John Seller: Instrument Maker and Plagiarist

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Plagiarism, i.e. taking the work, design or idea of someone else and passing it off as one's own, is a human failing that is as prevalent today as it was in the 17th century. That the title of this article should be '*John Seller – Instrument Maker and Plagiarist*' suggests that Seller was notorious as a plagiarist, whereas, in comparison with others of his time, he was not. Well known clockmakers, instrument-makers and those who employed apprentices and others to produce their works of scientific art, would commonly have their signature on the finished article: this was not regarded as plagiarism. However, Seller indulged in various practices which far exceeded the term 'plagiarism', as we will show beyond all reasonable doubt later in this paper.

Fig. 1 *Title page of John Seller's* Praxis Nautica: Practical Navigation…*published in 1669.*

John Seller (1632-1697) was a leading mathematical practitioner of his day, an instrument maker, describing himself as a 'compass-maker' and map-seller, who maintained a flourishing and unrivalled nautical business near the Hermitage Stairs in Wapping, London, for some forty years.[1] The son of Henry Seller, a cordwainer of Wapping, he was apprenticed in the Merchant Taylors' Company, becoming a Freeman of the Company in 1654. In 1667, he was also accepted into the Clockmakers' Company, becoming a Free Brother of the Company in 1671, which company more closely fulfilled his needs as an instrument maker. Indeed, he served as a warden of the company from 1692 to 1696, when he was excused the Mastership due to his infirmity. He died a year later in 1697 from oedema, known more commonly as 'dropsy,' and was buried at St John's, Wapping, in May of that year.[2]

John Seller lived in the turbulent times of the English Civil War, three of the Anglo-Dutch Wars, the Great Plague and the Great Fire of London. He lived and worked mainly in Wapping, at the sign of "The Mariner's Compass", (sometimes using the address 'under the sign' of "The Compass and Hour-Glass" (1658), but later 'under the sign' of "The Mariners Compass and Globe"), on the north bank of the River Thames, east of the Tower of London, which area was the centre of much of the maritime trade in the seventeenth century. John Seller was evidently an industrious and enterprising individual, since, after he became a Freeman in 1654 and in the years before the Restoration in 1660, he had already established his thriving enterprise. As a compass-maker, he made magnetic compasses for the use of mariners, and, as a map-seller, he necessarily stocked quantities of different maps and charts. He also advertised that he made or stocked a great variety of other instruments, such as azimuth compasses, back-staffs or John Davis's quadrants, cross-staffs, globes for both terrestrial and celestial use, hour-glasses and running-glasses, telescopes, universal equinoctial ring-dials, pocket sundials and horizontal sundials, constructed for any latitude.[3]

However, Seller was also interested in the use of the instruments that he sold and in the mathematical arts for which they were required, to the extent that he wrote a book on navigation, namely *Praxis Nautica: Practical Navigation: or, an Introduction to the Whole Art*, which he dedicated to Sir Nicholas Millet, his patron. (Fig. 1) He published this work in 1669, which established a creditable reputation for Seller in the maritime community. The book was frequently reprinted over the years and, indeed, some thirty years later it was described as "the most useful book for Seamen yet extant". [4]

This success encouraged John Seller to venture further into publishing, for which he was certainly not qualified, and to expand his business. In the following years, perhaps when he considered himself to be more prosperous, he advertised other addresses for his shop(s) in the city itself, as in 1671-1675 "And in Exchange Alley near the Royal Exchange"[5] and from 1675-1681 "And in Pope's Head Alley in Cornhill". From 1682-1686, he is advertised as "And the West Side of the Royal Exchange". However, in 1690 he gives his address as "And at his Shop in Westminster Hall" which also might have represented a financial improvement in his circumstances.[6]

About the year 1663, Seller appears to have travelled to Holland, where he acquired a collection of old, worn copperplates, which had been made originally in 1620, copied from obsolete plates of 1608, for a counterfeit edition of a Blaeu sea-atlas. Seller immediately recognized the possibility of producing his own charts with the use of these plates, at comparatively little expense. He was not a printer, neither was he a publisher; but this did not deter him from moving into what he saw as a new and profitable field in nautical commerce. He had the copperplates 'refreshed' and planned to publish his own equivalent of the famous Dutch sea-atlases, called 'Waggoners', of the early seventeenth century. To refurbish and convert his Dutch copperplates, Seller employed two engravers, one being James Clarke and the other Francis Lamb.[7] Clarke appears to have made most of the folio plates for the atlases that were to be included in the 'Sea Waggoner' since Lamb, having a rather better reputation at this time, was probably somewhat more expensive to employ.

In the late 1660s, despite the forthcoming publication of his *Praxis Nautica*, Seller must have been impatient to embark on what he saw as his great publishing enterprise, *his* 'Sea Waggoner', which he intended to publish under the title of *The English Pilot*, in six volumes. Perhaps the need to recoup losses, which he may have incurred during the time of the Great Plague and the Great Fire, caused him to act hastily, since he published the first volume of 'his' *English Pilot* in 1668, three years ahead of the advertised publication date. Despite

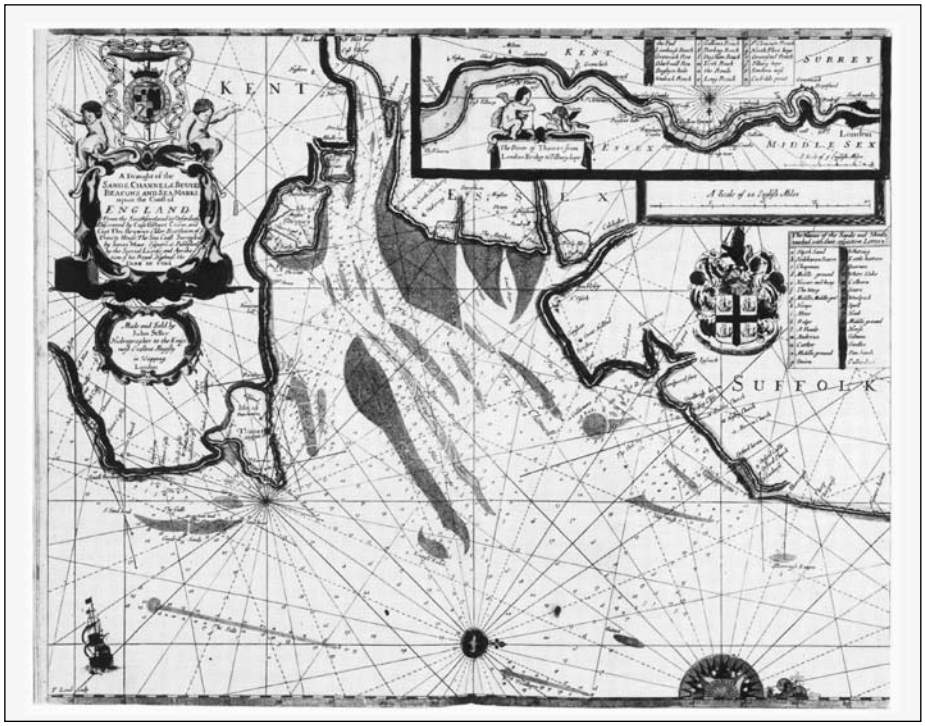

Fig. 2 *Chart of the Thames Estuary by John Seller (1671) from Jonas Moore's survey.*

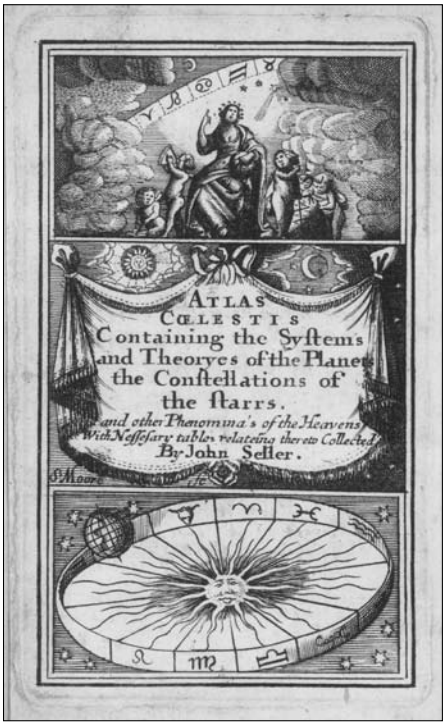

Fig. 3 *Title page of Seller's* Atlas Coelestis, *published in 1680.*

it being 'refreshed', this sea-atlas was in all other respects exactly the same as the counterfeit edition of the Blaeu atlas, made in 1620.[8]

How many copies of this 'pre-publication' edition were issued is not known; but it is evident that a copy came into the hands of a certain Colonel Thomas Phillips, a military engineer, who travelled out to Tangier with Samuel Pepys in 1683, when they apparently discussed the accuracy of marine charts.[9] Furthermore, during the course of the voyage, Phillips seemingly shocked Pepys, such that he reported that "Mr Phillips at sea examined and showed me how Seller's book [*The English Pilot*] in 1668 was the very same platts with the Dutch without a Dutch word so much as turned into English…and has used them in his pretended new book."[10]

At around the same time that he published this 'new' work, Seller somehow acquired a copy of an incomplete manuscript chart of the Thames Estuary by Jonas Moore. Without seeking permission, he had this engraved by James Clarke, printed and incorporated into this volume. (Fig. 2) Thomas Phillips came to know of this and presumably told Pepys, who later recorded that Phillips "says that Sir Jonas Moore himself told him that Seller did print a platt of his survey as if it had been his, before he himself had ever finished his draught of it….".[11] Criticized for this act of plagiarism, Seller reacted quickly and, no doubt due to the urgency of the situation, had a new plate engraved by Francis Lamb, which acknowledged Jonas Moore as the proper author of the chart.

This chart was incorporated in the first official edition of *The English Pilot*, issued early in 1671, together with an accompanying volume, that gave Seller the approbation that he hardly deserved. However, the fact that Seller dedicated this work to James, Duke of York, may have had some bearing on the matter, since a Royal Warrant, dated 22 March 1671, granted John Seller a Royal Privilege, which enjoined "any person to print any work, under other titles, reprinting, or counterfeiting, for thirty years…". A second Royal Warrant, issued only two days later, gave Seller the title of 'Hydrographer to the King'. After receiving the privilege and the title, Seller was quick to incorporate them into his publications. He reissued *The English Pilot* in the early summer of 1671 and went on to publish various other volumes of *The English Pilot* in 1672.[12]

Whilst it has been acknowledged that Seller was industrious and enterprising, he appears to have been over confident, if not too ambitious. In 1675 he began to experience financial difficulties and, in 1676-1677, he was obliged to seek partners for his great 'Sea Waggoner' enterprise. These were principally made up of John Seller's rivals in the trade and, perhaps not surprisingly, the partnership was dissolved in 1679, by which time Seller had lost nearly

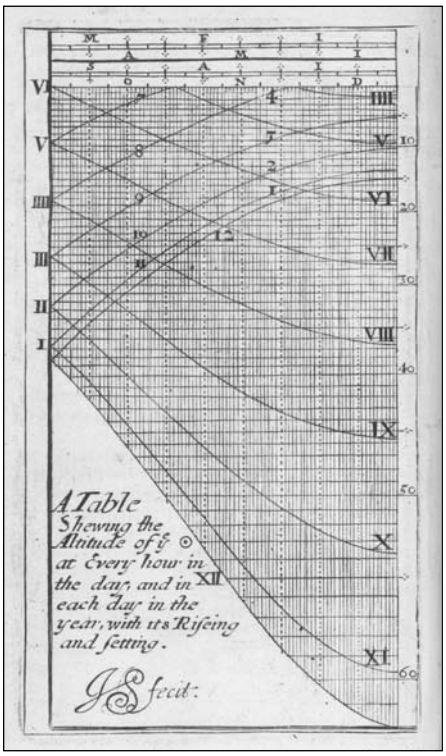

Fig. 4 *A table of the altitude of the sun 'by Seller' from his* Atlas Coelestis, *inscribed* 'J.S. fecit'. *Seller has attempted to expunge what appears to be the letter 'G' on the printer's plate, prior to replacing this with his own signature. The table could well have been the work of the noted astrologer John Gadbury or the well known mathematical instrument-maker Ralph Greatorex.*

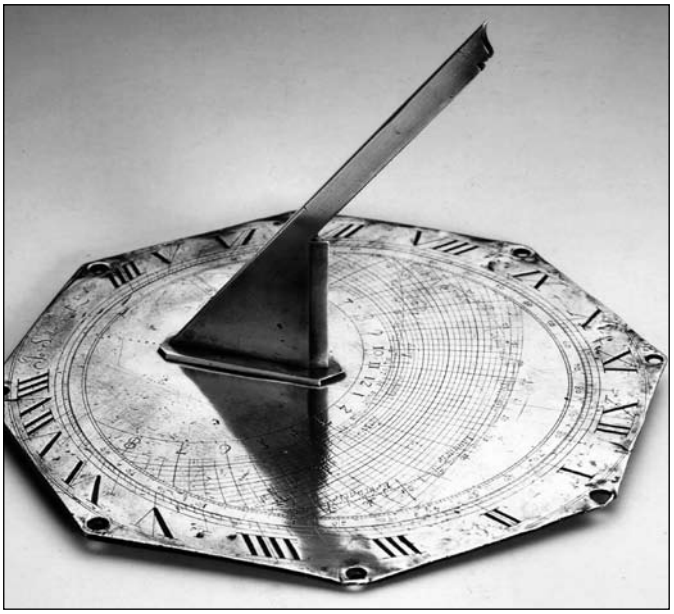

Fig. 5 *An overall view of the double horizontal dial signed by John Seller.*

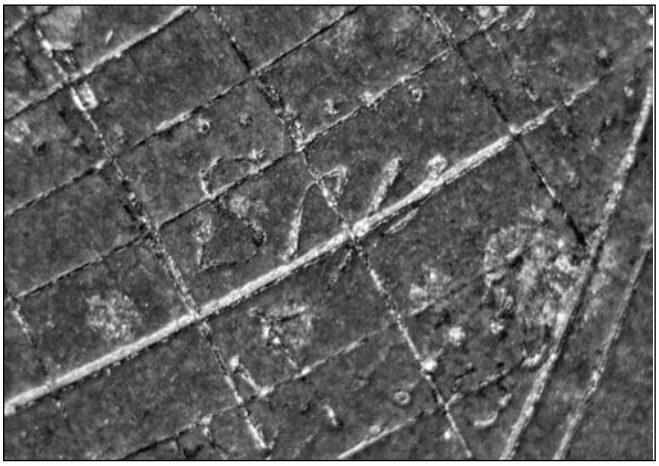

Fig. 6 *Close-ups of 'Sep' engraving on (top) the Seller and (bottom) Allen dials.*

everything that he had so keenly acquired since he first embarked on his publishing venture. Yet it may be said that it was John Seller who founded the chart trade in London, seeking to break the Dutch monopoly, although it was left to others to build up the reputation of the English in this field, eventually to become the finest in the world.[13]

Following the dissolution of the partnership, Seller tried to re-establish himself[14] and proceeded to produce a new series of publications, notably small 'pocket' works, such as *A Pocket Book containing…Surveying and Dialling* in 1677 and an *Atlas Coelestis*, (Fig. 3) published in 1680. The latter was one of the first 'pocket' astronomical atlases to be printed and contained numerous astronomical maps, diagrams and tables. A number of these, bearing his name or signature, imply that they were the work of Seller himself[15] but evidence (Fig. 4) suggests otherwise.

Whilst Seller's cartographic publishing enterprise was of great importance to him, it should not be forgotten that he had a successful business as a mathematical instrument-maker, especially as a compass-maker. In 1672, he had obtained a contract to supply compasses and glasses – 'half-hour and half-minute glasses' – to the Royal Navy in the store at Chatham, continuing to supply such instruments for many years.[16] At the same time, he was making surveying instruments, drawing instruments, and instruments for use in gunnery. According to his advertisements, he also made sundials.[17]

Only one sundial bearing John Seller's name is known so it is surprising that this is a double horizontal dial. The double horizontal sundial is widely regarded as one of the most useful and important sundial types.[18-20] It developed from the horizontal instrument[21] which was designed by William Oughtred in the late 16th century and was the focus of an acrimonious priority dispute with Richard Delamain.[22] Most of the early examples were made by Oughtred's "loving friend"[23] Elias Allen. Later, in the mid-17th-century, Henry Sutton developed a more sophisticated format but it remained an instrument produced by only the very best makers. Only around 60 examples are known[18], most made by the line of descendants by apprenticeship from Allen: examples exist by John Allen, Ralph Greatorex, Henry Wynne, Thomas Tuttell and Richard Glynne, as well as by some of the other great makers, notably John Rowley and his apprentices.

Seller's double horizontal dial is shown in Fig. 5. It has been described previously[24] and is also pictured and drawn in the paper by Lowne.[20] Examination of the dial shows that its simple form matches that used by Elias Allen exactly, despite the fact that, by the time Seller was working in the last quarter of the 17th-century, the more sophisticated Henry Sutton format had been widely adopted by Seller's contemporaries such as Henry Wynne and John Marke. For example, Allen marked the ecliptic arcs with calendar dates but Sutton moved these to around the horizon circle and put the zodiac signs along the ecliptic.

Recently, it has been possible to compare the Seller double horizontal dial side-by-side with the Elias Allen one sold in 2007 by Bonhams[25], as well as photographically with a several other Elias Allen double horizontals (a total of 11 such dials are currently known[18]). It was clear that, as well as the general layout and size, the details of the lettering were also very similar indeed. Elias Allen had quite a distinctive engraving hand, partly shared with his apprentices (particularly John Allen and Robert Davenport; less so with Ralph Greatorex). One particularly characteristic feature is his lowercase 'p' in which no attempt is made to close the top, making it look like a 'y' with the descender on the left side. A comparison of Allen's 'p' and that on the Seller dial is shown in Fig. 6. Other characteristic Allen features, all to be found on the Seller dial, are

* lower case 'c' with almost non-existent lower curve,

Fig. 7 *Signature of the Seller dial.*

Fig. 8 *Signature of an Elias Allen double horizontal dial.*

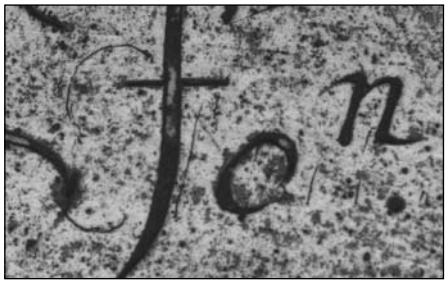

Fig. 9 *Close-ups of three regions of the John Seller signature. Note the traces of the imperfectly-erased signature of Elias Allen.*

* numeral '2' which is very angular, almost a 'Z',

* upper case 'M' with characteristic leading serif,

* lower case 'b' with forward facing ascender

and so on. The authors concluded that the Seller dial had been made in the Allen workshop, probably by Elias Allen himself. The signature, "Jo^{n} Seller excud $^{\text{Londini}}$" shown in Fig. 7, was next examined. It was clear that the 'Jo^{n} Seller excud' part was by a different hand to the dial delineation. Key characters which are different in style are both capitals, the double 'll', the centre bar of the 'e' etc. However, the flourish after the final 'd' is very much in the Allen style (see Fig. 8 for a typical Allen signature), as is the 'Londini'.

Thus it seems that the dial was in fact an old one to which Seller put his name. The question was, did he (or his engraver) just put his signature on a blank space or did he actively erase Allen's name to insert his own? Allen, of course, ought not to have produced an unsigned dial but there are many anonymous dials showing it sometimes happened. A magnified view of the signature taken with diffuse side-lighting (Fig. 9) shows that Allen's name has been obliterated in a most deceitful manner. Traces of the capitals 'E' and 'A' are clearly visible and there is also evidence of the lowercase letters. The forger has cleverly left the flourish of the 't' of 'fecit' and incorporated it into the 'd' of 'excud'. Other signs are visible too. One of the row of dots, running southwards from the gnomon and acting as the centres for striking the declination arcs of the stereographic projection, is missing, The thickness of the dialplate in the region of the original signature has been reduced by between 0.10 and 0.15mm (difficult to measure accurately as the dial plate is not uniform in thickness). The back of the plate has been hammered to bring the front surface level, leaving a slight depression on the back in the region of the signature.

Who made the change to the dial? The most obvious candidate is John Seller himself. But perhaps a more likely suggestion is James Clark(e), one of Seller's engravers and who later emigrated to Scotland.[26] Three sundials signed by Clark are known.[27] Two of them are double horizontals, both made for Scottish locations. One of them, currently in Liverpool Museum, is in exactly the format developed by Henry Sutton and also used by his apprentice John Marke.[28] In the light of the discovery of the changed signature of the Seller dial, the original maker of the Liverpool dial must be regarded with some suspicion though its rather poor condition makes it difficult to make a definite statement.

The 'Seller' double horizontal dial has had a hard life. The gnomon currently fitted is an old replacement. This is not unusual: the gnomons of all double horizontals are very vulnerable and this is particularly the case for those made by Elias Allen where over a third of the extant dials have replacement or broken gnomons. Undoubtedly the use of a rather coarse-grained cast brass with little cold-working contributed to their vulnerability.[29] The replacement gnomon on the Seller dial is of a reasonably appropriate design and it is fitted into a patch of brass expertly inset into the dial plate around the gnomon slot. This insert is covered by the 'foot' of the gnomon when the dial is assembled and was thought to be a repair to damage caused when the original gnomon was ripped out. On closer inspection, however, it was found that the patch has a keyhole shape (Fig. 10). Whilst it is possible that this was just a convenient shape to remove the damaged area of the dialplate (a 'dutchman', in woodworking terms) an alternative theory is that the dial has at some time been used as the escutcheon plate of a lock and the centre of the dial was opened up to accept the key! Although this may seem an unlikely (and sacrilegious) use of a scientific instrument, there is at least one precedent known, on the door of the church in Sydenham, Oxfordshire.[30]

The component parts of the Seller dial have been metallurgically examined by energy dispersive analysis of x-rays.[31] They show

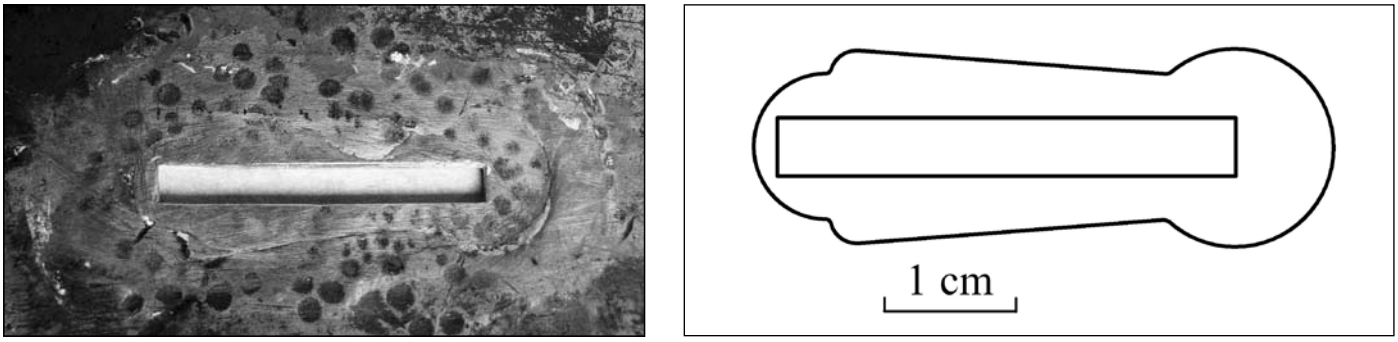

Fig. 10 *Rear view of the Seller dial showing (left) the inset patch around the gnomon slot, and (right) the outline of the patch drawn out.*

that the original dial plate is a simple brass with a composition of approximately 64% Cu and 36% Zn. This is a rather high percentage of zinc for the cementation process which would have been used to produce the brass but in line with that found in double horizontal dials by Elias Allen. In contrast, dials by Seller's contemporaries such as John Rowley and Henry Wynne have much lower zinc concentrations (15-25%) and also, in the latter case, the addition of 5% of tin.

Analyses of the replacement gnomon of the Seller dial, and of the patch in the dial plate, show them to be made of a more modern 'common brass' with a 60% Cu, 40% Zn alloy. This composition is not possible by the cementation process and, although William Campion patented a method of distilling metallic zinc from calamine in 1738, it was not until the work of George Muntz in the 1830s and '40s that brass with high zinc concentrations became common in Britain.[32]

It is not possible to say when the dial suffered such wretched treatment or who recognized its true worth and rescued it. The period of around four decades between the original manufacture and it falling into Seller's hands seems too short for such a valuable instrument to become obsolete, be used as recycled brass and then recovered for refurbishment. Double horizontal dials were still much prized throughout this period[33] and still made until around 1730. This suggests that its use as a lock occurred in the late 18th- or early 19th-century, leaving its expert repair perhaps to have been in the Victorian era (as supported by the metallurgical composition). This is pure speculation. The manner of the repair, complete with a steel retaining plate for the replacement gnomon made from part of a clockspring, gives the impression that the work was done by an expert clockmaker of that period. If this is the case, Seller can be absolved of this part of the story, though the stain on his character for claiming another man's work as his own remains.

Acknowledgements

It is a pleasure to thank Dr Irene Brightmer & Prof Trevor Brown (Derby University) for the SEM analysis; Dr Alison Morrison-Low (NMS) for details of James Clarke's sundials; Dr Peter Hopp for details of the Oughtred–Allen letter; and Liverpool Museum and several private owners for details of their double horizontal dials.

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An Early French Barometer with Unusual Logo

D.A. Bateman

This fairly typical un-named aneroid barometer has a beautifully printed dial (Fig. 1) together with an unusual logo. It is tempting to ascribe it to Vide (or Vidie) but for the reversed 'R' (Fig. 2).

None of the familiar books on the subject show such a logo, nor do they give much detail of the lever mechanism. The capsule has a point that presses on the lever, but again, not mentioned in the text books, is the subtle manufacturing detail that the point is not in the centre of the capsule. The illustration (Fig. 3) shows this quite clearly, and the off-centre position allows the magnification of the lever system to be varied by rotating the whole capsule before soldering to the base.

By means of a micrometer acting on the partially freed movement, I estimated that a movement of the point on the capsule of 0.075mm gives 180° rotation of the pointer (2 inches of mercury). This equates to a calibration of the capsule of 0.0011mm per millibar. I have a more modern stack of capsules that gives 0.0015mm per millibar for the individual capsules. A fair degree of agreement.

Checking the working barometer as a whole gave excellent linearity against a precision aneroid barometer.

I will be interested if readers can identify the logo, or give any other information about this instrument.

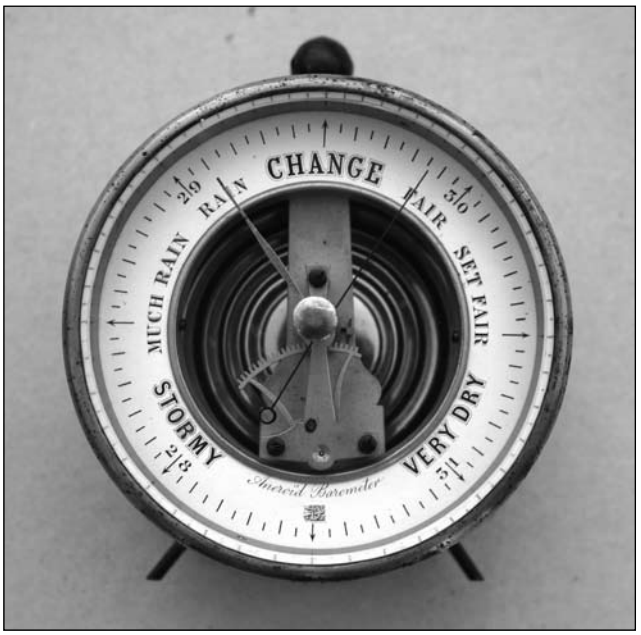

Fig. 1 *Aneroid barometer (70mm in diameter).*

Fig. 2 *Logo of what looks like a reversed 'R'.*

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Fig. 3 *Close-up of capsule with point and the lever.*

Further details will be in Ref. 18.

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