

DREWEATTS

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ANNOUNCING: THE BRUCE-OOSTERWIJCK PENDULUM LONGITUDE TIMEPIECE

The re-discovery of an important early missing link
in the *Longitude* story

TO BE OFFERED AT AUCTION ON 15th MARCH 2018



The Bruce-Oosterwijck pendulum longitude timepiece
Estimate on request

The historical context:

The remarkable story of John Harrison's epic struggle to solve the most important scientific problem of his time, namely to accurately establish Longitude at sea, is very well known. Those who have read Dava Sobel's *Longitude* or seen the television mini-series of the same name will have been amazed at Harrison's dogged determination in the face of extraordinary adversity. However Harrison's efforts were not the first serious attempt at solving this problem and the unique story surrounding earlier attempts is possibly just as remarkable.

The Restoration of Charles II in 1660 marked the end of the English Civil War and Royalists returning from exile on the Continent brought back with them both knowledge and contacts combined with the desire to re-establish Britain as a dominant world power. Naval supremacy was paramount at this time for 'those who ruled the seas ruled the world'. Exiled British nobility who had established themselves in the Dutch Provinces were able to create the opportunity for rapid scientific advance through international collaboration as religious sympathies and family alliances coupled with wealth enabled freedom of movement and information.

The Scottish nobleman Alexander Bruce (1629 – 1681) was one such Royalist who resided in Bremen during the 1650s, (showing below in a portrait by Johannes Mijtens, 1660-1670). He moved in the social and court circles of Charles I's widow, Henrietta Maria, as well as the itinerant court of Charles II. Bruce held particular interest in the sciences including medicine; however clocks and timekeeping were his particular interest. Fortuitously, social and court circles brought him into contact with the Dutch scientist and fellow Royalist sympathiser Christian Huygens.



**Portrait of Alexander Bruce, Earl of Kincardine
by Johannes Mijtens, 1660-1670**

In 1657 Huygens invented the pendulum clock which improved timekeeping accuracy from around 15 minutes a day (using the earlier rotational balance regulation) to within a few seconds a week. In 1658 Huygens gave Bruce a copy of his ground-breaking publication *Horologium* in which the design of this newly invented pendulum timepiece was described. Bruce's enthusiasm was sparked and was recorded in his discussions with fellow exiled Scottish scientist Sir Robert Moray (1609 – 1673), a resident of Maastricht at the time.



Portrait of Christian Huygens by Caspar Netscher, 1670

In 1659 Alexander Bruce married Veronica Von Aerssen van Sommelsdijk, from an immensely wealthy family, and the couple moved to The Hague where they lived close to Huygens. In 1660 Moray moved back to London to take-up a senior Scottish appointment in the new Restoration government whilst the well-heeled Bruce spent his time between The Hague, London and his Scottish seat in Fife. At this time the Royal Society was founded with both Bruce and Moray as founder members with Huygens' pendulum clock at the top of the Society's agenda which led to Bruce and Moray's involvement in a sequence of pendulum timekeeping experiments.

In 1661 Christian Huygens could have been in attendance at the Coronation of Charles II in London however he chose instead to observe a lunar eclipse with members of the Royal Society. Whilst in London Huygens spent much of his time with Moray and Bruce and the subject of pendulum timekeepers dominated their conversations. A year later Bruce had developed a design for a pendulum marine timekeeper incorporating various refinements which allowed it to function at sea.

After discussions with Huygens and a visit to The Hague two timekeepers incorporating these refinements were commissioned from Huygens' preferred clockmaker Severijn Oosterwijck (c.1637 – c.1694) at Bruce's own cost. The first was completed in March 1662

and the second in early December; both timepieces were collected by Bruce later that month however the second was all but destroyed after becoming dislodged from its mount during the rough sea crossing home to Scotland. In order for any rigorous scientific experimentation to have credibility two timepieces were required and a replacement second timekeeper was commissioned from the London clockmaker John Hilderson.

In 1663 the first tentative sea trials took place on board '*one of his Majesty's pleasure boats*' in the presence of the President of the Royal Society, Lord Brouncker, and the eminent scientist Robert Hooke. Reports of the trials were mixed, notably Hooke felt Bruce's ball and socket suspension could be improved, but this did not affect the optimism that the means of establishing Longitude at sea could be achieved '*using Oosterwijck's machine*'.



Portrait of Viscount William Brouncker, President of the Royal Society, by Peter Lely

Further extensive sea trials were arranged by Brouncker and Moray with Captain Robert Holmes of the fourth rate warship *Jersey* appointed to undertake two voyages: the first a round trip to Lisbon and the second to Guinea. Holmes was chosen as he was known to the Royal Society however he was not up to the job, his hot tempered and erratic behaviour combined with his tendency to opportunistic actions contributed to the second and third Dutch wars (1665-67 and 1672-74 respectively). On the voyage to Guinea he raided several Dutch Colonial settlements and was temporarily imprisoned as a result. It is not clear if this was down to the Crown's distaste for his behaviour or rather the need to cover up the fact that he was acting under orders of the Admiralty.

Holmes declared the trials a success and accounts of his glowing testimony reached Huygens who then reported to the Dutch States General who in turn expressed great interest in these developments. However, once the initial euphoria had passed Huygens

started to question the exemplary performance of the timekeepers as the accounts of their performance appeared too good to be true. Huygens wrote to Moray to seek reassurance as to Captain Holmes' integrity; subsequent enquiries, including questioning the *Jersey's* master, revealed that the timepieces' usefulness had been exaggerated.

By the close of 1665 the Royal Society's appetite for further development and experimentation had waned possibly due to the realisation of the difficulties in using a pendulum at sea and the need to compensate for the motion of the vessel. Robert Hooke had also been working on an alternative solution and had devised a design for a timekeeper regulated by a sprung balance, however support for his venture also appears to have been distracted by the controversy relating to the sea trials of the pendulum clocks. The rapid evolution of the Society as a fertile melting pot of scientific innovation across many disciplines at this time would have served to distract efforts away from further development of the marine timekeeper.

However, Huygens continued his efforts, albeit in relative secrecy working for the French Crown in the Academie des Sciences. In 1673 he published another design in his publication *Horologium Oscillatorium* and a drawing from circa 1685 of another timepiece also survives; by this time he was collaborating with the Dutch East India Company. These publications ensured Huygens's legacy as a key figure in the development of the pendulum marine timekeeper but at the expense of Bruce, Moray, Brouncker and Hooke. The absence of their acknowledgement in *Horologium Oscillatorium* was chastised by the Royal Society however the fact that Huygens was essentially working for the French Crown, who were at war with the United Provinces and England at that time, may explain the omission of the key roles played by members of the Royal Society.

The re-discovery of the Bruce - Oosterwijck pendulum longitude timepiece:

By 1667 the two pendulum marine timekeepers commissioned by Alexander Bruce were effectively side-lined but they were not forgotten.

Their importance to the Royal Society led to the inclusion of one of the timepieces, still housed in its distinctive cheese-wedge shaped case, to be depicted on John Evelyn's engraved frontispiece to Thomas Sprat's *History of the Royal Society of London* published in 1667, (showing below).





What immediately happened to the timepieces after the appearance of one of them in this engraving is not known, however around forty to fifty years ago a walnut-cased bracket timepiece with unusual triangular movement signed by Severijn Oosterwijck was advertised for sale by a leading clock dealer based in the Cotswolds, (*showing left*). This timepiece had a dial in the style of Thomas Tompion and the case appeared typical of those made around 1680. At this time the timepiece was not fully appreciated and it remained unsold and so remained in the dealer's collection before being inherited by a family member who appreciated it for its decorative qualities.

Around fifteen years ago the timepiece was brought to the attention of a private collector who had a passion for research. Although he was not aware of the clock's historical significance he was intrigued by its form and appreciated the importance of the maker's name, Severijn Oosterwijck, engraved on the backplate. Ensuing conversations led to clock changing hands and the start of a nine-year research project.



The timepiece viewed from the back with the movement showing now housed in a reconstruction of its original case

This venture was greatly assisted by the timely publication in the journal *ANTIQUARIAN HOROLOGY* of a detailed and very well researched version of the above account by Lisa Jardine in 2006 which, alongside many other lines of enquiry, eventually led to the timepiece being identified as one of the Longitude timepieces commissioned by Alexander Bruce in 1662.

The newly re-discovered timepiece was subsequently exhibited at the Royal Society in 2013 then again at the National Maritime Museum Greenwich in their celebrated exhibition entitled *Ships, Clocks & Stars: The Quest for Longitude* which marked the tercentenary of the 1714 Longitude Act.

The appearance of a second timekeeper, possibly John Hilderson's 'replacement' timepiece:

In around 1974 another very almost identical timepiece movement, which had been later converted to a weight-driven longcase clock and with a dial purpose signed by no less than Thomas Tompion, was acquired by another private collector. This movement shares the same wheel train, curious triangular plates and a second dial engraved on the backplate and was identified as being another important early Longitude pendulum timepiece. Details in the construction of this second movement suggest that it could possibly be the one made by John Hilderson in London to replace the second Oosterwijck timepiece which was destroyed during transit in December 1662. Duly recognised for its historical importance this second movement was acquired by the National Maritime Museum in 2015 (for £100,000 assisted by the National Art Fund) and is now retained in the collection of the Royal Observatory alongside Harrison's celebrated marine timepieces.

The Bruce-Oosterwijck pendulum longitude timepiece to be offered at auction in 2018:

The owner of the Bruce-Oosterwijck pendulum longitude timepiece has decided to offer it at auction so giving others the opportunity to own this historic and highly important timepiece. Dreweatts 1759 has been instructed to handle its sale on his behalf. Commenting on the forthcoming auction, Leighton Gillibrand, Director and Head of the Clock Department at Dreweatts, has said, *'We are delighted that the owner of this highly significant timepiece has entrusted us with its sale. Such an exciting opportunity will be a career highlight for me and its sale will allow others to fully appreciate this lesser known chapter in the Longitude story'*.

The pendulum longitude timepiece will be offered on 15th March 2018 at Dreweatts' country house saleroom Donnington Priory (near Newbury) in a selected specialist sale of *Fine Clocks, Barometers and Scientific Instruments*.

The question no doubt everyone will be asking is 'how much will it sell for?' The answer of course is that no-one really knows at this stage however Dreweatts is of the view that the Bruce-Oosterwijck timepiece is 'the better of the two' and it is the only timepiece of its type likely to be offered for sale on the open market hence it is possible it will exceed the sum realised for the other unsigned example which came to sale in 2015.

Viewing:

Sunday 11th March, 10am – 2pm

Monday 12th March, 9am – 5.30pm

Tuesday 13th March, 9am – 5.30pm

Wednesday 14th March, 9am – 4.30pm

Day of sale, from 8.30am

Auction times / dates: 10.30am, Thursday 15th March 2018

Auction location: Donnington Priory, Newbury, Berkshire RG14 2JE

For further press information, hi-res images and interview opportunities please contact:

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