A Royal Haagseklok 1

Following on from Paul Shrouder's article in HJ September 2008, Keith Piggott has now completed an in-depth study on this extremely rare and important Dutch clock.

Introduction

Severijn Oosterwijck's, earliest known, spring-driven pendulum clock was first exposed by clockmaker Paul Shrouder FBHI, (*'A Mantel Clock', Horological Journal, September 2008, pp382-383*). He records his careful restoration and alludes to its history. I recognised its significance and contacted the BHI. Subsequently, at Paul's workshop, I met the owner with his rare Hague-Clock (NL: 'Haagseklok').

First I established there were no commercial interests to serve, only horological and historical ones. I was told that, by tradition and descent, this little Hague clock has been in his family since its gift to their ancestor, with a Knighthood, from Charles the Second on his Accession to the Crown in June 1660, in gratitude for his financial aid to that Monarch in exile during the interregnum (1649-1660). No antiquarian could want for a more tantalising provenance, nor a more dynamic period in early pendulum history. I was not disappointed.

First Impressions

Some works of art, including clocks, have the power to hold the onlooker; this is one, **(Figure 1)**. At first sight, the regularity and quality of the movement and the dial presented features and components I had not seen in a Hague clock. I also observed the evidence of a distant accident to the case and its movement.

Its workmanship is outstanding, superior to Coster's pendulums, notwithstanding his superb balance-era watches and table clocks. Now I better understand why, in 1662, Huygens and Bruce chose Oosterwijck to make their inherently flawed so-called 'sea-clocks', adding Huygens' too complex weight-remontoir in 1664. **(Figure 1)**

Oosterwijck's 'Haagseklok' deserves the fullest appreciation. Its owners would remain anonymous, yet know more of their heritage and its context; the restorer would publish via the BHI, a technical audience not versed in Huygens; and I would bring this unrecorded early Hague clock into the Dutch antiquarian fold, via the Horological Foundation ('HF') (<www.antique-horology.org>), with sufficient images and dimensions to promote new research. Knowing I cannot succeed equally, here I offer my findings and historical perspectives.

HUYGENS' AUTHORITIES

Huygens' Pendulums

Readers not familiar with Huygens and the early pendulum era will find the Dutch website invaluable. It includes a compilation on the contract of 3rd September 1657, between John Fromanteel and Salomon Coster; one long misread also misunderstood clause alludes to a 'secreet' that cannot be the pendulum or crutch which John already had seen and made. It taxes us yet.

Collections and Exhibitions

G.B. Shaw once wrote, *'if I had had more time, I should have written a shorter letter!'* But gone are the days when Drummond Robertson could review two neglected Coster clocks in just two paragraphs, (Robertson D, 'The Evolution of Clockwork', Chap VI, pp76-81). Scholarship has moved on apace, with specialist articles, new reference works, magnificent Dutch exhibitions,

'Octrooi op de Tijd' (1979), 'Huygens Legacy' (2004); also great private collections. H M Vehmeyer's astonishing catalogue, Hans van den Ende's museum at Edam - I was privileged to attend its opening, I stayed three days! My own study of Hague clocks was helped by many, especially the Dutch restorer L.H.J. 'Berry' van Lieshout. Many rely on his knowledge and unique archives.

Didactic Scholarship

Professor Dr Ir Reinier Plomp has long been popularising early Hague clocks, by his erudite articles and standard reference work, 'Spring-driven Dutch pendulum clocks, 1657-1710'. [For the rare privilege enjoyed, I presented copies of his book to the owner and Paul]. Dr Plomp identified 'The Prototypes of Hague Clocks and Pendules Religieuse', (Antiquarian Horology, June 2007); he also defined their significant characteristics, 'The Earliest Dutch and French Pendulum Clocks', (HF website, Op. Cit.). His matrix is based on 25 clocks, to determine their craft lineages also chronologies ('D1', etc, for Dutch pendulums; 'F1', etc., for French pendulums). Dr Plomp's academic and horological credentials place him at the fore. Here, I follow his line; he may have to revise his chronology.

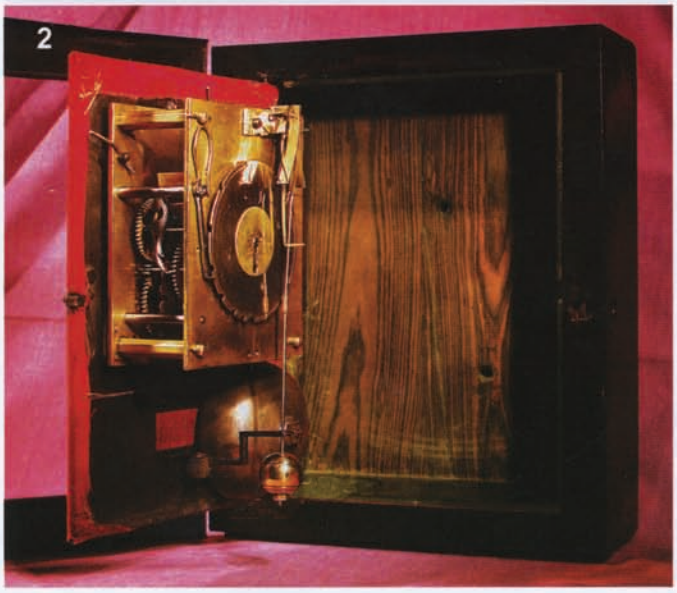
Dr Plomp's characteristics are not the only ones to be observed in a Hague clock. Several are too general to be useful, while others might be too infrequent to compare, yet still be important. Among these is, should be, the contractual 'secreet' construction not yet identified – although many writers have made diverse attributions.

In a paper for the Dutch Horological Foundation, I cite research by Berry van Lieshout and myself (HF website, Op.Cit. 2005). Implicitly, on Mayday 1658, a 'secreet' was to be shared between Fromanteel's and Coster's clocks. I pointed out, 'secreet' is not a Dutch word at all; 'its etymon seems to be entirely English; if so what then?' I believe that etymon confirms a conspicuous and significant linguistic clue. Might the secret also be found in Oosterwijck's Royal Hague clock?

Who was Severijn Oosterwijck?

Several noted authorities (Robertson, Morpurgo, Edwardes, Dobson, and Plomp), cited his life and work. Berry Van Lieshout records, 'Severijn Oosterwijck was born before 1637, he died between 1690 and 1694. In 1657, he married a Sara Jans van Dueren at Rotterdam'; did he know Simon Douw, ingenious Clockmaker of Rotterdam? Already he was a fine clockmaker, (see Huygens Legacy, exhibit 07); 'Severijn is first mentioned in the Hague in 1658, when his first son Adam was born. He registered there in 1659, first renting near the Spui [river]. In 1660 he bought 'De Drie Vergulde Mollen' and then took Pieter de Roo as apprentice'. In 1662 he made two copies of Alexander Bruce's (Earl of Kincardine) original sea clock with double-fork F-crutch and pendulum, then others to Huygen's own design, tested by Captain Holmes. By August 1664, he had also incorporated the ingenious but flawed weight-remontoir, for which Huygens would obtain a Dutch patent, but chided by Sir Robert Moray, that priority for the remontoir was Fromanteel's, he assigned his English patent (3rd March 1665) to the Royal Society. Robert Hooke had scoffed. He understood that a pendulum is inappropriate for a sea-clock, as is the weight remontoir, but those major inherent defects do not reflect on Oosterwijck's craftsmanship. In 1664 Lord Brouncker, first President of the Royal Society, had one of his seconds' regulators, and Moray had one. 'Severijn had four, sons, all were clockmakers, in 1687/8, he and Adam (1658-1695) petitioned the Magistrates for a Hague Clockmakers' Guild. Upon its incorporation Severijn became first Master. Around 1690 he made a year movement with springs for Jean Brisson's monumental case (modelled on the lavish Breghtel-van den Bergh case of 1665-1670, now in the V&A London). With his third son, Jacobus (1662-1711), he adapted it into a musical clock, which they signed jointly'. I saw it with Eugene Stender in 1976. It remains now one of Holland's horological icons (see Christie's Amsterdam 19/12/2007, Lot 421).

Any clock by this particular maker is of interest, for several reasons: his part in the birth of the Dutch pendulum clock, his abilities as a craftsman, and his work in experimental maritime navigation to determine longitude by timekeeping. The subject clock ticks the first two boxes, hence this Royal patronage; Christiaan Huygens himself ticked the third box.



GENERAL OBSERVATIONS

The Inspection: Paul Shrouder disassembled, measured parts and counted teeth as I made notes and shot images (of inconsistent quality). The minutiae of our record are essential to understand better 'the evolution of clockwork'. Dimensions and wheel-counts are recorded at Appendix One; Appendix Two touches on conservation needed to preserve a unique case.

Figure 2, movement pivoted out; note pendulum holdfast, side strike-gates (warning-pinwheel detents), central countwheel and bell on dial.

Originality: Antiquarian catalogues rarely reveal the extent of any 'restorations'. For the benefit of researchers, my examination found Oosterwijck's movement to be very original. The few exceptions are: the mainspring is replaced, the original four-spoke escape-wheel's collet and pinion are newly made, the original contrate wheel now has a new collet, the original pendulum-rod has a new bob and now has a suspension hook, the door glass has been replaced. One function has been lost: a strange 'cam' on the barrel arbor and vacant pivot holes offer cryptic clues of a unique feature (see 'Wind-Me' below).

A restorer's scribbles imply he moved the hammer and adjusted its clapper (the strike-lever appears untouched). Notwithstanding these changes, it is a most original Hague clock; and whilst not actually virgo intacta, it undoubtedly is of huge academic significance, but how does it square with Dr.Plomp's 'characteristic properties'?

Plomp's Characteristic Properties vis à vis Oosterwijck's Clock

Windows	**P1**	Earliest simple box, (no side window), sound-holes in the base and side.
Door Frame	**P2**	Early flat section, unadorned; hinge plates set under veneer.
Aperture	**P3**	No aperture to back plate for the escape wheel (higher escapement).
Pillar Shape	**P4**	Uniquely octagonal (transition between square and round).
Holes	**P5**	Steady-pin holes, but for a side-mounted strap-potence (higher verge).
Key	**P6**	Winding key also locks the door (no special key).
Chapter Ring	**P7**	Pinned studs (not riveted to dialplate).

To pre-empt conjecture, although the subject clock possesses some of the very earliest characteristics, it probably falls outside the first experimental year, 1657. Significant negatives include: dial plate is not made of iron (unlike earliest known Coster 'D1', Plomp 34), dial plate is not fixed, the case has no rear door or removable panel (unlike Coster 'D2', Plomp 35), hinges are not combined for the dial plate and door (unlike Coster 'D3', also Fromanteel's English box-cases), spandrels were not fitted.

Nevertheless, having first striking work and split-barrel – one spring serving multiple trains – mark it out as special. (nb.'tandem barrel' misleads, being two or more barrels serving just one train).

Comparables: Oosterwijck's 30-hour Hague spring clock with hour striking is most comparable with Salomon Coster's two known striking clocks; his even retains 'Coster hands', rarely seen with another maker (Plomp R, Op.Cit. Nr.38; now 'D8' in new chronology; also Plomp R, "Prototypes", Op.Cit. Figs.6, 7, 8; now 'D10' in his new chronology). The latter clock, also Oosterwijck's sister clock 'D9' in Plomp's chronology (Huygens

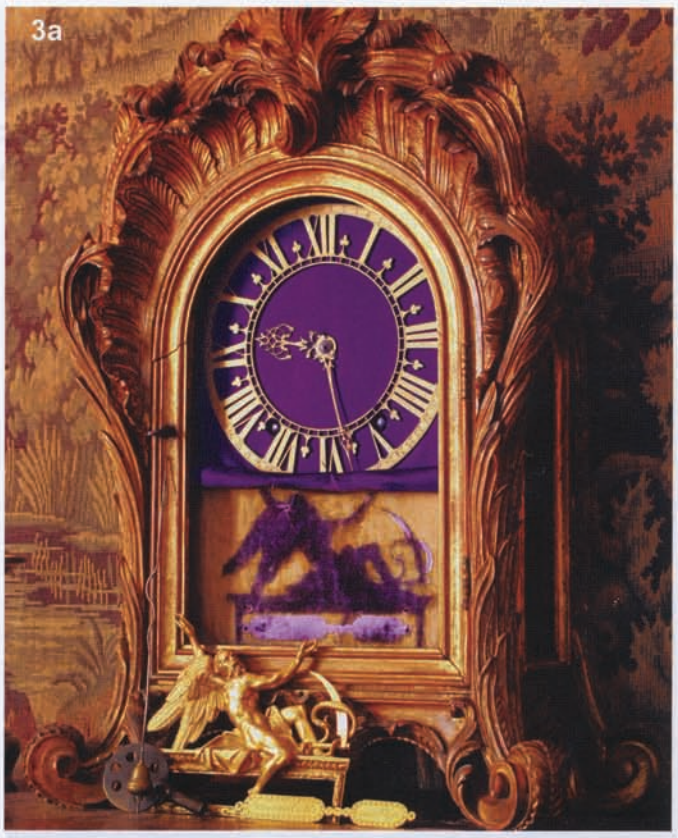
Legacy, Op.Cit., Nr.11), both have elaborate hour hands, signature plates, movements, also cases and mouldings, that all signify a later date. All are 30-hour clocks, but dispel prejudice, Huygens himself preferred them for having fewer wheels, thus less friction. (Longer duration five-wheel trains appear to be an English, probably Fromanteel, innovation.)

Unique Features: Among Hague clocks, Oosterwijck's movement has features that I believe to be unique, namely: octagonal pillars, Fromanteel type strap-potence, watch-stop work hidden under ratchet work, its four-spoke escape and contrate crossings are exceptional. One lost feature (an up-down mechanism?) certainly would be unique among Hague clocks. His dial too has unique features, namely: a folding pendulum holdfast, obelisk bell-stand, a sector cutout. (He later uses sectors for display, like Johannes van Ceulen - Plomp R, Op.Cit. nrs.84 and 15. His boxcase is unique too, its hardwood carcass constructed from an expensive show-wood and used in the solid. My initial recognition of it as 'kingwood' subsequently gained expert support.

'HOROLOGIUM' THE VELVET DIALPLATE

Overview: Oosterwijck's velvet-on-brass dial plate (21.2 x 16.5 cm), is smaller than all but one of Coster's - a sure indicator of an early Hague clock. His superb dial creates the illusion of a Coster clock; it even has the earliest steel-tipped minute hand and lobed hour hand, set on old red velvet. Swivel pins allow the dial to swing outwards, **Figure 3**.

Co-operation between these two early pendulum makers is writ large. Even Coster's main successors, Frenchman Claude Pascal and first Dutch apprentice Pieter Visbagh, rarely replicated Coster hands but instead introduced fancy piercings. The dial retains Coster's decorative brass winder-collet to preserve the velvet. The cannon opening is oddly irregular, but I found no evidence for alarm work. The typical engraved signature plate covers the access hole needed for starting its pendulum but the fragile red velvet covering is not cut out. It is not original but was not removed.



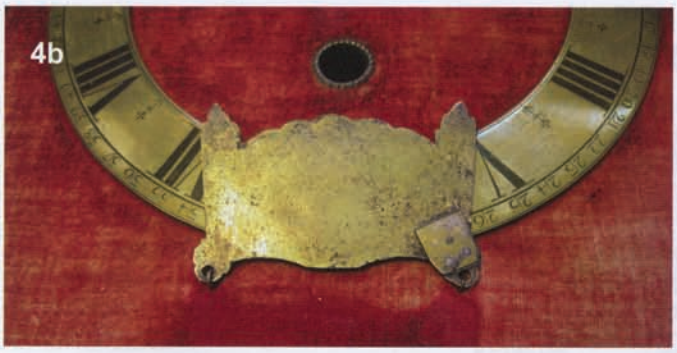
Early Dutch pendulum movements are rarely signed; only its original signature cartouche denies Salomon Coster the credit for Severijn Oosterwijck's outstanding quality and particularly fine clock.

Just as the iconic square pillars were initially adopted, velvet dials saved the expense of engraving or matting and speeded up the fabrication of these new clocks to meet demand. Nevertheless, velvet became the reigning fashion for decades in Holland and France, but not elsewhere in Europe or England. Purple velvet, from the Purpura lapillus mollusc, was probably used originally; like another royal patron's baroque gilded console-clock by Johannes Van Ceulen, **Figure 3a,** its case is now attributed to Daniel Marot. (Turpin A, "A table for Queen Mary's Water Gallery at Hampton Court", fig.14, p.11 p.14, Apollo Magazine, January 1999).

Signature Plate: The typical wrought gilt-brass lambrequin plate, now with pinned repair to one hanger, is finely engraved, not etched, and bears a full signature, also Huygens' license;

"Seueryn Oosterwijck
Haghe met privilege".

Note phonetic spelling of 'Severijn'.



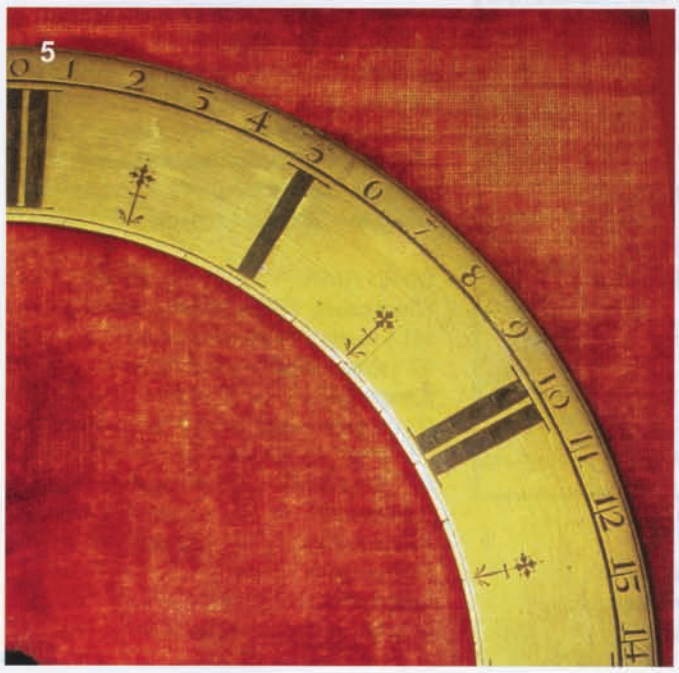
These signature plates hang on wire loops, over an access hole to restart the pendulum, **Figure 4.** The dial hole is present, but the later red velvet remains uncut. Though it bears no date I do not doubt that this is the original plate, and probably sourced from Coster's engraver; unlike the repoussé plate of his next (Plomp R, 'Prototypes', Op.Cit. D9).

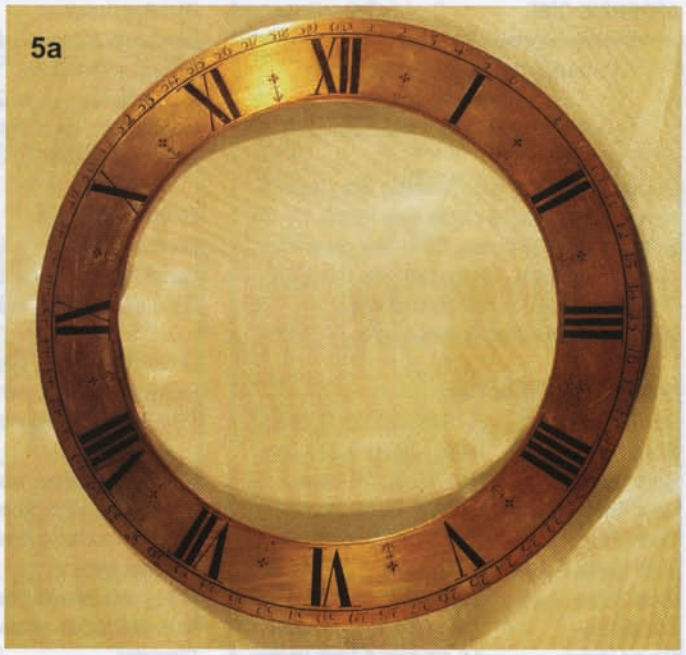
Van Lieshout has privately expressed the view that Huygens should not have granted 'met privilege' while Coster lived (he died in December 1659). It is a telling point, the Octrooi was for 21 years, and even Pascal's earliest Hague clocks do not bear that legend, **Figure 4b.**

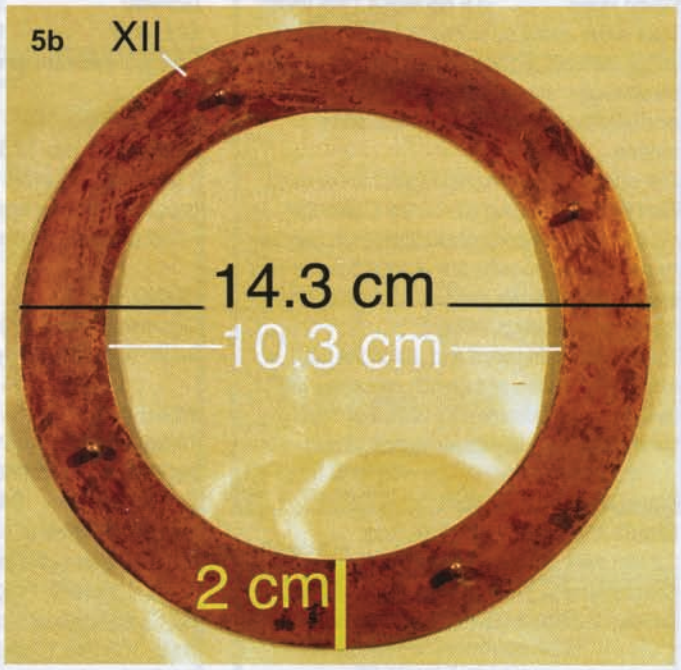
But, also in 1657, Huygens did grant a second privilege, to Jan van Call at Nijmegen; and Berry himself records a dated Pieter Visbagh bearing legend 'Met privilege 1659'. Was Coster incapacitated, and did Huygens anticipate his death by granting coveted privileges to others? Even Dr.Plomp's new chronology has Oosterwijck 'D9', bearing the legend, being placed before Coster's 'D10'.

Therefore, herein, I shall judge the subject clock only against the evidence of the extant comparables, with their authoritative dating. However, I anticipate lively contributions on this point.

Chapter Ring: The gilt brass ring is typically narrow (2.0 cm) also small diameter, (14.3 > 10.3 cm). It is finely engraved and very well finished. The obverse design represents a fourth-state*. Roman Chapters, I-XII, mark ordinal hours. Half-hours are stylised spring flowers. Quarters are scribed within a narrow inner band. Minutes are shown in fine Arabic ciphers, 1-60, in a wider outer band. Seconds are not shown, although Huygens showed how in 'Horologium' (1658) and Philipp Treffler's 1658 copy does (see below, Concluding Perspectives, 6, A Seconds' Hiatus), **Figure 5.**







* First-state chapter-rings have arrows as half-hour markers, with no inner line; Second-states adds an inner line, without Quarters; Third-state adds a flower marker, still without Quarters; a Fifth-state has Quarters with arrow-heads sprouting from lower flowers. However 'states' (designs) might also depend on the engraver being chosen or the client's wishes. In any event, chapter ring styles soon proliferated in pendulum workshops sprouting up across Europe. **Figure 5a** shows the full chapter ring.

The reverse has a scribed 'XII' and an indistinct cipher. This is the original chapter ring, fixed by integral round studs pinned at the dialplate, **Figure 5b.**

Appendices 1 and 2 on following pages.

Part 2 of the Royal Haagsklok will appear in November 2009 *Horological Journal.*

APPENDIX ONE:

Severijn Oosterwijck Royal Haagseklok

Dimensions and Construction

'ø' denotes original part

'®' denotes replacement part

Oosterwijck's clock is comparable with Coster's known striking Hague clocks (see Plomp, Op.Cit. nr.38 at page 120 - being D8 in new chronology; see also R. Plomp, "Prototypes", Op.Cit. p.202, Figs.6, 7,8 - D10 in new chronology). Dimensions are given in metric units

Dimensions of Box Case

Box External	H.25.4 W.21.0 D.7.6cm
Box Internal	H.20.7 W.16.2 D.7.0cm
Door Frame	H.25.75 W. 21.2 cm
Door Reveal	H.20.7 W. 16.2 cm
Door Stiles	W. 2.5 x 1.65 cm thick
Total Depth incl. Frame	D.9.25 cm
Ends/Sides	2.5 cm thick incl, veneer
Backboard	0.6 cm thick, solid. wood
Sound Holes	3.5 cm side,4.1 cm under

Thick sawn ebony (macassar?) veneer covers visible surfaces. Facing corners are mitred. Thin brass hinges, are set into rebated 45-degree mortises, the plates filled and covered by veneers.

The carcass is constructed of solid show-wood, identified as kingwood (Dalbergia Cearencis). Howard Page says cocobolo (Dalbergia Retusa). Hague clocks, typically, are veneered inside with padouk (Pterocarpus spp.) or with Indian rosewood (Dalbergia latifolia).

The choice of kingwood and use in the solid, is exceptional. Dutch and French carcasses are deal. Perhaps Oosterwijck's choice of 'royal timber' was a visual and metaphorical pun.

Dimensions of Movement

BRASS DIAL ø H.21.2 W.16.5 cm

2.2 mm thick, clad in uncut velvet

Chapter Ring ø Brass 14.3 x 10.3 cm

Annulus 2.0 cm, 1.18mm thick, 4 studs

Hands - Gilt Brass ø

Hour 5.1cm

Minute 7.05 cm, steel pointer Tip

Dial Feet – Round, Four 6.50 mm deep undercut for motion hour wheel

Folding Pendulum Holdfast ø

Brackets Brass 13.5 x 21.5 mm

1.15 mm thick,. each with 2 rivets

T-Spring Steel, 15 x 6 x 31.5 mm

1.25 mm thick, Cranked Retainer Brass 56.0 x 13.5 mm the 'shaped foot acts as geometric lock. fixed by 3 steel rivets

Movement plates ø

Back plate	11.5 x 9.4 cm (pinned)
Thickness	2.15-2.33 mm
Front plate	11.5 x 9.4 cm
Thickness	2.22 mm.
Pillars (4)	3.8 cm between plates

Octagonal section 7.85-8.05 mm.

Dial Apertures ø

Pendulum Access 1.8 x 4.0 cm. covered by signature cartouche

Cutout Sector 2.05 x 1.2 cm. Recess for motion cock, short dial feet

Both hols covered by old uncut velvet

SPLIT-BARREL ø

Diameter 43 mm	Length 25 mm
Barrel Arbor	Length 55.56 mm
Square for winder	3.6 mm

Great Wheels (NL.'Grondrad')

REAR G1 49.4 mm diam. 72 teeth

FRONT S1 49.95 mm diam. 80 teeth

Ratchet and Stop work ø

Both on S1, First Strike-wheel, the stop work beneath ratchet and wheel

Ratchet work ø

Brass circumfrential spring, steel Click to steel Ratchet wheel with 21 Teeth

Diameter 34.4 mm 1.85 mm thick

Boss diam. 11.0 mm 4.85 mm deep having a spur-cam, pinned to arbor

Stopwork ø

Stop wheel Diam. 10.3 mm 1.25, 8 leaves- 6 cut, driven by single pin in barrel-arbor. Brass spring engages the stop wheel acts as a simple Click

GOING TRAIN ø

Oosterwijck's original train, except for the escape teeth (recut)

Wheel Count

70/5x60/5x54/60 = 151.2 beats

Pendulum 15.6 cm nominal

Extant Pendulum: 16.45 cm

G4 Escape wheel ø p.5/27 teeth diam. 28.7 mm - the teeth recut

Cross ø Collet® Pinion®

G3 Contrate-wheel ø p.5/60 teeth diam. 37.3 mm (Collet ®)

G2 Centre-wheel ø p.6/70 teeth, diam 39.4 mm Domed collet ø

Wheel is at the Back plate

Pinion is at Front plate.

G1 First-wheel ø 72 teeth diam. 49.4 mm

Pinion diameters ø Centre 4.82 mm

Contrate 3.5mm Escape® 3.7 mm

Centre Arbor ø Length 59.4 mm

Taper diam. 3.95 mm Relief 2.15 mm

Centre Pinion ø 6 Leaf 4.82 mm diam. 4.7 mm long

MOTION WORK ø

Minute-wheel 32 teeth, Single pin for (English) hour strike. Diameter 41.5 mm.

Reverse-Minute 32 teeth / p.6 Diameter 33.0 mm.

Hour-wheel 72 teeth, radial marking 43.2 mm diameter. Cannon 'dimpled' Transverse pin secures hour hand

STRIKE TRAIN ø

SF Fly	p.5 / 2 vanes
Lozenge	W.22 L.25 mm
SF pinion	3.6mm diam
S4 Fourth-wheel	p.6 / 48 teeth 28.8 mm diam
S4 pinion	4.7 mm diam
S3 Warning-wheel	p.6 / 48 teeth
2 brass pins, Domed collet,	32.5 mm diam
S3. pinion	4.9 mm diam

Warning-pin re-sited18mm on same radius (accident?)

S2 Pin-wheel	p.8 / 60 teeth 40.6 mm diam
S2. pinion	5.25 mm diam
10 steel pins*	(cf.Coster D8)
S1 First-wheel	80 teeth
At front plate	49.4 mm diam

STRIKE WORK ø

Strike Lever

'added/adjusted/repaired' must refer to hammer lever

Strike Gates

Steel scrolls, 2 below, 1 longer above

Count-wheel 12 unequal detent slots I to XII, diameter 72 mm

Drive-wheel 78 teeth, Diam. 50 mm, Pinion 10 on pinwheel arbor

Hammer ø

Brass head with steel striker, dovetailed to steel stem, but now, extended and its arbor is now planted in adjacent pivots.

Original hammer pivots have stop-pins, the hammer-spur to original thick brass 'L' spring; now re-profiled also as stop.

Bell (on dial)	D. 70.8 mm
	H. 29 mm
	Thickness 2.7 mm

Bell stand Base 12.55 x 9.98 mm, tapers to 6.4 x 6.2 mm 2 Rivets

Height 31mm + 5.5 mm

Five turn screw, diam.3.5 mm

COMPARABLE TRAIN - 1

SALOMON COSTER TIMEPIECE

Courtesy of the 'Museum van het Nederlandse Uurwerk', at Zaandam

Director: Dr.Ir.C.A. van Grimbergen

Manager: Carel Hofland

Consultant: Pier van Leeuwen

GOING TRAIN:

Wheel count, 70/5x64/5x54/60 = 161.8 beats; Pendulum 13.8 cm

G4 Escape wheel (Gangrad)	p.5 / 27 teeth
G3 Contrate-wheel (Kroonrad)	p.5 / 64 teeth
G2 Centre-wheel (Centrumrad)	p.8 / 70 teeth
G1 First-wheel (Veertonrad or Grondrad)	72 teeth

Stop on first wheel, like D1

G2 Arbor plain, no taper or relief

G2 Pinion 8 Leaf, at back plate
bears centre wheel

MOTION WORK: Identical to the
Note: common pinions and escape
Coster D3 escape 5/27
Oosterwijck (1) escape 5/27
Coster D3 contrate 5/64
Oosterwijck (1) contrate 5/60

COMPARABLE TRAIN – 2
SALOMON COSTER WITH STRIKE
PLOMP D8 Originality not shown
Courtesy of the 'Museum van het Nederlandse Uurwerk' at Zaandam

GOING TRAIN:
Wheel count, 65/5x60/5x58/60 =
150.8 beats; Pendulum 15.8 cm
G4 Escape wheel p.5 / 29 teeth
G3 Contrate-wheel p.5 / 60 teeth
G2 Centre-wheel p.6 / 65 teeth
G1 First-wheel 72 teeth
G2 Arbor tapers, a relief for front S1
G2 Pinion 6 Leaf. at back plate,
bears centre wheel

MOTION WORK
Identical to Oosterwijck's above
SPLIT-BARREL: Yes
Ratchet-wheel: Yes
Front of Split-Barrel
Stop work: (to be examined)

STRIKE TRAIN
S5 Fly p.6 / 2 vanes
(Windvleugel) p.5? originally suggested
by Kees van Grimbergen
S4 Fourth-wheel
(Hoepelrad) p.6 / 42 teeth.
S3 Warning-wheel
(Voorslagrad) p.5 / 48 teeth
2 pins, dome -collet.
S2 Pin-wheel
(Pennenrad) p.8 / 60 teeth
12 steel pins.
S1 First-wheel
(Veertonrad) 72 teeth
planted at front
Strike Gates 3 steel scrolls, 2 short
Count-wheel 12 unequal slots, I to XII
Drive-wheel 78 teeth
Pinion of 12 on Pinwheel (S2) arbor

STRIKE WORK
Identical to Oosterwijck's above
Except for 12 pins also pinion of 12
Subject Oosterwijck has 10 and 10
SIGNIFICANT POINTERS: early trains evolving but similarities not be random.
Coster D3-D8 escape 5/27 and 5/29
Oosterwijck (1) escape 5/27,
Coster D3-D8 contrate 5/64 and 5/60
Oosterwijck (1) contrate 5/60
STRIKE
Coster D8 72-8/60-5/48-6/42-6/Fly; Oosterwijck (1) 80-8/60-6/48-6/48-5/Fly

Appendix 1 Table 1

SEVERIJN OOSTERWIJCK S ROYAL CLOCK

THE CLASSIC EBONY VENEERED BOX CASE

COMPONENT	Dimensions in mms.
BOX- External Internal	H.254 W.210 D.76 H.207 W.162 D .70 D".92.5 (incl. Door).
DOOR- Frame *Reveal*	H.257.5 W.212 D.16.5 H.207 W.162
Ends and Sides Backboard	25mm thick (incl. veneers) 6mm thick Solid Show-wood
CARCASS Solid Show wood Poss. alternate.	KINGWOOD - provisional (Dalgergia Cearencis). Cocobolo -Dalbergia Retusa
VENEERS	Ebony (Genus not.identified.)
SOUND- HOLES Two	Side(Left) 3.5 Base (Left) 4.1
SUSPENSION (missing)	2 piece or Single Eyelets ?Capstan & Ring
CREST ? (later)	Pegged through the top for later Crest or Pediment ?

Appendix 1 Table 2

SEVERIJN OOSTERWIJCK S ROYAL CLOCK (1)
THE PENDULUM MOVEMENT AND DIAL

COMPONENT	*H.cm* *D.cm*	*W.cm* *L.cm*	*Thick* *Mm*	*Ø* *®*
DIAL PLATE 4 round feet	***21.2*** *0.65*	***16.5***	*2.2*	*ø* *ø*
Chapter Ring	**14.3**	**2.0**	1.18	ø
Hour Hand	**5.1**	Coster		ø
Minute Hand	**7.05**	Coster		ø
Access Hole Sector cut out	1.8 2.05	4.0 1.2		ø ø
Holdfast Spring	L. 3.15	W. 1.5 >0.6	T.0.13	
Holdfast Folding Lever	L. 5.6	W.1.35		ø
FRONT PLATE	**11.5**	**9.4**	2.22	ø
Pillars - 4 Octagonal		3.8	8.05 >7.85	ø
BACK PLATE Pinned	**11.5**	**9.4**	2.33 >2.15	ø
SPLIT BARREL Barrel Arbor Rear-Going Front-Strike	**D.4.3** D.4.94 D.4.995	**L.2.5** L.55.56 t. /72 t. /80	 3.6	ø ø ø ø
Ratchet Boss + CAM	D.3.44 D.1.10	21teeth	1.85 4.85	ø ø
Stop Concealed	D 1.03	8/ 6cut Spring-	1.25 click	ø
STRIKE WORK				ø
Strike Lever	L. 7.5		centre	ø
Strike Gates	2 Short	1 Long		ø
Count Wheel	D. 7.2			ø
Drive Wheel	D. 5.0	t. /78		ø
Pinion			10leaf	ø
Hammer lever Clapper brass	L. 7.6 L. 1.65	 W. 1.3	 T. 0.5	ø ø
Bell	D7.08	H. 2.9	T0.27	ø
Bell Stand	H. 3.65		T 6.4	ø

Appendix 1 Table 3

SEVERIJN OOSTERWIJCK (1)
Haghe met privilege
(circa 1658)
THE 4-WHEEL 30-HOUR TRAINS

GOING TRAIN	/	Pinion / Wheel	Wheel mm	Pinion mm
G4 Escape	ø	5 / 27	28.7	3.7
G3 Contrate	ø	5 / 60	37.3	3.95
G2 Centre	ø	6 / 70	39.4	4.82
G1 First	ø	72	49.4	

Notes;
G4 Cross ø Teeth ® Collet ® Pinion ®
G3 Contrate Re-formed, Collet ®
G2 Arbor L.59.4 Taper 3.95 Relief 2.15
G2 Pinion 6 leaf 4.82 x 4.7 Dome collet ø
G1 Wheel Rear of Barrel, Pinion to front

Count: 70/5x60/5x54/60 = 151.2 Beats
Nominal Pendulum: **15.5** cm
Extant Pendulum: 16.45 cm

MOTION WORK: 32_32/6_72 (D.43.2 mm)

STRIKE TRAIN	/	Pinion / Wheel	Wheel mm	Pinion mm
SF Fly	ø	5 / Fly	22 x25	3.6
S4 Inter	ø	6 / 48	28.8	4.7
S3 Warning	ø	6 / 48	32.5	4.9
S2 Pinwheel	ø	8 / 60	40.6	5.25
S1 First	ø	/ 80	49.95	

Notes:
SF ø FLY lozenge, end spring
S4 ø
S3 ø 2 brass pins, domed collet,
S2 ø 10 steel pins (cf.Coster D8) inscr."**S**"
S1 ø At front of split-barrel

Appendix 1 Table 4

SEVERIJN OOSTERWIJCK (1)
"SALOMON COSTER
***Haghe met privilege* 1657"**
30-Hour Timepiece
Museum – Zaanse Schans
Plomp D3 Originality not shown

GOING TRAIN	/	Pinion Wheel	Wheel mm	Pinion mm
G4 Escape		5 / 27		
G3 Contrate		5 / 64		
G2 Centre		8 / 70	Wheel fixed on Pinion at the back plate	
G1 First		72		

COUNT: 70/5x64/5x54/60 = **161.8** Beats
Nominal Pendulum: **13.8 cm**

MOTION WORK: Identical Oosterwijck 1
NB. Common first and escape.
Coster D3 Escape 5/27 Contrate 5/64
Oosterwijck Escape 5/27 Contrate 5/60