulum
The documented and shown alterations to the pendulum system bring us to the most significant focal point in the work of van Call. On 19 October 1658 van Call was granted the right, jointly with Salomon Coster, to apply pendulums to clocks. 8 In a letter written that same month, Christiaan Huygens, the inventor of the pendulum clock, recommends him:

There is in Nijmegen a clockmaker named Master Jan Cal, who is an honest man and a renowned maker. He will visit you and bring on my behalf a description of these clocks, which I have issued [= Horologium]. Should there be any turret clocks that need to be made or changed to the new invention, I wish that he be employed, rather than someone sent by Douw. Because I have informed him of the best method, which through experience has already constructed and signed ‘TOT NIMEGEN BY IAN VAN CALL ANNO [blank]’ on the 5.5 cm wide upper frame strip, has been preserved (Fig. 4). According to literature, this undated clock is supposed to have been built in or around 1654. 6 Probably in or around 1676 the movement was converted to an anchor escapement. Strangely enough, the year of its manufacture was not applied, which leaves scope for speculation about the actual year of construction and installation. It is all the more peculiar that van Call did apply his signature including the word ‘ANNO’, but left out the actual year. 7 Was van Call still uncertain when the clock would be completed or installed when he hammered his name and hometown in the surface of the hot iron? This would make the signature a somewhat prefabricated or premature statement. In the case of the Utrecht clock

7. The absence of the year inscription on the Ophemert clock brings to mind the applied dating on the signed lambrequins of the Hague clocks by Salomon Coster. Where Coster’s name and home town with the addition ‘Met Privilege’ (with special permission because of the patent granted by the States General) were handsomely engraved, the year is crudely scratched and added later or possibly even post-dated. The application of this dating could have been purely business-related, either in the period of its original production or in a (much?) later epoch. The word ‘ANNO’ on the Ophemert clock does suggest that Van Call intended to add the year of production as soon as the clock would be completed, and suggests that dates were sometimes added later by the maker (or others?). Is there a parallel here with the discussed wall clock, for which some, based on Huygens’s publications, claim that the inscribed year, 1657, predates the construction of the applied specific type of pendulum and/or the cycloidal cheeks?

proven to be good in several turret clocks; whereas Douw’s has nowhere yet been put in working order’.9

Christiaan Huygens had a court dispute with Simon Douw about his invention of the pendulum clock as plagiarism.

From 1 December 1658 to 27 July 1659 van Call received commissions to modernise the turret clocks of the city gates of the town of Nijmegen ‘cum pendulo’.10 In 1659 he also constructed a (lost) mechanical wrought iron turret clock in the chapel of St Anthony in the town of ‘s-Hertogenbosh (Province of Brabant) in the south of the Netherlands. In 1661 and 1662 van Call was permitted by the Council of Nijmegen to leave for a commission to work on the turret clock in the New Church of St Ursula’s in Delft in the Province of Holland. This turret clock was manufactured by Coenraet Harmensz Brouckman in 1570 and was originally located in the town hall but in February 1661 was moved to the New Church. The brass musical drum was cast by the famous Amsterdam bell founder François Hemony, who originated from the town of Zutphen. The brass drum has 54 holes on one rule of about 115 cm. In total the drum has 4,000 holes.

Chiming system
Van Call specified his work on the Delft clock and carillon in October 1661 and 1662. The provisional invoice of 4 June 1662 for the automatic chiming system amounted to 9,889 guilders. The final invoice of May 1663 had the impressive sum of 17,215 guilders. Van Call writes: ‘Thus I am entitled still to receive the sum of eleven thousand three hundred and eighty four

9. Christiaan Huygens, Oeuvres Complètes, vol. 2, pp. 247-8: letter 532 CH to W. Pieck, Oct 1658: ‘Daer is tot Nimmegen een Horologiemaecker genaemt Meester Jan Cal. dat een eerlijck man is, ende een vermaert meester. Dese sal uedelheyt komen vinden en van mynentwegen een exemplaer brengen van de descriptie van dese Horologes, die ikc heb laeten uytgaen. Indien der eenighe tooren wercken voorquaemen om gemaect ofte naer de nieuwe inventie verandert te werden, wenschte ick dat hy eerder mochte geemployeert werden als die uyt den naam van Douw komt. Want ick hem de beste manier gecommuicert heb, die in verscheeyde tooren wercken alreets door experientie goet is bevonden; daer die van Douw noch nergens in ’t werck gestelt is.’

10. O. Moorman van Kappen, ‘Van een “horologie” met een slinger en de boom voor Hendrik Palings huis: Financiële en juridische verwikkelingen rond de modernisering van het uurwerk op de Wiemelpoort (1659), in: Numaga 32 (1985) nr.1, pp. 16-21. Municipal Archive of Nijmegen: ‘omme die alle cum pendulo te doen gaen ende tegelijkstaen’ (“to fit these all with a pendulum and make them synchronically”), Municipal Archive of Nijmegen, OAN inv.nr. 106 (RS 1658-59) 357-358. Municipal Archive of Nijmegen, OAN inv.nr. 876 (RS 1659) fol. 89vers and 177vers. In the same year Mr. Jan as ‘landmetmer deser stadt’ (“this town’s surveyor”) was also paid 75 guilders (ibidem fol. 34rev), the year’s salary as town surveyor as was agreed upon in 1644.

guilders and 17 stuivers’.11 Van Call also made a sundial for the town hall of Delft (Fig. 5). During his work in Delft he was consulted by the council of Rotterdam, south of Delft, about the turret clock of the Great Church of St. Lawrence, provided by Simon Douw, mentioned above.

Later work
In 1665, Huygens wrote a letter to Jan van Call,

thanking him for his congratulations (?), that he is willing to communicate to me his invention of protecting the pendulums against the movement of the ships to see how it differs from mine.12

11. ‘So comt mij noch deze soma sege eyffduysent dreyhondert ende vier ende tachtentig gulden. Comt noch 11384glo 17 st.’ [Municipal Archive of the Town of Delft.]

12. L. J. Meilink-Hoedemaker, Luidklokken en Speelklokken in Delft (1985). Idem, Tijd voor Delft (Delft, 2000). In February 1661 the clockmaker Brouckman moved the clockwork from the city hall to the Nieuwe Kerk tower and delivered a set of new hammers for the automatic chimes. In addition, he fabricated a new clockwork for the city hall for only two of the three remaining bells there as well as four new clock-faces with hour hands for the Nieuwe Kerk. But it took nearly two years until Jan van Call had finished the mounting and fitting of the automatic chiming mechanism in 1663. When departing from Delft he left a specificatieboek, a book with detailed instructions for the upkeep of the entire system, together with a precise written record of all the work he had performed on the system from October 1661 until May 1663. Adelheid Rech, The Carillon. Vermeer’s musical companion (August, 2006).
Figs 6a-b. The turret clock by Jan van Call, 1665, made for the church of St Lambert’s in Buren, recently repositioned in and reinstalled in the bell tower of the church of St. Peter’s in Amsterdam-Sjolterdijk, and a detail of the inscription on the upper frame strip. Photographs by the author.
The signed and dated turret clock that Jan van Call made in the same year for the church of St Lambert’s in Buren (Region of Batavia in the Province of Guelderland) must have been one of his last works. The signature on the 4.5 cm wide upper frame strip reads ‘BY IAN VAN CAL[...] ANNO 1665’ (Fig. 6). The last letter of van Call's name may be hidden under the vertical iron strip placed over it. As on the other two known turret clocks van Call applied his signature on the horizontal upper frame of the birdcage construction. On the frame to the opposite side a brass plaque is applied with the engraved text: ‘Gedeeltelijk vernieuwd onder Burgemeester G.H. van Everdingen door R. Janssen en Zoon te Utrecht Anno 1862’ ('Partly renovated under Maire G.H. van Everdingen by R. Janssen and Son at Utrecht Anno 1862'). There is no reference to the town where this clock was manufactured. This turret clock previously was in storage for several years at the National Open Air Museum in Arnhem. Although its original location still exists, after its restoration in 2006 the clock has been installed in the church of St Peter's in Sloterdijk, a suburb of Amsterdam.

Fig. 6c. Detail of the turret clock made by Jan van Call in 1665 for St. Lambert’s church in Buren, showing the escapement. Photograph by the author.

Van Call’s heritage
Jan van Call probably died in 1667, leaving two sons, Dirk and Peter, and two daughters, Agniet and Cathrin. Peter succeeded his father as clockmaker in Nijmegen.13 The well-known topographic artist Jan van Call jr. was a grandson of the illustrious clockmaker, who had himself been a gifted artist in his own right, witness a view from his hand of the town of Nijmegen from about 1650, preserved in the Municipal Archive of Nijmegen.14 Jan van Call, the clockmaker, was buried in the church of St. Stephen’s, under a gravestone (Nr. 515) of an ordinary size, simply bearing his name.15 This gravestone has been removed from its original location and recent enquiries suggest that it is presumably preserved at the Archaeological Depot of the Municipality of Nijmegen. The town's administrative and judicial archive as well as the regional archives in Nijmegen preserve several references to his citizenship and commissions. Together with the recently restored turret clock of 1650 in the church of St. Jacob's in Utrecht, the signed turret clocks of 1654/1676 (Ophemert) and 1665 (originally Buren; presently Amsterdam-Sloterdijk) they supply an undisputed material testimony to Jan van Call's skill as a highly recommended but almost forgotten clockmaker.

Conclusions
Jan van Call was a skilled, productive and much appreciated clockmaker, surveyor and artisan. He constructed and renovated turret clocks and carillons in the provinces of Guelderland, Utrecht, Brabant and Holland. Only three of Jan van Call's signed turret clocks have survived, of which two have recently been restored. He was one of the few clockmakers selected to convert existing escapements to pendulum clocks, and was granted permission for this new device by its inventor, Christiaan Huygens. Trained in the tradition of turret clock making, van Call had a different background from his fellow clockmaker Salomon Coster from Haarlem, who earned his first credits by manufacturing horizontal table clocks and neck watches. Coster's Hague pendulum clocks, manufactured in close collaboration with its

12. Christiaan Huygens, Oeuvres Complètes, vol. 5, p. 303: letter 1372 CH to Van Call, 3 April 1665, preserved as written copy (‘Le sommaire se trouve à Leiden, coll. Huygens’): ‘J. van Call, horloger tot Nimwege, 3 Avril. Bedancken voor zijn geluckwenschinge, dat hij syn inventie om de pendules tegen de beweging der schepen te voorsien mij wil communiceren om te sien waer in van de myne differeert.’.


inventor, are produced with a limited amount of material and boxed in a simple wooden case, which by then was a totally new concept. This difference in tradition must be evident if Jan van Call is to be identified as the original maker of the disputed pendulum clock in the British Museum. The sixteenth-century dial of the (lost) monumental clock in the Town Hall of Nijmegen looks like an upside down model of the framed dial with its double chapter rings. Between Huygens and Jan van Call a mutual appreciation is documented in Huygens’s correspondence of 1658 and 1665. Whether they actually met or collaborated remains uncertain.

**Food for thought**
In my introductory talk at the symposium, I complimented the organizers with their courage to put the intriguing clock to a public test. I also expressed my sincere hope that the examination by scholars and connoisseurs would be performed in ‘the true spirit of science, asking the right questions and not claiming to know all the answers’. The papers delivered at the symposium indeed gave much food for thought and further investigation. In my opinion, this makes displaying, examining and documenting the clock even more valuable. For those who give the clock the benefit of the doubt, it gives the opportunity for in-depth investigation of both the object itself and the applied techniques and constructions. For antagonists, the clock at least supplies a serious horological casus and reference point. The worst case scenario, in which it would be unmasked as a composite concoction, would still leave us a historical document comparable with the Piranesi Vase. Future researchers possibly will be able to bring forward all the more convincing verifications and/or falsifications to testify about the authenticity of the clock, and by that, put its significance in an appropriate historical perspective.

**Acknowledgments**
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16. This object, currently on display in the Enlightenment Gallery at the British Museum (BM Sculpture Inv. nr. 2502), was praised by the Italian architect and engraver Giovanni Battista Piranesi as an original work of the time of the Roman emperor Hadrian. In fact it actually was a composite assembly of Roman parts with contemporary additions. The appreciation of this object in the eighteenth century was typical for the vision of antiquity in the epoch in which it was presented and perceived.

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<tr>
<th>Location</th>
<th>Church</th>
<th>Inscribed signature</th>
<th>Inscribed date</th>
<th>Measurements</th>
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<tbody>
<tr>
<td>Utrecht</td>
<td>St. Jacob’s (Jacobikerk)</td>
<td>TOT NIMAGEN BY IAN VAN CALL</td>
<td>ANNO 1650</td>
<td>Height corner posts (1 to 8): 213 cm Width corner posts: c. 6.7 cm Length from post to post: 263.7 cm Width from post to post: 183 cm Separate half hour striking train: Height corner posts: 152 cm Length from post to post: 99 cm Width from post to post: 81 cm</td>
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<tr>
<td>Ophemert (municipality Neerijnen)</td>
<td>St. Martin’s (Maartenskerk)</td>
<td>TOT NIMEGEN BY IAN VAN CALL</td>
<td>ANNO (no date inscribed)</td>
<td>Height corner posts: 127 cm Width corner posts: c. 4 cm Length from post to post: 122 cm Width from post to post: 89 cm</td>
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<tr>
<td>Sloterdijk (municipality Amsterdam; previously in Buren)</td>
<td>St. Peter’s (Petruskerk, previously St. Lambert’s)</td>
<td>BY IAN VAN CAL (rest of signature possibly hidden under iron strip)</td>
<td>ANNO 1665</td>
<td>Height corner posts: 107.5 cm Width corner posts: c. 4 cm Length from post to post: 108 cm Width from post to post: 70 cm</td>
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Table: signatures, dates and measurements of the surviving turret clocks by Jan van Call.