

## 8 Buying Antique Scientific Instruments at the Turn of the Twentieth Century: A Data-Driven Analysis of Lewis Evans's and Robert Stewart Whipple's Collecting Habits

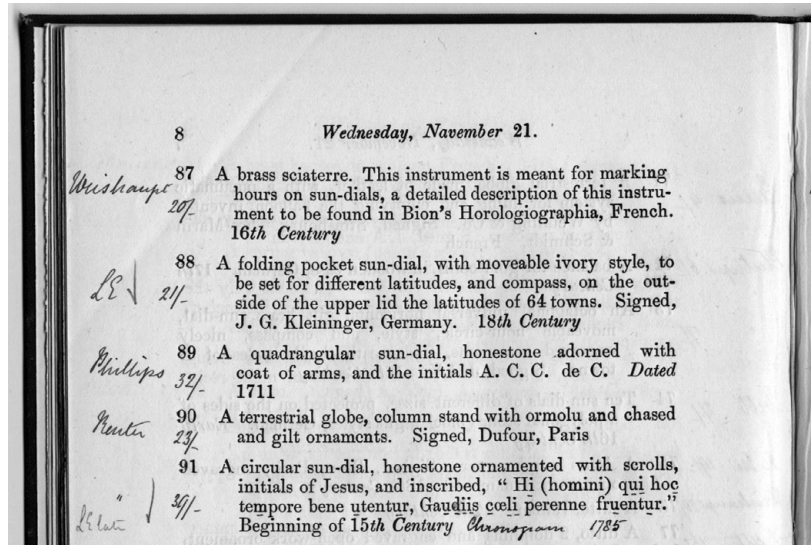
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Fakes exist only because there is a market for the genuine. Knowledge of fake antique scientific instruments – including their manufacture and identification – would be furthered by consideration of the trade in which these forgeries were bought and sold. In Chapter 9, Boris Jardine explores how the presence of fake scientific instruments at the Whipple Museum was first unmasked by Derek Price in the 1950s. By using a data-driven analysis of the buying and selling of antique scientific instruments in the early years of the trade, I have been able to build up a general picture of the preferences exhibited by different buyers and the features that added value to antique scientific instruments. In this chapter I analyse these factors and how they may have influenced the types of forgery that emerged. This approach has not only made possible these general insights into the trade, but also enabled me to bring to light more specific information regarding fake scientific instruments: they were being sold at public auction as early as the 1890s, and at least one collector actively took measures to spot them and avoid buying them.

Puttick & Simpson's Auction Gallery, at 47 Leicester Square, London, held an impressive 11,000 sales in its 125-year business life from 1846 to 1971.<sup>1</sup> Amongst a diverse array of specialisms, Puttick & Simpson's was notable for having been an early venue for sales of antique scientific instruments. At least seven of these sales from 1894 to 1896 were attended by the instrument collector Lewis Evans (1853–1930), the brother of the eminent archaeologist Sir Arthur Evans (1851–1941). Lewis Evans, a wealthy businessman, specialised

1 J. Coover, 'Puttick's Auctions: Windows on the Retail Music Trade', *Journal of the Royal Musical Association*, 114 (1989), pp. 56–68.

**Figure 8.1** An example page from one of the six Puttick & Simpson's sales catalogues that Lewis Evans annotated with sale prices, notes, and names of purchasers between 1894 and 1896. Image © Lewis Evans Collection, History of Science Museum, University of Oxford.



in collecting sundials and astrolabes,<sup>2</sup> and we are fortunate that he annotated six of the seven Puttick & Simpson's sales catalogues of his that survive in the Museum of the History of Science, Oxford.<sup>3</sup> His notes record the sale price of each lot, and often the name of each buyer as well (Figure 8.1). Using the printed information in these catalogues, and Evans's annotations, it has been possible to build up a dataset which made detailed analysis of those sales possible.<sup>4</sup>

Evans's collection (Figure 8.2) would become the founding collection (along with other scientific instruments collected by Robert T. Gunther from Oxford colleges) of the Museum of the History of Science in Oxford in 1924.<sup>5</sup> Similarly, in 1944, the private collection of Robert Stewart Whipple, amassed between 1913 and the time of its donation, was the starting point of the Whipple Museum of the History of Science, Cambridge.<sup>6</sup> As this volume attests, a

2 P. De Clercq, 'Lewis Evans and the White City Exhibitions', *Sphaera*, 11 (2000), [www.mhs.ox.ac.uk/about/sphaera/sphaera-issue-no-11/lewis-evans-and-the-white-city-exhibitions/](http://www.mhs.ox.ac.uk/about/sphaera/sphaera-issue-no-11/lewis-evans-and-the-white-city-exhibitions/) (accessed 18 November 2017).

3 Puttick & Simpson's sales catalogues annotated by Lewis Evans: 3 April 1894; 18 June 1894; 21 November 1894; 8 March 1895; 20 May 1895; 28 February 1896; 20 March 1896. Lewis Evans Collection, Museum of the History of Science, Oxford. We thank Tony Simcock for bringing these sources to our attention.

4 A copy of the full dataset and a more extensive breakdown of my analysis of it has been lodged with the Whipple Museum.

5 A. V. Simcock, *Robert T. Gunther and the Old Ashmolean* (Oxford: Museum of the History of Science, Oxford, 1985), p. xi.

6 A. J. Turner, 'From Mathematical Practice to the History of Science', *Journal of the History of Collections*, 7 (1995), pp. 135–50.

**Figure 8.2** The back of this photograph carries the following note by Evans: 'Photograph of my collection of instruments, taken in my house, "Belswains", Hemel Hempstead in 1890. / Lewis Evans / This part of the collection then was contained in a case over the fireplace in the library / My first purchase was a French dial, when I was about 17.' Image © History of Science Museum, University of Oxford (MS Evans 39).



Department of History and Philosophy of Science would grow up around the Whipple Museum. The preservation of the material culture of science preceded and shaped the study of the history of science, the origins of which have typically been analysed from the perspective of texts, academic journals, and disciplines.<sup>7</sup> Knowledge of how these collections were compiled, from the perspective of auction rooms and individual collectors, has the potential to tell us much about the beginnings of the history of science as a discipline, complementing the text- and teaching-based accounts we already have.<sup>8</sup> These collections were very much the product of a market that was still in its infancy when Lewis Evans was collecting, and which

7 J. A. Bennett, 'The Cambridge Legacy of Robert T. Gunther', in W. D. Hackmann and A. J. Turner (eds.), *Learning, Language and Invention: Essays Presented to Francis Maddison* (Aldershot and Paris: Variorum and the Société Internationale de l'Astrolabe, 1994), pp. 78–83; and J. A. Bennett, 'Museums and the Establishment of the History of Science at Oxford and Cambridge', *British Journal for the History of Science*, 30 (1997), pp. 29–46.

8 A.-K. Mayer, 'Setting Up a Discipline: Conflicting Agendas of the Cambridge History of Science Committee, 1936–1950', *Studies in History and Philosophy of Science*, 31 (2000), pp. 665–89; and A.-K. Mayer, 'Setting Up a Discipline, II: British History of Science and "the End of Ideology", 1931–1948', *Studies in History and Philosophy of Science*, 35 (2004), pp. 41–72. Bennett, 'Museums and the Establishment of the History of Science at Oxford and Cambridge' is the obvious exception to this trend.

was approaching maturity when Whipple was an active buyer. This chapter uses Evans's annotated Puttick & Simpson's catalogues, and a comparable analysis of the surviving records of Whipple's purchasing habits, to build up a picture of the market in antique scientific instruments between the 1890s and the 1940s. The datasets built up from the catalogues, and the Whipple Museum's own accessions database, have been central to the methodology of this project and are important sources that were previously unavailable in this form. The principal findings from this analysis will be briefly presented here; the complete datasets and a more thorough breakdown of the data have been deposited with the Whipple Museum.

This project also contributes to knowledge concerning detection of fakes in the antique scientific instrument trade. What was thought to have begun with Derek Price's work at the Whipple Museum in the 1950s can be pushed back at least sixty years and pinned to Lewis Evans's annotations in the Puttick & Simpson's catalogues. Further, these annotations contribute to the study of forgery itself, which can be understood only in the light of knowledge about the specifics of supply and demand: perceptions of value effectively produce forgeries, and the evidence presented here gives a preliminary account of taste in instrument collecting in its formative years.

## Collectors, Dealers, and Museums

Although scientific instruments have been collected in a variety of settings ever since the Renaissance, historians have shown that such instruments began to take on significant value as objects of historic importance in the nineteenth century.<sup>9</sup> By the middle of the nineteenth century public museums such as the South Kensington Museum had been founded, and major institutions such as the British Museum had expanded their collections to include antique scientific instruments.<sup>10</sup> In 1876, the South Kensington Special Loan

9 Turner, 'From Mathematical Practice to the History of Science'; G. Strano, S. Johnston, M. Miniati, and A. Morrison-Low (eds.), *European Collections of Scientific Instruments, 1550–1750* (Leiden and Boston: Brill, 2009); A. Filippoupoliti, "What a Scene It Was, That Labyrinth of Strange Relics of Science": Attitudes towards Collecting and Circulating Scientific Instruments in Nineteenth-Century England', *Cultural History*, 2 (2013), pp. 16–37.

10 R. G. W. Anderson, 'Connoisseurship, Pedagogy or Antiquarianism?', *Journal of the History of Collections*, 7 (1995), pp. 211–35; A. Macgregor, 'Collectors, Connoisseurs and Curators in the Victorian Age', in M. Caygill and J. Cherry (eds.), *A. W. Franks: Nineteenth-Century Collecting and the British Museum* (London: British Museum Press, 1997), pp. 6–33.

Collection of Scientific Apparatus heralded a new approach to the valorisation of old scientific instruments in Britain. The Loan Collection included instruments of historical interest due to associations with past users, or the important research for which they had been used, as well as more typical teaching and investigatory apparatus.<sup>11</sup> Scientific instruments were not viewed simply as antiques, but were presented as belonging to their own class of objects that have, for example, mathematical functions built into them, and as embodying the progress of precision measurement.<sup>12</sup> Alongside these trends, emergent interest in past heroes of science made instruments with connections to famous scientists of particular interest.<sup>13</sup>

Collecting as a hobby, meanwhile, grew in fashion through the nineteenth century, with specialised collections becoming especially popular towards the end of the century. A small number of collectors, such as Evans and Sir John Findlay, specialised in antique scientific instruments.<sup>14</sup> By the second half of the nineteenth century, the formation of public museums had increased the desire that educated people had for collectables, and such collectables became increasingly available as members of the gentry fell on hard times and sold their possessions to the rising middle classes.<sup>15</sup> The 1876 Special Loan Collection exhibition was well attended and exceptionally well publicised, and contributed to the culture of collecting scientific instruments for their own sake, rather than for the sake of their aesthetics or culture of origin, as with other antiques.<sup>16</sup> Where there is a market, there will be businesses

11 Anderson, 'Connoisseurship, Pedagogy or Antiquarianism?', p. 219.

12 S. Schaffer, 'Metrology, Metrication, and Victorian Values', in B. Lightman (ed.), *Victorian Science in Context* (Chicago: University of Chicago Press, 1997) p. 438.

13 R. Bud, 'Responding to Stories: The 1876 Loan Collection of Scientific Apparatus and the Science Museum', *Science Museum Group Journal*, no. 1 (Spring 2014), <http://dx.doi.org/10.15180/140104>.

14 A. D. Morrison-Low, 'Sold at Sotheby's: Sir John Findlay's Cabinet and the Scottish Antiquarian Tradition', *Journal of the History of Collections*, 7 (1995), pp. 197–209.

15 M. W. Westgarth, *A Biographical Dictionary of Nineteenth Century Antique and Curiosity Dealers* (Glasgow: Regional Furniture Society, 2009), p. 10.

16 P. De Clercq, 'The Special Loan Collection of Scientific Apparatus, South Kensington, 1876. Part 1: The "Historical Treasures" in the *Illustrated London News*', *Bulletin of the Scientific Instrument Society*, 72 (2002), pp. 11–19; P. De Clercq, 'The Special Loan Collection of Scientific Apparatus, South Kensington, 1876. Part 2: The Historical Instruments', *Bulletin of the Scientific Instrument Society*, 73 (2002), pp. 8–16; P. De Clercq, 'The Special Loan Collection of Scientific Apparatus, South Kensington, 1876. Part 3: Contemporary Publications', *Bulletin of the Scientific Instrument Society*, 74 (2002), pp. 16–21; and P. De Clercq, 'The Special Loan Collection of Scientific Apparatus, South



capitalising on that market. Puttick & Simpson's Auction Galleries was one business that moved to exploit this relatively new fashion for collecting antique scientific instruments, beginning to hold specialised sales at least as early as 1894.

## Puttick & Simpson's and Its Buyers

Puttick & Simpson's was a large and dominant auctioneer, and up until the turn of the twentieth century was as significant in terms of size and value as Sotheby's or Christie's.<sup>17</sup> The sales that Evans attended between 1894 and 1896 advertised 'antique astronomical and scientific instruments' and 'antique sundials from the 16th, 17th and 18th Centuries'.<sup>18</sup> Evans noted down the names of buyers for a majority of the objects sold. There are at least forty-one different buyers that Evans recorded across the seven annotated sales catalogues that survive. The proportion of objects with the buyer recorded next to them increased from one sale to the next (presumably in part due to Evans's increasing familiarity with fellow buyers).<sup>19</sup> Ten of these buyers either spent or bought significantly more than the others and so stand out as either 'serious' collectors or dealers. It is certain that 'LE' was Lewis Evans himself and that 'BM' was the British Museum.<sup>20</sup> Two further significant names recorded in the catalogues were 'Weishaupt' and 'Harding'. George Harding is recorded in the British Museum's online database as having supplied a number of instruments to them in this period. He appears to have been one of the more significant buyers that Evans recorded, and was buying things in his own right apart from those objects he was acquiring specifically for the British Museum. Weishaupt and Co. was also a dealership that sold to the British Museum, supplying at least three instruments (a quadrant and two sundials, none of which

Kensington, 1876. Part 4: Photographs and Copies', *Bulletin of the Scientific Instrument Society*, 76 (2003), pp. 10–15.

17 Coover, 'Puttick's Auctions', 58.

18 Puttick & Simpson's, 1894–6.

19 The catalogue for 8 March 1895 has only very light annotations, and so was not included in the compiled database.

20 The link between 'BM' and the British Museum is less obvious than it might seem. It was not known before this project that the British Museum had been actively acquiring antique scientific instruments in this period. However, a search for one of the distinctive objects purchased by 'BM' – a sundial signed and dated 'Joannes Antonius Ostravsky, 1719' – matched a record in the British Museum's online database. The British Museum's provenance field indicates that this sundial was acquired in 1894 from dealer George Harding. (On Harding, see below.)

appears to have been bought at Puttick & Simpson's) in 1895–7. Aside from 'LE', 'BM', 'Harding', and 'Weishaupt' it has been very difficult to trace the other significant buyers (with the exception of Percy Webster, see below), which could mean that they were simply building their own private collections, or that they were dealers who sold to private clients rather than to museums.

With even this limited set of actors, it is possible to build up a basic picture of their buying preferences. In terms of a desire to acquire instruments carrying an inscription denoting the city or date of manufacture, or the maker, the British Museum, Evans, 'Phillips', and Weishaupt all seemed to express no preference, with about half of their purchases carrying inscriptions (a ratio that reflects the proportion of inscribed instruments sold across all of the Puttick & Simpson's sales). Even though Evans had a reputation for strongly preferring signed and dated instruments, he clearly did not express his preference in his purchases as much as he could have done.<sup>21</sup> In contrast, the purchases of instruments attributed to 'Reuter', 'Thomson', 'Tregaskis', and 'Waters' encompassed only a minority of inscribed instruments. 'Webster' was the only significant buyer who expressed a strong preference that his items be signed, dated, or located to a city. Only four out of seventeen of his purchases had no inscriptions, and for one of those the maker and city were still known. This 'Webster' is almost certainly the clock- and instrument-dealer Percy Webster, a somewhat notorious character with a reputation for 'conjuring unique rabbits out of his hat' or, put more bluntly, dealing at times in "imaginative" restorations and fakes'.<sup>22</sup> It is notable that both Evans and Whipple purchased objects from Webster that have subsequently been identified as carrying fake inscriptions (Figure 8.3).<sup>23</sup> Had Webster himself been the perpetrator of these fakes, we might expect him to have been in the market

21 De Clercq, 'Lewis Evans and the White City Exhibitions'.

22 A. V. Simcock, 'Percy Webster's Stock', *Bulletin of the Scientific Instrument Society*, 40 (1994), p. 28; and J. Betts, *Time Restored: The Harrison Timekeepers and R. T. Gould, the Man Who Knew (Almost) Everything* (Oxford: Oxford University Press, 2006), p. 169.

23 Whipple's purchase (Wh.0226, Figure 8.3) was identified as carrying a fake inscription in David Bryden, *The Whipple Museum of the History of Science Catalogue 6: Sundials and Related Instruments* (Cambridge: Whipple Museum of the History of Science, 1988), no. 377. Webster sold Lewis Evans an instrument carrying a fake Culpeper signature, now in the Oxford Museum of the History of Science (inv. No. 60019). See also B. Jardine, J. Nall, and J. Hyslop, 'More Than Mensing? Revisiting the Question of Fake Scientific Instruments', *Bulletin of the Scientific Instrument Society*, 132 (2017), pp. 22–9.

**Figure 8.3** Robert Stewart Whipple paid Percy Webster £3 in 1925 for this inclining dial carrying the signature of George Adams Snr (shown enlarged at the bottom). Whipple Museum curator David Bryden later identified this as a fake inscription added to a cheap nineteenth-century instrument. Image © Whipple Museum (Wh.0226).



for cheaper instruments *without* inscriptions, to which he could add a famous maker's name later – but Evans's annotations, at least, do not bear this out.

The Puttick and Simpson's catalogue descriptions also reveal something about the various factors for which these objects might have been valued. Sometimes the maker would be labelled 'the celebrated', or an object might be dubbed 'very rare', 'very early', or 'exceedingly beautiful'.<sup>24</sup> One obvious feature of these descriptions that sets the instruments apart from non-scientific collectables is that in some cases there are extended instructions on how to use the instrument. Some auction lots have more extended instructions underneath the descriptions of the objects, indicating that it was expected that there would be some interest in using them, or at least understanding their function. Clearly, the working order of an instrument was considered a selling-point. For example, the description of lot 24 offered on Monday 18 June 1894 – an armillary dial on a stand signed by Nairne, London – included the following:

The horizontal ring, representing the equator, serves as the hour circle, when the vertical ring is set in the meridian of the place of observation. The pin-hole sight through which the sun's rays pass to the hour circle can be adjusted for change of declination by means of the graduated plate on which it slides. The suspending

24 Puttick & Simpson's, 28 February 1896, pp. 3, 7, and 9.



ring with its spring dip can be set for different latitudes with the aid of graduations on the meridian ring; on the dial are marked the latitudes of important places.<sup>25</sup>

The inclusion of such instructions strongly suggests that some technical knowledge of the instruments was presupposed by Puttick and Simpson's, and was considered both interesting and valuable to customers. This might indicate the extent to which collecting instruments had become specialised, and the concomitant desire amongst collectors to acquire items that had retained their functionality – not necessarily so that they could still be used (though sundial enthusiasts like Evans may well have done), but because utility itself was now considered important.

## A Question of Value

The price an object realises at auction will not always be a fair reflection of its value. Nonetheless, considered *en masse* as a dataset, the sale prices that Evans recorded in his auction catalogues can be analysed to reveal several general trends and insights, even if they can only be taken as tentative. Evans's annotations vary in detail from catalogue to catalogue, but for six out of the seven catalogues the sale price is written down next to most lots and, more often than not, the name of the buyer too. With this information, it was possible to compile a dataset showing as many key details as were known for each lot.<sup>26</sup> The details included were the sale date, lot number, type of object, any inscriptions or signatures present, city, country, and date of manufacture (to the year, if known), maker, price, the approximate equivalent price in 2017, and any other annotations that Evans added. With this small database compiled, it was possible to extract emerging trends and make cautious projections onto the rest of the trade in antique scientific instruments regarding what features added value to an object.

First, and perhaps surprisingly, the data indicate that whether or not an instrument was dated to a certain year did not seem to correlate with increasing prices. However, and as we might expect, there *is* a reasonably strong positive correlation between knowledge of an instrument's maker and its price. This positive correlation is also seen – though less strongly – between knowledge of an

25 Puttick & Simpson's, 18 June 1894, p. 3.

26 A copy of this full dataset is held by the Whipple Museum and can be supplied to any researcher interested in viewing it.

instrument's place of manufacture and its price. The specific place of manufacture also correlated with price to a limited extent, as instruments from continental Europe tended to sell for more than English instruments, although, as this was an auction taking place in London, most of the more common instruments were English, which lowered the average price of English instruments sold. Even so, the most expensive 10 per cent of objects that sold were heavily dominated by German and French instruments and, perhaps surprisingly, instruments which had an unknown country of origin too, despite the positive correlation between known place of manufacture and price. However, this kind of information clearly adds a kind of authenticity to the instrument. It anchors it to a place and person, helping substantiate the genuineness of an object – or providing a means of (potentially) spotting a fake.

One striking feature of Evans's annotations is that they demonstrate very clearly that whether or not an instrument was what it appeared to be was of importance at the time. Indeed, one firm conclusion we can draw from what Evans recorded is that fakes had already started to enter the market. Evans has developed a reputation for being able to spot a fake, due to the supposed authenticity of his collection.<sup>27</sup> His annotated sales catalogues do bear out this reputation. They show that Evans looked for and detected fakes in the 1890s. The detection of fake scientific instruments has until now been presumed to have begun in the 1950s when Derek J. Price started working at the Whipple Museum (as discussed in detail in Chapter 9 by Boris Jardine).<sup>28</sup> Evans's annotations show that the date for the first detection of fakes in this niche market can be pushed back at least sixty years. Table 8.1 summarises the items that Evans deemed suspicious and includes his annotations. As we see, there are eight objects that Evans judged suspect, the most common reason being the practice already linked to some of Percy Webster's stock: the addition of a fake signature to what had presumably previously been an unsigned instrument.

Distinct from this form of forgery, and of particular note, is the sundial that Evans annotated with '*Chronogram 1785*' (see lot 91 in Figure 8.1). This brief note suggests both that the instrument itself is

27 Museum of the History of Science, Oxford, [www.mhs.ox.ac.uk/collections/library/lewis/lewis-evans-founder-of-the-museum-of-the-history-of-science/](http://www.mhs.ox.ac.uk/collections/library/lewis/lewis-evans-founder-of-the-museum-of-the-history-of-science/) (accessed 9 November 2017).

28 See also Jardine, Nall, and Hyslop, 'More Than Mensing?'; and G. A. C. Veene-man, *Scientific Instruments, Originals and Imitations: The Mensing Collection* (Leiden: Museum Boerhaave, 2000), p. 7.

TABLE 8.1 Lewis Evans's annotations of suspicious objects sold at Puttick &amp; Simpson's

Sale date	Lot	Puttick & Simpson's sale description	Price	Buyer	Annotation
03/04/1894	22	AN ASTROLABE, gilt copper, engraved, 1 moveable plate, unusual size, diameter 15½ inches, French. 16th Century.	£8	–	<i>An electrotype</i>
03/04/1894	24	[An astrolabe], 5 moveable plates (copper), diameter 7 inches, Armenian. 16th Century.	£3/10	–	<i>Plates electro</i>
21/11/1894	91	A circular sun-dial, honestone ornamented with scrolls, initials of Jesus, and inscribed 'Hi [homini] qui hoc tempore bene utentur Gaudiis coeli perenne fruuntur.' Beginning of 15th Century.	£39	Reuter	(Latin underlined) <i>Chronogram 1785</i>
08/03/1895	39	A [universal armillary dial] of unusual shape, supplied with alidades, moveable style, lunar calendar and set in a square plate in which it slides, the plate serving as spring dip. Inscribed 'Martin Frey, Regenspüre, 1590'. A very rare instrument.	–	–	<i>LE later / from Harding / name false</i>
20/05/1895	200	A portable gilt brass horizontal sun-dial, reversible style and compass. Signed Adam Perner, Norimbergae, 1596.	£1	Weishaupt	('Adam Perner' underlined) <i>False</i>
20/05/1895	226	A brass circular horizontal sun-dial with reversible style and compass, in brass box. Signed Matthias Loebel, Weissenburg.	£12	LE	<i>False name. Euphic dial</i>
20/05/1895	238	A folding ivory dial of peculiar construction, composed of 3 instead of 2 plaques. The instrument contains lunar calendar of gilt and engraved copper, scale for ascertaining dial of gilt brass, 1 horizontal with 3-hour-circles for 42, 48 and 54, etc., etc. Germany. 16th Century.	£4/14	Weishaupt	<i>Made up</i>
28/02/1896	73	A quadrangular horizontal brass sun-dial, gilt and engraved, moveable style. Signed Adam Perner, Noribergae 1596 Faciebat.	£20	Webster	<i>Name false</i>

almost certainly not from the fifteenth century, and that Evans had a very discerning eye when it came to sniffing out suspect instruments. A chronogram is a sentence in which a date is encoded and can be deciphered. In this case we can reverse-engineer Evans's discovery, arriving at the sum total of 1,785 if we take every letter from the Latin inscription that is also a Roman numeral and add them together. Evans underlined these letters in the Latin inscription (seen in capitals here): hI [homini] qUI hoC teMpoRe bene UtentUr, gaUDIIs

CoelI perenne frUentUr. There are five 'I's, six 'U's (which are interchangeable with 'V's), two 'C's, one 'M', one 'D' and one 'L'. If taken to be Roman numerals and converted into their numeric values, they sum as  $5 \times 1 + 6 \times 5 + 2 \times 100 + 1 \times 1,000 + 1 \times 500 + 1 \times 50 = 1,785$ . This is not only a bravura piece of detective work on Evans's part, but also a fascinating insight into the history of scientific instruments. It appears that this was a sundial manufactured in 1785, but made to look as if it were much older. Whether or not the maker intended it to deceive is an open-ended question. However, given that the 'true' date is hidden in the inscription and that it takes a keen eye to spot a chronogram, it appears as if the maker set up a hoax to dupe those who did not have sharp eyes. This would, then, be one of a few very early faked scientific instruments, manufactured long before scientific instruments had much of a place in collections or were traded for large sums of money.<sup>29</sup>

As for the other instruments that Evans deemed suspicious, we can compare their sale prices with the average prices of other instruments of the same type, to gauge whether the dubious features were noticeable to the wider salesroom. Puttick & Simpson's sold at least fifteen astrolabes across these sales for prices between £2 and £42, with the mean average being about £12. The two astrolabes noted in Table 8.1 were both sold at below average price, one significantly so. As for the pedometer, we know the prices of just two others, one from the seventeenth century selling for £23 and another signed 'C. H. Opp, Berlin' which went for £14, so the suspect example sold for a lot less than it might have done.<sup>30</sup> Sundials sold within a very wide range of prices, from £1 up to £63, with the average price around £18. The chronogram sundial supposedly from the fifteenth century and the sundial (purportedly) made by Perner clearly sold for very healthy prices, while the other sundials listed in Table 8.1 sold for less than average. For several of these objects, Evans recorded the name of the maker as false. As noted above, there was a correlation between an instrument carrying a signature and a higher sale price. If signatures were being falsified and inscribed on genuine antique scientific instruments to increase their value, then this speaks to the co-production of a marketplace for collectable

29 D. J. Price, 'Fake Antique Scientific Instruments', in *Actes du VIII<sup>e</sup> Congrès International d'Histoire des Sciences, Florence-Milan 3-9 Septembre 1956* (Vinci: Gruppo Italiano di Storia delle Scienze, 1958), pp. 380-94.

30 Puttick & Simpson's, 3 April 1894, p. 4; 18 June 1894, p. 7.

instruments and the production of forgeries to exploit that market, from the very beginning of this trade.

Finally, we should note what the data say about the significance of sundials at this time. In total, the number of sundials bought vastly outnumbered sales of any other kind of instrument. It is well known that sundials were very popular objects in Victorian Britain.<sup>31</sup> Indeed, in 1872 Margaret Gatty opened her popular *The Book of Sun-dials* with the declaration that ‘there is no human invention more ancient, or more interesting than that of the sun-dial’.<sup>32</sup> By 1900 this book was in its fourth edition, with Evans himself contributing an essay on portable dials. The popularity of sundials at this time is an important and largely unaddressed aspect of this formative phase in instrument collecting. It is not surprising that in terms of sales they vastly outnumbered astrolabes, but it is perhaps striking that they also on average sold for higher prices. As for the history of science, astrolabes have long played an important role in the history of astronomy, yet, as Jim Bennett has argued, dialling was a serious and technical discipline in the seventeenth and eighteenth centuries that has perhaps yet to be fully appreciated.<sup>33</sup>

## Robert Stewart Whipple’s Collection

A brief comparison with Robert Whipple’s collecting habits confirms that the insights gained regarding Lewis Evans can be carried forward to the period of the instrument trade’s maturity. There were, however, differences between Lewis Evans and Whipple. For one, Whipple was more closely linked to the formation of the discipline of the history of science than was Evans.<sup>34</sup> Whipple also had a much more eclectic approach to collecting scientific instruments than Evans. He collected sundials and astrolabes, just like many of his collecting predecessors, as well as lots of cheaper, more common

31 H. Higton, *Sundials at Greenwich: A Catalogue of the Sundials, Nocturnals and Horary Quadrants in the National Maritime Museum, Greenwich* (Oxford: Oxford University Press, 2002).

32 M. Gatty (Mrs Alfred Gatty), *The Book of Sun-dials* (London: G. Bell, 1900), p. 1.

33 J. Bennett, ‘Annual Invitation Lecture: Sundials and the Rise and Decline of Cosmography in the Long Sixteenth Century’, *Bulletin of the Scientific Instrument Society*, 101 (2009), pp. 4–9.

34 S. De Renzi, ‘Between the Market and the Academy: Robert S Whipple (1871–1953) as a Collector of Science Books’, in R. Myers and M. Harris (eds.), *Medicine, Mortality and the Book Trade* (Folkestone: St Paul’s Bibliographies, 1998); and Bennett, ‘Museums and the Establishment of the History of Science at Oxford and Cambridge’.



items; but he also pioneered the collection of antique optical instruments such as opera glasses, spectacles, microscopes, and telescopes.

Using a similar approach to the Whipple Museum's accession database to that which was taken with the Puttick & Simpson's sales catalogues, it was possible to build up a comparable dataset.<sup>35</sup> Once we extract the optical instruments, we can see that as a collector he displayed the same traits we began to see emerging at sales at Puttick & Simpson's. Notably, there is an even stronger positive correlation between both instruments made by known makers and instruments from known locations, and price.

As historians have already noted, Whipple's collection also reveals the unfortunate continuation – and perhaps growth – of the deliberate manufacture and sale of forgeries to collectors. A number of dealers sold multiple fakes to Whipple, including Gertrude Hamilton in Paris – trading as 'Mercator' – and Antique Art Galleries, London.<sup>36</sup> Whether these dealers were complicit in the selling on of fakes we will probably never know for sure, but we do know that fakes were already circulating in the 1890s and that they appear to have been even more abundant when Whipple was collecting. A tentative contrast that does emerge from a direct comparison between Evans's annotations and the much-studied forgeries in Whipple's collection is that, whilst the majority of suspect objects spotted by the former were genuine antiques embellished with a fake maker's name, most of the forgeries Whipple purchased were fabricated from scratch by a skilled forger and then sold as genuine antiques. However, it will require considerable analysis across larger datasets drawn from many more collections before we can draw firm conclusions about the general trends highlighted here.

35 As with the datasets described above, a copy of the full Whipple dataset has been deposited with the Whipple Museum and can be provided to researchers upon request.

36 For more on Hamilton, see W. F. J. M. Bryuns and A. Turner, 'Gertrude Hamilton, An American Instrument-Dealer in Paris', *Bulletin of the Scientific Instrument Society*, 73 (2002), pp. 23–6. See also Jardine, Nall, and Hyslop, 'More Than Mensing?' on Antique Art Galleries and their sales to Whipple.