# Robert Beckit (*fl.* 1597): Humfrey Cole's apprentice and the second stationer-instrument maker

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Readers of the *Bulletin* might be forgiven for thinking that we know about as much as we can reasonably hope to about the earliest instrument makers working in England. After all, the most famous of the pioneering Elizabethans, Humfrey Cole, was subject to biographical research as early as the 1760s, and since then his life and others have been illuminated by an all-star cast of instrument historians.[1] If anything, however, it is the first century of the trade in mathematical instruments (roughly 1550–1650) that bears the most scrutiny of any period.[2] Previously unknown instruments are coming to light; documentary evidence has called into question our understanding of the structure of the early trade; online resources are adding large amounts of biographical data to the record; new information on materials, migration and mathematical networks is being uncovered all the time.[3]

One aspect of the trade that has long been of interest is the relationship between instrument making and printing – or more properly the trade of 'stationer', which included but was not limited to printing.[4] My recent discovery that Humfrey Cole was master to the once and future stationer Robert Beckit clarifies some aspects of this relationship and raises further questions.

Robert Beckit is known from a single instrument held at the History of Science Museum, Oxford: a sector signed and dated to 1597 (Figs 1a, 1b).[5] Beckit's sector is a remarkable instrument. The date and form connects it quite precisely to Thomas Hood's *The Making and Use of the Geometricall Instrument called the Sector* (London, 1598), and also to two other sectors made in 1597 by James Kynvyn and Charles Whitwell.[6] These three are not the oldest of all sectors – that honour belongs to Kynvyn's enigmatic 1595 instrument – but the coincidence of the form, proximity to publication and presence of the same date suggests that there is some kind of priority claim at stake here.[7]

Other than the 1597 sector, and prior to the present publication, Beckit was only known as the engraver of five of the splendid maps in Huygen van Linschoten's *Discours of Voyages into ye Easte & West Indies* (Fig. 2).[8]

Humfrey Cole, meanwhile, is well known as the 'the first native-born maker of the English mathematical instrument trade', and more significantly the first of a generation of instrument makers who were to establish the trade in London.[9] Cole was born in the north of England, probably near Newcastle, and moved to London sometime in the 1550s or early 1560s. He was, by training, a goldsmith, and some connection to Thomas Gemini seems likely.

Fig. 1 (a) *Robert Beckit's sector at the History of Science Museum, Oxford; full view and* (b) *close-up of Beckit's signature. This is one of a group of three instruments associated with Thomas Hood's 1598 book on the sector and is the only known instrument by Beckit. Images copyright History of Science Museum, Oxford, inv. no. 38251.*

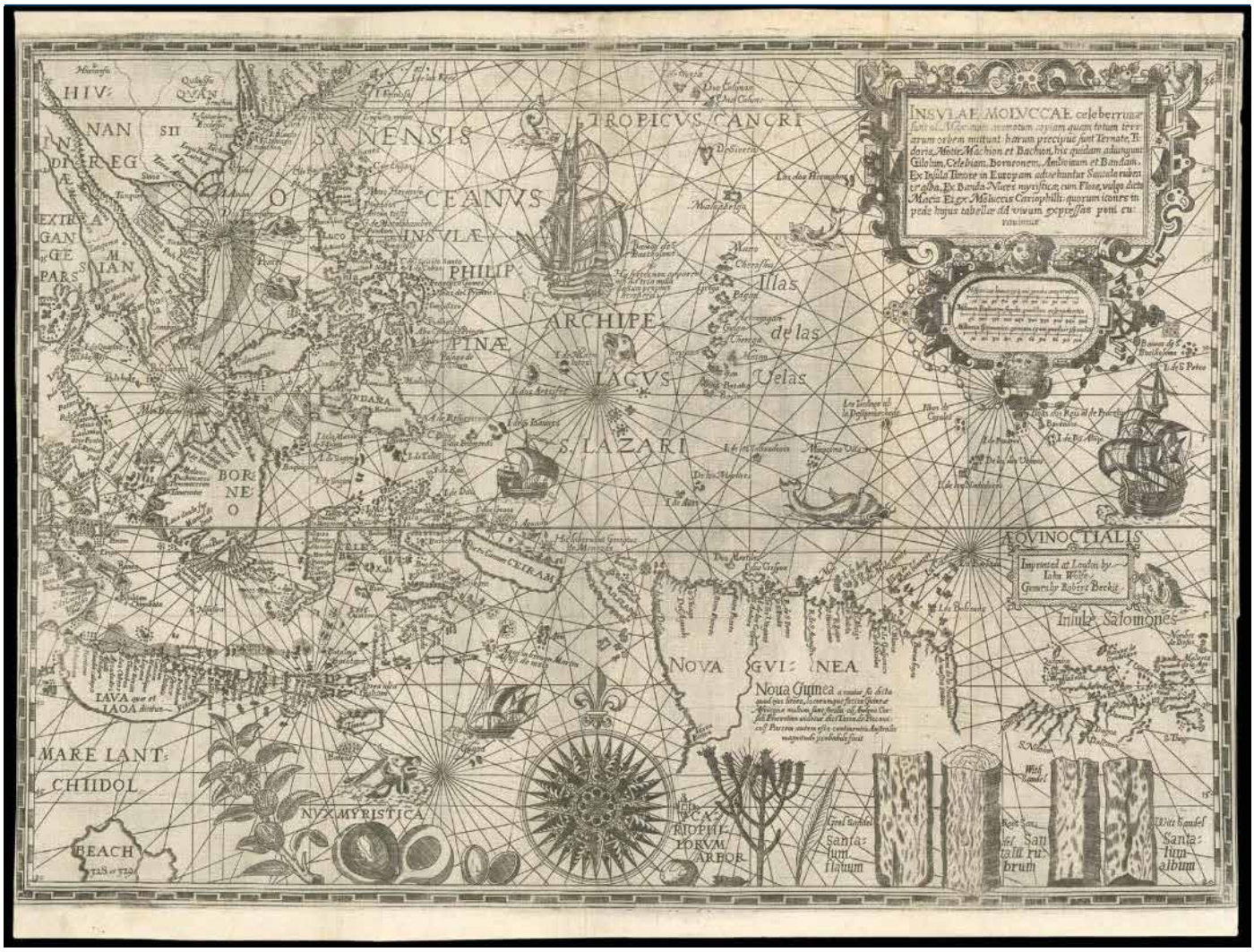


Fig. 2 *'The Spice Islands Map', engraved by Robert Beckit for John Wolfe's edition of Linschoten's* Discours of Voyages into ye Easte & West Indies *(London, 1598); after Petrus Plancius' chart, first engraved by Johannes à Doeticum,* c.*1594. Image courtesy of Daniel Crouch Rare Books at crouchrarebooks.com*

Gemini made and sold mathematical instruments at his shop at Blackfriars, and probably overlapped with Cole in London. Cole was involved in mining projects in the 1560s, was employed as a die sinker at the Royal Mint, and rose to prominence as an instrument maker in the 1570s, just before a number of instrument makers are known to have operated in the capital: Augustin Ryther, James Kynvyn, James Lockerson, John Bull and others. Yet Cole's relation to these men is almost entirely unknown. Only Kynvyn appears, by dint of certain stylistic similarities, to have been associated with Cole.[10] I have argued that all of these makers were in Cole's debt owing to a monopoly patent granted *c*.1575, but even this remains a largely speculative proposition.[11] One apprentice of Cole's at the Goldsmith's Company is known, the delightfully named William Sysyswyth, though the latter is not known to have been an instrument maker.

To be able to say with certainty that Cole was master to Robert Beckit, as I have recently established, is therefore pleasingly concrete. The circumstances of the apprenticeship are as follows. In May 1585 'Roberte Beckett, sonne of William Beckett of Ypswiche in the Counye of Suffolk Carpenter' was made apprentice to the stationer Abel Jeffes, for a term of nine years. To this deed a Memorandum is appended, stating that 'yt is agreed by the wardens and Assistantes that this apprentice [i.e. Beckett/Beckit] shall serve out his whole Terme of ix. yeares with Humfrey Cole of London goldesmith]'.[12] Why the transfer was made must remain unknown – and the practice was not at all uncommon – but some of the circumstances are suggestive. Beckit's father was a carpenter, so it is possible that the young Robert had some manual experience when he joined Jeffes' printing shop. Jeffes, for his part, was the printer of the second edition of Leonard and Thomas Digges' *Pantometria* (London, 1591), which features many of the instruments made by Cole. And, more generally, if Beckit's skill was primarily in engraving then it would make sense to transfer him to one of the few men in England adept in that art.

Of course, Beckit was not able to serve the whole of his nine-year term with Cole, as the latter died in 1591. This explains the fact that in 1596 Beckit was admitted as a freeman of the Stationer's Company, made free of the man he had left to join Cole, Abel Jeffes.[13] (One wonders at the length of this apprenticeship; the normal term of seven years was made nine at the outset, and then, perhaps owing to the double transfer, an extra two took the full term to eleven years.) Intriguingly, another data-point is added as we follow Beckit's progress: in 1600 he took as his own apprentice one Carie Neale, though here the trail runs cold, as nothing further is immediately forthcoming about Beckit's or Neale's activities in the Stationers' Company or beyond.[14]

What to make of this biographical snippet? This is Cole's first known apprentice, albeit one that came rather late in his life – Cole must have been born around the year 1530 and was therefore likely over fifty when Beckit entered his workshop. We must naturally keep an open mind about what the apprenticeship involved for both men: Cole may have been a kind and supportive master, but

he may also have used Beckit to undertake menial or physically challenging tasks: we know that the apprentice's lot was a mixed one in early-modern England.[15]

But the significance of this master-apprenticeship goes beyond Cole and his own career. By the time Beckit came to sign his sector, he was a freeman of the Stationers' Company, and therefore the second known stationer to have made mathematical instruments after Thomas Gemini in the 1550s. As was shown long ago, most instrument makers found a home in either the Grocers' or (later) the Clockmakers' Companies, with a few others in the Joiners' and Broderers' Companies.[16] In some ways the Stationers' Company makes more sense than any of these. Because so many of the early instrument makers engraved maps, and in some cases illustrations of instruments, it can seem as though the instrument trade was an offshoot of printing. In fact it is Beckit's master, Cole, who gives the lie to this notion. Cole was, as Gabriel Harvey called him, a 'mathematicall mecanician'.[17] This is an important distinction. For Harvey, Cole was an exemplar of a kind of ingenuity that was as much mechanical as it was mathematical: and this is very different from the more fixed kind of artistry that we might be tempted to see in such a talented engraver.

So Beckit in many was makes a sharp contrast with his erstwhile master and leaves us with the impression that we might do well to sub-divide the early makers even further than we have done. With Beckit we might group Ryther and Gemini as engraver–instrument makers.[18] For Cole we can use Harvey's felicitous phrase 'mathematicall mecanician'. Charles Whitwell and his pupil Elias Allen perhaps lie between the two. And finally there are the carpenter/instrument makers – John Reade, James Lockerson, *et al*. – only names to us, because the ravages have time have not permitted them so much as a single surviving instrument.[19]

## Notes and References

1. Horace Walpole included Cole in his *Anecdotes of Painting* (vol. 3). The best overview of Cole's work is Silke Ackermann, ed., *Humphrey Cole: Mint, Measurement and Maps in Elizabethan England* (London: The British Museum, 1998).

2. See, for example, Anthony Turner's provocative essay 'John Dee, Louvain, and the origins of English instrument making', in M. Beretta, P. Galluzzi, C. Triarico, eds, *Musa Musaei: Studies in Scientific Instrument in Honour of Mara Miniati* (Florence, 2003).

3. For a summary of some recent lines of work see B. Jardine, ''Neere unto the North dore of Paules': New light on the life and times of Humphrey Cole', *Bulletin of the Scientific Instrument Society,* No. 142 (2019), pp. 20-24.

4. The relationship between printing and the instrument trade has been a particular speciality of D.J. Bryden's; see, for example, 'Evidence from advertising for mathematical instrument making in London, 1556–1714', *Annals of Science*, **49** (1992), pp. 301–336, and 'The instrument maker and the printer: paper instruments made in seventeenth century London', *Bulletin of the Scientific Instrument Society*, No. pp. 55, 3–15.

5. Inv. no. 38251. For simplicity I will call Robert 'Beckit' by the name he engraved on his own instrument; but spellings were extremely variable in this period and in the documents subsequently referred to we find the more common form of 'Beckett'.

6. See Gerard L'E. Turner, *Elizabethan Instrument Makers: The Origins of the London Trade in Precision Instrument Making* (Oxford: Oxford University Press, 2000), catalogue nos 46, 69.

7. The issue of who invented the sector and when remains unclear; 1597 is also the year that Galileo apparently designed his first version. Michel Coignet may have made a form of the sector as early as the 1580s but no concrete evidence of this survives. The evidence is summarised briefly in Turner, note 6, pp. 70–72.

8. See A.M. Hind, *Engraving in England in the Sixteenth and Seventeenth Centuries, Part I: The Tudor Period* (Cambridge University Press, 1952), pp. 221–222.

9. An often repeated phrase, quoted here from the website *EPACT: Scientific instruments of medieval and renaissance Europe*: 'Makers: Humfrey Cole', available at https://www.mhs.ox.ac.uk/epact/maker.php?MakerID=66/

10. S. Ackermann and L. Devoy, 'Humfrey Cole revisited: Recent additions to the global collection of instruments associated with Cole', forthcoming.

11. B. Jardine, 'Instruments of statecraft: Humphrey Cole, Elizabethan economic policy and the rise of practical mathematics', *Annals of Science*, **75** (2018), pp. 304–329.

12. Edward Arber, ed., *A Transcript of the Registers of the Company of Stationers of London; 1554–1640 A.D., Volume II: Text* (London: Privately Printed, 1875), p. 50.

13. Ibid., p. 340v. At this point it is worth pointing out that there can be little doubt that the Stationers' Beckett and the engraver–instrument maker Beckit are one and the same. The name was of course common enough, but the chain of inference is as follows: the map engraver and instrument maker are certainly one and the same; even without the link to Cole we would *suspect* that the Beckett of the Stationers' Company was the map engraver, and therefore the instrument maker; with the evidence that this man was apprenticed to Humfrey Cole (and that he did not finish his apprenticeship, which fits with the timing of Cole's death) we can dismiss all remaining doubts.

14. Ibid., p. 160v.

15. For the full range of examples see Patrick Wallis, 'Between apprenticeship and skill: Acquiring knowledge outside the academy in early modern England', *Science in Context*, **32** (2019), pp. 155–170.

16. See Joyce Brown, 'Guild organisation and the instrument-making trade, 1550–1830: The Grocers' and Clockmakers' Companies', *Annals of Science*, **36** (1979), pp. 1–34; Joyce Brown, *Mathematical Instrument Makers in the Grocers' Company* (London: The Science Museum, 1979); Michael A. Crawforth, 'Instrument makers in the London Guilds', *Annals of Science*, **44** (1987), 319–377.

17. Quoted in N. Popper, 'The English polydaedali: How Gabriel Harvey read late Tudor London', *Journal of the History of Ideas*, **66** (2005), pp. 351–381, p. 357.

18. For more on the engraving work of the instrument makers see Turner, note 6, pp. 33–43.

19. We know of this group from the early advertisements described in detail in Bryden, note 4 ('Evidence from advertising').

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*WDH*