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Front cover: Dial of a small experimental floor-standing 8-day centre seconds regulator, which is discussed in Part 2 of Chris Watson's article on the horological connections of the John Smeaton family. Photo courtesy of Bonhams, London.

Three medieval clockmakers: children of Mercury

William Linnard* & John A. Robey**

Three planet-books produced in the third quarter of the fifteenth century contain images of a clockmaker attending to a clock. These all appear as miniatures in astrological illustrations showing Mercury and his 'children' and were produced in three different countries: Italy, the Netherlands and England. The links between the three images are traced, and the three clocks are described in detail. It should be noted that any text in the planet-books relates to astrology, not to the individual trades depicted.

Mercury (Mercurius) was the Roman god of trade and industry. Later, equated with the Greek Hermes, he became the god of tradesmen and merchants. Mercury is usually pictured holding the caduceus (a wand with two serpents twined round it) and a purse. Astrologically, during the Middle Ages the people under his influence were known as the children of Mercury, and they included scribes, artists, organists and sculptors, and metal-workers such as goldsmiths and silver-smiths. Later in the Middle Ages, with the emergence of clockmaking as a new and distinct trade, clockmakers too were included among the children of Mercury.

In the third quarter of the fifteenth century three astrological planet-books were produced which are of particular interest to historians of horology, as the children of Mercury depicted in them include a clockmaker attending to a wall-clock in his workshop. One of these books was produced in Florence, one in the Netherlands and one in England.

The Florentine planet-book is a series of seven astrologically inspired prints made by engraving copper plates, created about 1464 and attributed to Baccio Baldini (c. 1436–87);

one of these prints is a personification of Mercury presiding over the activities of his children and includes a miniature of a clockmaker attending to a wall-clock (Figs 1 and 4). A copy of this engraving is in the British Museum.¹

A Netherlandish block-book (book printed from woodcut blocks) of The Seven Planets, discovered in Lerchenborg Library (Denmark) in 1928, is now in the National Gallery in Copenhagen.² This block-book, in an excellent state of preservation, has been dated as about 1460. The original woodcuts for the block-book were probably executed in Haarlem, but the identity of the artist is not known. The Mercury page shows Virgo and Gemini, and includes a miniature of a clockmaker attending to a wall-clock in his workshop (Figs 2 and 5). (Another version of this Netherlandish block-book is in Berlin, but here the Mercury page does not include a miniature of a clockmaker.³)

Precise dating of these planet-books is difficult, and is disputed by experts. M. J. Schretlen, a Dutch expert who in 1925 had published a monograph on Dutch and Flemish woodcuts of the fifteenth century,⁴ subsequently described the Netherlandish block-

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1. British Museum. The print is Reg. No. 1845.0825-475.

2. SMK (National Gallery of Denmark), Inventory no. KKS 10458.

3. F. Lippmann. 'The Seven Planets'. International Chalcographical Society, 1895, 6ff.

4. M. J. Schretlen, *Dutch and Flemish woodcuts of the fifteenth century* (London: Benn, 1925; reprint Haacker, New York 1969).



Fig. 1. The Mercury page in the Florentine planet-book. © Trustees of the British Museum.



Fig. 2. The Mercury page in the Netherlandish block-book. © National Gallery of Denmark.



Fig. 3. The Mercury page in the English manuscript. © Bodleian Library, Oxford.

book for the National Gallery in Copenhagen,⁵ and stated that it was *utvivslomt* [undoubtedly] borrowed from the Florentine planet-book attributed to Baccio Baldini, whereas Saxl claimed that the Florentine engravers copied and modified the woodcuts in the Netherlandish block-book.⁶ However, not wishing to enter into this dispute over national artistic priority, for the purposes of our horological discussion it seems safe and sufficient to conclude that the Netherlandish and Italian images have obvious similarities in overall composition and content, and that they were produced within a very few years of each other, c. 1460–1470.

Although the Florentine and Netherlandish images are similar, there are significant differences in the clockmakers and the clocks depicted. In the Florentine version, the clockmaker stands on the left of the clock and appears to be raising a weight on a wall clock, which has a 24-hour dial, a single hand, and a foliot on top with just one of its regulating weights visible. There is no bell, hammer or bell-frame. The only part of the mechanism that is visible is the striking great wheel (which protrudes through the open lower part of the frame) and a rope barrel for the other weight. Since the wheel and barrel occupy the full depth of the relatively shallow case the two wheel-trains must be side-by-side. There are no subsidiary ropes to rewind the barrels in the opposite direction, so the clockmaker's left hand may be operating a capstan. No bench or tools are shown.

In the Netherlandish version the clockmaker with his large eyes and exuberantly wavy hair (typical of the Haarlem woodcutter's work) is standing on the right, and the clock has an approximately square base without feet or finials and a rectangular dial that shows little detail: just a plain chapter ring and lines radiating from the centre, one of which may be a hand. Part of the movement is visible, including two large great wheels with coarse teeth and arranged as end-to-end trains. The triangular shape of the teeth may be due to the limitations of the artist rather



Fig. 4. Detail of the clockmaker and clock in the Mercury page in the Florentine planet-book. © Trustees of the British Museum.

than an accurate depiction of their actual form. There are three thick ropes visible, with a weight on the left-hand one for the going train, as expected. The counterweight and striking weight are hidden from view behind the clockmaker, as is the fourth rope and the very small section of it which should be visible is not shown. There is a foliot at the top, but with no means of support — perhaps the artist overlooked this detail. There is no bell, hammer or bell-frame. Whereas most Gothic clocks make a feature of the bell and its bell-frame, some early domestic clocks sit in a wooden frame with the bell and hammer on the top only connected to the movement by a wire link. While these survivors are about a century later than this illustration they suggest that this was also an arrangement sometimes used in the fifteenth century.

5. M. J. Schretlen. 'Blokbogen De syv planeter' [The seven planets block-book], *Kunstmuseet Årsskrift* 1929–31, 1–15.

6. F. Saxl. 'The literary sources of the Finiguerra planets', *Journal of the Warburg and Courtauld Institutes* II (1938–9), 72–4, n.8.



Fig. 5. Detail of the clockmaker and clock in the Mercury page in the Netherlandish block-book. © National Gallery of Denmark.



Fig. 6. Detail of the clockmaker and clock in the Mercury page in the English manuscript. © Bodleian Library, Oxford.

Laid out on the bench are a number of parts, no doubt provided by the clockmaker as examples of typical components of a clock. Quite prominent is a foliot and verge, complete with its pallets. To its left are a humped strip and an inverted L-shaped gallows from which the foliot would be suspended, but without the expected integral top cock. It is likely that the humped strip is a cock fitted to the top of the movement and separate from the gallows. This may be an early arrangement used before the integral gallows and top cock was devised, or perhaps as an alternative to it. To the right of the foliot is a large four-spoked 20-tooth wheel without its arbor. The pointed teeth are in one plane and drawing the correct perspective of a crown-wheel was beyond the capabilities of the artist. The two pairs of flat strips may be movement bars, but if so they are out of scale and should be almost the full height of the movement. While three movement bars are

usual on later clocks, with both trains offset slightly and one end of each wheel pivoting in the central bar, a few clocks are known with a pair of bars for each train. Near the edge of the bench is a weight with a hook on top.

An English version was copied quite soon afterwards from the Netherlandish block-book, and this illustrated manuscript entitled *Boke of Astronomy and off Philosophye* was a prized possession of Nicholas Sywhat, a wealthy merchant who became mayor of Norwich in 1535. This manuscript is now preserved in the collection of Rawlinson manuscripts in the Bodleian Library, Oxford.⁷ The Bodleian Catalogue calls it an 'astrological treatise of the twelve signs and their prognostications in natiuities' and describes it as: English, of the third quarter of the fifteenth century, parchment, with coloured miniatures and six full-page pictures of the occupations and characteristics prognosticated in natiuities under the several signs and planets.⁸

7. Bodleian Library, Oxford. MS. Rawl. D 1220. The Mercury page is fol. 032^r.

One of the full-page illustrations in the manuscript shows the various occupations of people under the influence of the planet Mercury, including the clockmaker (see Figs 3 and 6).

There are some significant differences between the English copy and the original Haarlem block-book: whereas the Dutch wood-block engraver was illustrating a scene he must have witnessed himself, the copyist was simply replicating the image. Since he did not understand the technicalities of what he was drawing it is almost inevitable that some errors were made. Most obviously the very coarse teeth of the clock wheels have been misinterpreted as the clockmaker's fingers and he has been drawn with his right arm raised with his hand reaching inside the movement. The original does not show the clockmaker's right arm. The three visible thick ropes have been misinterpreted as six thinner cords. The copy has significant technical differences from the original regarding the clock parts on the bench: the two pairs of strips become two sets of three, the foliot and shaped part are missing, while the teeth on the wheel have changed in shape and decreased from twenty to sixteen. The copy is more neatly coloured than the original block-book, where the paint has been applied with little care and overlaps its designated printed boundaries.

It is tempting to see this miniature as the earliest image of an English clockmaker working on a clock, but this would be a mistake, as it is a hand-drawn copy of a printed Netherlandish woodcut. As Eva Oledzka points out, miniatures were frequently copied and modified. They were popularised in many countries by the migration of illustrators or of the books themselves, and they repeatedly replicate to various geographical locations,

thus making early illustrations unreliable as a tool in studying the chronological and regional variation of interiors and their associated material culture. However, in the fifteenth century the scenes shown in miniatures, while still often making use of shared designs, gradually show more realistic contemporary settings.⁹

As the English manuscript in the Bodleian was copied from the Netherlandish block-book now in the National Gallery, Copenhagen, and which was itself perhaps inspired by, though certainly not slavishly copied from, the Florentine planet-book, neither the clockmaker nor his clock can be necessarily taken as being specifically English.

Several clockmakers have been recorded as working in England in the fourteenth and fifteenth centuries, but no English-made domestic clocks from the fifteenth century have survived, and neither have any illustrations of such clocks. Although it is a modified copy of a Dutch original, the Rawlinson miniature showing the clockmaker and a clock is the earliest image of a clockmaker in England, and the clock shown substantially antedates the two earliest wood-block images of domestic clocks known.¹⁰ Significantly, both of these clocks were hanging Gothic wall-clocks apparently of French/Flemish design.

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8. Catalogue of the Rawlinson manuscripts in the Bodleian, 1220.

9. Eva Oledzka, *Medieval and Renaissance Interiors in Illuminated Manuscripts* (London: British Library, 2016), p. 1; and personal communications.

10. William Linnard. 'Early clocks in English woodcuts', *Antiquarian Horology*, June 2017, 255-259.