

# James Wigglesworth and the Great Scarborough Telescope

Raymond Emery & David Hawkrige

It may come as something of a surprise to many readers of this *Journal* to learn that there was once – albeit briefly – a major astronomical establishment in the town of Scarborough, queen of Yorkshire's many fine seaside resorts. Moreover, the legacy of this brief flowering of astronomy in the bracing North Sea air (or German Ocean, as it would have been at the time) is set in perpetuity in the form of contributions made to the famous New General Catalogue of deep sky objects.

Published in 1888 by J. L. E. Dreyer, the NGC was the revised, expanded and corrected version of the General Catalogue, published by Sir John Herschel in 1864. It was this listing of a number of NGC objects as having been discovered in Scarborough which first alerted author David Hawkrige to the potential story. Upon discovering a mutual research interest in their subject, the authors decided to combine their resources in order to produce this paper.

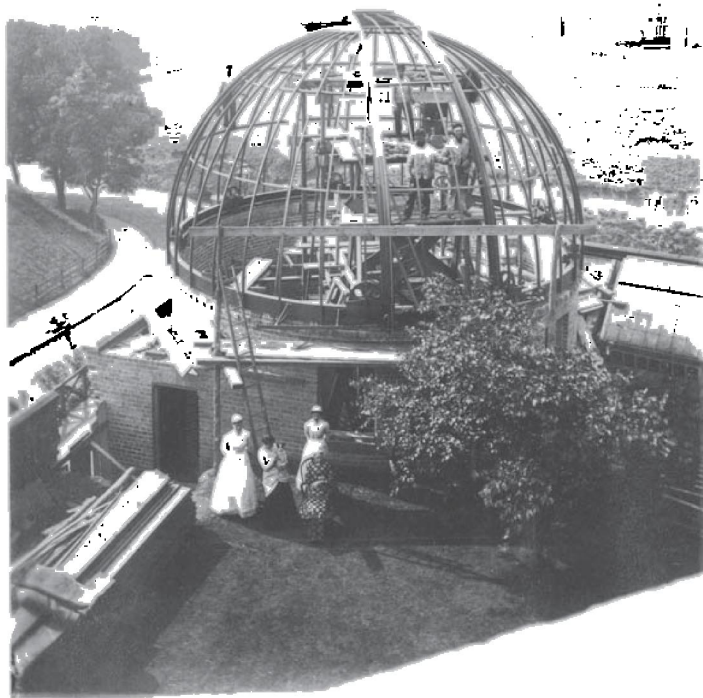
The chief player in our story is one James Wigglesworth, a businessman and manufacturer in the Wakefield area and a lifelong avid astronomer, who finally realised his dream of owning his own major observatory and large telescope for a few brief years of retirement in the clean, clear air of the Yorkshire coast.

We have heard in recent years (primarily through the work of Dr Allan Chapman of Oxford University<sup>1</sup>) of many Victorian manufacturers with an interest in the great science of astronomy. In Wigglesworth's case, the brass came not from brewing or paper or hot metal, but from another necessary concomitant of our industrial existence: soap.

James Wigglesworth was born at Wibsey, near Bradford, on 1815 July 8,<sup>2</sup> the year of the battle of Waterloo. He was

the second child of Abraham and Peggy Wigglesworth who were married in 1806. (In the 1841 census, Abraham was entered as being employed as an overlooker in one of Bradford's burgeoning textile mills; by 1851 he had turned his hand to shop-keeping.) James had an older sister, Sarah, who was born in 1811. The family name would have come from their place of origin; the village of Wigglesworth near Settle, Yorkshire, was listed in Domesday as 'Winchelesworde'. Also known in its older form as 'Wykyleswird', the name derives from 'wincel' ('child') and 'worde' or 'wirde' ('enclosure'). In the 1841 census, we find James Wigglesworth living in Walton, near Wakefield, and employed as a commercial traveller in the soap trade, for the firm of Hodgson & Simpson (he was in fact living in

the same house as Hodgson at this stage). The factory was at Walton, to the south-east of Wakefield, just beyond Sandal Castle and the site of the famous 1460 battle of Wakefield in the Wars of the Roses. The soap makers were to have their own battle with a local landowner and nature-lover, of which more anon. (The story of this firm is worth an article in itself – but not in this journal, perhaps.) Suffice to say that it appears likely that Edward Thornhill Simpson was the 'natural



**Figure 1.** James Wigglesworth's observatory under construction in 1885 (photographer unknown). ©Science Museum Pictorial/Science & Society Picture Library.

son' of William Thornhill Hodgson; the latter sadly took his own life when the business faltered, but under the aegis of his younger protégé matters prospered once again. In the census of 1851 James has relocated to nearby Sandal and set up home with his new wife Frances Mary and her mother Mary Ann Yates.

We do not know the details of Wigglesworth's education, nor how his interest in the study of astronomy was engendered. His interest in astronomy was not only already substantial, but his line of work had also provided enough surplus funds for him to invest in what was for the time a very serious telescope for an aspiring amateur. This took the form of a 6-1/8-inch [150mm] aperture refractor, purchased in 1852. This was supplied by Thomas Cooke of York, who was himself getting fully into his stride as a notable telescope and instrument maker on a commercial scale.<sup>3</sup> Indeed, it is believed that this telescope was only the second of this 6-inch-plus size which Cooke produced for sale, the first being supplied to Professor Phillips, his earliest patron. Sadly we do not have details of Wigglesworth's early connections with the Cooke establishment, but as will be evident from later events, the two formed a close and lasting friendship and association which was to have major consequences after Cooke's own death.

Wigglesworth thrived in the soap business, to the extent that in 1860 he became a partner in the firm.<sup>4</sup> This would have entitled him to a 10% share of the healthy profits from soap manufacture, in addition to the commercial traveller work which he continued to undertake on behalf of the firm. Such was the success of the business that James earned in excess of £200,000 per year (in today's value), the surplus of which money he carefully invested. His investments included the gas companies of various towns and cities (including The London Gas Company, the Scarborough Light Company, North Eastern Railways, and many others).<sup>5</sup> The business of soap manufacture and trading thus afforded Wigglesworth a substantial income which enabled him in due course to both pursue his astronomical interests with vigour, and to retire to Scarborough on the proceeds.

## Charles Waterton, naturalist and early environmentalist

Soap making in the mid-nineteenth century was a dirty, smelly business. It required the use of animal fats, the manufacture of acids and lye alkali (sodium hydroxide), and sundry other noxious processes in order to achieve the end product. The effluvia from these various operations would have gone straight into the atmosphere and local watercourses.

Closely adjoining the soap manufactory was the estate of (Squire) Charles Waterton, of Waterton Hall (now Walton Hall), keen naturalist, extensive traveller and experimental taxidermist.<sup>6</sup> Waterton did not take kindly to the pollution from the soap works, and its damaging effects on his lands, his livestock, his tenants, and the otherwise sweet air of the



**Figure 2.** Senior personnel at Hodgson & Simpson soapworks in 1870. Wigglesworth is pictured here, but a definite identification has not been possible. *Courtesy John Goodchild collection.*

countryside. A remedy in law was sought (in collaboration with his neighbour Sir William Pilkington), very likely not an easy matter in terms of the statutes in force in the 1850s. Waterton, however, had an ace up his sleeve. As part of his holdings, he held title to a parcel of land at Thornes, closer to the centre of Wakefield and hard by the Calder river; he put this up for sale at a very inviting price in order to tempt the firm of Hodgson & Simpson to move there. They duly snapped up the irresistible offer of the land – but failed to move their filth-producing business to the new site! Waterton was thus induced to take the matter to litigation for a third time, and in due course won his case against the polluters. The firm of Hodgson & Simpson therefore relocated to the 'Calder Soap Works', where they could join the other polluters of the area. In 1878 Hodgson and Simpson were awarded the Gold Medal at the Paris Exhibition giving them international recognition for their products.

Sadly for the Waterton family, Charles' auld enemies were to have the last laugh. Charles Waterton came to grief on 1865 May 27 by falling over a log in the grounds of the estate; he died the next day of internal injuries, and was buried close to the scene of his unfortunate demise. On the succession of Charles' son Edmund to the family estate its finances took a severe downturn, such that the family's interest had to go under the hammer. The estate was bought by none other than the now very wealthy 'new money' of Edward 'Soapy' Simpson.<sup>6</sup> This would have been a conflict not just of old versus new money, of existing landed social status versus up-and-coming bourgeois entrepreneurial ambition; it was also a conflict of religious ethos. The Waterton family were staunch Catholics, whereas the Simpsons were equally committed to their Methodist non-conformity. Thus did almost 500 years of the Waterton family's overlordship come to an end. The Hall was later given over into public ownership; for some time it was a maternity hospital, and is now a hotel.

James Wigglesworth and his family also moved into Wakefield to be close to the new place of work, taking up residence in Market Street. It should not be imagined that Wakefield was ever another version of Dickens' Coketown.

*Emery & Hawkrigde: James Wigglesworth and the Great Scarborough Telescope*

The picture was by no means one of dark, Satanic mills – there was a good deal of agricultural land and large numbers of smallholdings still mixed in with the factories; indeed, the south side of Wakefield rapidly gives way to open country even today.

## Thomas Cooke, Sons – and Wigglesworth

There is now a hiatus in the story until we discover a quite remarkable event: James Wigglesworth buys the firm of Thomas Cooke & Sons, York.<sup>3</sup> The tale here is really enmeshed with Thos. Cooke senior's fateful dealings with Robert Stirling Newall – Scotsman, wire-rope manufacturer of Gateshead, keen amateur astronomer with big ideas, and the man who nearly broke the back of Cooke's firm. Newall had ordered from Cooke a prodigious 25-inch [63cm] refractor, destined for a short time to be the largest such instrument in the world. The construction of this behemoth nearly ruined Cooke, and the dealings with Newall over the telescope certainly had a detrimental effect on his health. Thomas Cooke snr. died in 1868, just as Newall's instrument and observatory were finally being installed at his Ferndene estate in the north east. The telescope was never used to anything like its true potential. For reasons we have not as yet ascertained, Newall had continuing claims on the firm of Cooke. According to the work of Dr Anita McConnell (University of York),<sup>3</sup> the firm was by 1879 in rather deep financial trouble. Newall attempted to force the firm into liquidation. However, the wealthy industrialist (and three times Mayor of York) Sir James Meek stepped in, and put up the money to buy the Buckingham Street works himself. This was a temporary measure, since he then sold it in the same year of 1879 to James Wigglesworth. James was, thus, the financial saviour of the firm of T. Cooke & Sons in 1879. Thomas Cooke's sons Charles Frederick and Thomas jnr. now worked in partnership with James's own son Robert, who was a master engineer in his own right.

This new partnership of Wigglesworth with Cooke's sons demonstrates both his close association with the Cooke family and his genuine interest in the business of astronomy as both a practising aficionado and a commercial operator. His personal interest in astronomy did not however cloud his business sense. He was the sole owner of the company and any loans he made available were made repayable to his estate after his death. The company also had to pay rent for the use of the Buckingham Works at York and its machinery, amounting to £200 per year payable in two instalments in January and June.<sup>5</sup>

James retired from the soap making firm of Hodgson & Simpson in 1882; in the same year he also appears to have had a rather less active involvement in Cooke's. His interests were more fully taken up by his son Robert who entered into agreement with Cooke's own sons and the Yorkshire Banking Company Ltd on 1882 August 11. James acted as

guarantor for the sum of fifteen hundred pounds, which enabled them to continue to run the day to day business of the company. Charles and Thomas Cooke jnr. and Robert Wigglesworth remained as partners in the Cooke business.<sup>5</sup> The firm became a limited company in 1897, and thereafter we find Robert listed as a Director.

As a side comment, one might remark that Thomas Cooke, like many 'hands-on' makers of things, tended to stick with tried and trusted designs. Therefore, if one looks at a six-inch Cooke equatorial, or Wigglesworth's 15½-inch, or Newall's 25-inch, they all look superficially the same, apart from their size difference. This temptation to simply scale up (or down) a trusted design is not necessarily a good thing; it may well have contributed to the difficulties and cost overrun which Cooke experienced with the Newall leviathan. It should be said, of course, that Cooke's options would have been rather limited given the materials technology available to him at the time.

With a controlling interest in the firm, the way was now open for James Wigglesworth to finally realise his dream of commissioning a large telescope and doing useful work in a location with dark skies. James chose the fashionable and elegant seaside resort of Scarborough on the Yorkshire coast. The spa town of Scarborough was an ideal location for a wealthy Victorian gentleman of independent means. It had excellent rail links to York and on to Wakefield, and it also promised the health giving powers of the Spa (though it is not recorded whether James ever sampled the waters).

## The Scarborough Telescope

James Wigglesworth, having retired to Scarborough, decided on a grand telescope of his own. He had the Cooke firm produce for him to special order a 15½-inch aperture refractor on a German equatorial mount, with clock drive. (It is noteworthy that Cooke's only supplied 'from stock' up to around 10-inch aperture instruments at this time – but much specialist work has always been done to individual order, of course.)

The traditional copper-clad dome, whilst durable and attractive, would also have been both expensive and very heavy. Instead, Wigglesworth opted for a papier-mâché cladding of 1/3-inch thickness for the dome.<sup>7</sup> Papier-mâché, according to Anita McConnell,<sup>8</sup> was pioneered for the purpose by Charles Frederick Cooke who made the prefabricated panels at the Buckingham Works ready for assembly on site. The cladding was attached with copper rivets to an underlying T-iron framework, with an inner timber liner. The idea of a paper dome may seem outlandish at first, especially in the rigorous conditions of the east Yorkshire coast, but this technology had by then a good pedigree, having been used in various locations (including some prestigious American observatories). Provided it was well-coated, the paper cladding could last for decades. It was light (weighing perhaps as little as a tenth that of a copper dome), durable, and of course cheap (always an attraction for a Yorkshireman).



Indeed, Wigglesworth’s new 30-foot (9.1m) diameter dome was notable for both its smooth operation and its good handling in windy conditions. On the negative side, paper domes tended to hold moisture, and unfortunately were also good insulators – hence not good for rapid cool-down times and maintenance of thermal equilibrium. They therefore fell rapidly from favour with professional astronomers as the new twentieth century progressed, and especially as reflecting telescopes came to the fore. The slit of the Wigglesworth dome was 5ft 10 inches (1.8m) wide at the bottom, and 3 feet (1m) wide at the top; the dome itself was supported on a brick wall 13 feet (4m) in height.<sup>7</sup>

Building of the observatory commenced in the summer of 1884 (Figure 1); by the end of that year the dome was ready to receive the telescope, and this was set up in 1885 February. Two small finders were provided, each of 2½-inch aperture. In front of the large object glass was an iris diaphragm which enabled the aperture to be stopped down gradually to 4 inches; this was achieved by use of a long rod operated from the eye-end of the telescope, with the resultant aperture being indicated on a dial.

The mean-time clock housed in the observatory is worthy of note. We learn from the entry on the observatory in the MNRAS<sup>7</sup> that this was constructed early in the nineteenth century by George Prior of Leeds, who had been awarded a medal by the Society of Arts for the escapement in this clock. Indeed, it had been for many years the standard time clock of the city of Leeds. After the death of Prior, it came into the possession of James Wigglesworth.

By the time the new big telescope was fully ready for operations in 1885, Wigglesworth was already 70 years old. (He was also elected a Fellow of the RAS early that same year.) If he was going to make a lasting contribution during his final years of life, he needed substantial and very compe-

tent assistance. We do not have the full details of the arrangement, but he contracted the services of a professional German astronomer, one J. Gerhard Lohse. This gentleman came with quite an impressive working pedigree. Born in 1851 at Fünfhausen near Oldenburg in Germany, educated at Göttingen University, he had been working since 1877 as Second Assistant Astronomer



Figure 3. J. Gerhard Lohse. Web image, attribution unknown.

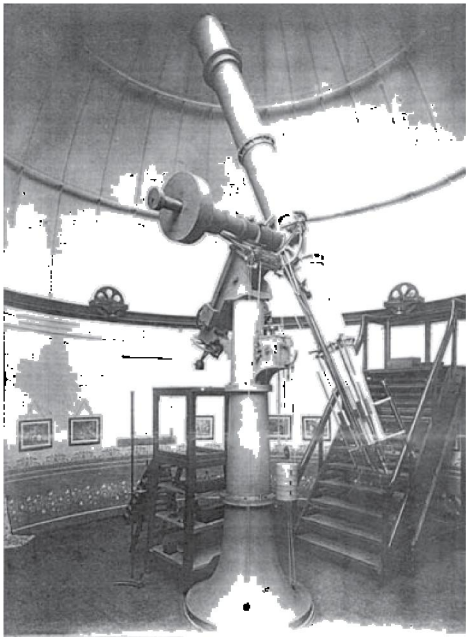


Figure 4. Wigglesworth’s telescope in the Scarborough observatory. Courtesy OACT Teramo.

at Lord Crawford’s Dun Echt Observatory in Aberdeenshire. While there, he had observed comet Temple–Swift, on 1880 November 8.<sup>9</sup>

As soon as the telescope was ready for use, Lohse and Wigglesworth set to work, observing Nova Cygni 1885 and the nova in M31 (from September to December 1885). Lohse was able to make use of an excellent Merz micrometer for fine-positional measurements; this was loaned by Lord Crawford in July 1885, so the arrangement was clearly an amicable one. With the help of the micrometer, the Scarborough astronomers logged the positions of twenty deep sky objects between 1885 and 1887, which were communicated to J. L. E. Dreyer for possible inclusion in the updated version of his New General Catalogue. After deletion of duplications, seventeen of these objects made their way into the final listing. Only three of these were actual galaxies, the remainder being

star associations of various kinds – with the exception of one peculiarity. Object NGC 7114, of 1885 October 3, was indeed interesting; this was Nova Cygni 1876 (Q Cyg), discovered by Schmidt at Athens on 1879 November 24 shining at mag +3. When Lohse observed it in 1885, he thought he could discern a surrounding nebula (although the star itself was by now down to mag +15) – see MNRAS 47, 494, 1887.

It is probable that Ralph Copeland (First Assistant at Dun Echt) had observed this first in 1877 October, stating that the star ‘has a small disc with a soft margin’ – indeed it is very likely that Lohse was involved at the time, and both astronomers subsequently published their observations in 1882 (*Copernicus* II, 101, 1882). Using the great 36-inch refractor at Lick, Burnham also thought he could glimpse a very faint nebulosity in 1891 August. Barnard compiled the observations to date in 1902, including his own results with the 40-inch Yerkes telescope. He noted that the ‘spurious disc

Table 1. NGC objects credited to Lohse & Wigglesworth and the Scarborough Telescope

NGC no.	Const.	Date	Type
793	Tri	1886	2 stars
1456	Tau	1886	2 stars
1655	Tau	1886	not found
1674	Tau	1886	not found
1675	Tau	1886	not found
2195	Ori	1886	4 stars
2412	CMi	1886	star
2518	Lyn	1886	galaxy
2519	Lyn	1886	star
2565	Cnc	1886	galaxy
5884	Boo	1886	2 stars
6344	Her	1886	2 stars
6353	Her	1886	3 stars
6731	Lyr	1886	star group
6767	Lyr	1886	2 stars
6792	Lyr	1886	galaxy
7114	Cyg	1885 Oct 3	star + nebula?



**Figure 5.** St James's Church, Thornes, Wakefield. *Photo by DH.*

around the star appeared much duller and somewhat larger than that of a star' (MNRAS **62**, 405, 1902).<sup>9</sup>

Table 1 gives the NGC objects that have been credited to Lohse's (and Wigglesworth's) work with the Scarborough telescope.<sup>9,10</sup> The date of 1886 is an approximation. One additional object, NGC 4345, credited by Dreyer to Lohse, is identical to NGC 4319, found by William Herschel. We know that the telescope was used for a range of visual work, including observations of several comets, at least one minor planet, and micrometer determinations of the dimensions of Saturn. Presumably it also 'did the rounds' of many other celestial objects.

Sadly, this partnership of the two astronomers was not long to continue; Wigglesworth died on 1888 April 17. He was buried alongside his first wife at St James's Church, Thornes, Wakefield, near his old home (where their family was still residing). This church was one of the last to be built as a result of the 'Million Fund' set up to give material thanks for victory at the battle of Waterloo. It has a simple, almost austere, architectural elegance both on the exterior and interior, before the fussiness of the Gothic revival which was to become a hallmark of the Victorian age.<sup>11</sup>

The Wigglesworth family had by now achieved a very comfortable style of living. However, wealth based in commerce is always less secure than that based in (landed) property. Although some of his offspring thrived, sadly this was not the case with James's son James Wigglesworth jnr.; he accrued an enormous amount of debt, as a result of which he felt compelled to take his own life, leaving his own family in severe difficulties. J. Gerhard Lohse returned to Scotland to resume work with his old partner Ralph Copeland who became Astronomer Royal for Scotland in 1889 January. Thereafter Lohse worked at the Edinburgh Observatory. Upon retiring, he returned to his native Germany and died in Oldenburg on 1941 January 2, at the age of 90 years.

As previously noted, James Wigglesworth had many financial interests, mainly in stocks



**Figure 6.** Wigglesworth's grave in St James's Church. *Photo by RE.*

and shares. On 1888 June 27 probate was granted to his son James Wigglesworth jnr. and Martin Stewart, the husband of James senior's daughter, Bertha. These interests included T. Cooke & Sons. In effect the owners of the Buckingham Works were Wigglesworth's executors, James jnr. and Martin Stewart. This ownership lasted until 1892 October 4 when T. Cooke & Sons paid the £4000 that James had stipulated in his will, for the freehold and machinery that was known as the Buckingham Works. The legal costs for the transfer were £31 10s.<sup>5</sup>

## Where exactly was the Scarborough Observatory?

Where in Scarborough was the observatory located? Does anything remain to be seen on the ground today?

Assuming the given latitude of the observatory and its elevation of 150 ft to be correct, DH used the mapping soft-



**Figure 7.** New Parks House, Scarborough, seen from the modern road and showing the curved garden wall. *Photo by DH.*





**Figure 8.** The rear garden of New Parks House, Scarborough, as it is today. Photo by DH.

ware *Memory-Map* to locate possible sites along the given latitude. The easternmost was close to the Spa area, and was rapidly discounted. The westernmost was the next try, and proved successful. Wigglesworth's substantial property (New Parks House) still exists, as does its quite restricted garden together with its rounded garden wall. The presence of the house would have inhibited observations in the northern part of the sky, but the southern aspect would have been quite open at the time.

After a somewhat involved discussion with the person in charge of the house (now divided into flats), DH was able to clamber out onto the old fire escape in order to view the rear garden and to take a photograph. Sadly, there was no sign of any observatory building. However, a very light turf mark visible on the photograph caught his attention. With some additional image processing and by markedly increasing the contrast of the picture, an arc and shaded area became visible which appeared to correspond to the outline of the old observatory building. Without an excavation one could not be certain, but it does appear that this is indeed the 'ghost' of the Wigglesworth observatory.

For the record, these traces are located as follows:

8, New Parks Crescent, Scarborough;

Latitude  $54^{\circ} 16' 30.7''\text{N}$ ; Longitude  $0^{\circ} 24' 49.5''\text{W}$ .

The telescope was actually equipped in a fairly basic fashion. Apart from the borrowed Merz micrometer, there appears to have been spectroscopic equipment for visual use. According to the MNRAS article<sup>7</sup> there were several spectroscopes: two made by Browning, a 'reversion' instrument for observing the Sun, and a McLean star spectroscope.



**Figure 9.** Enhanced image of rear garden, New Parks House. Image by DH.

There does not seem to be any evidence that serious spectroscopic work was actually carried out. The mounting had a normal clock drive, and there was no astrographic facility incorporated on the instrument. In this sense, this type of purely visual instrument was really towards the tail-end of a certain style of eye-to-eyepiece observing, at least as far as major observatories were concerned. Some delightful touches were however incorporated into the observatory building, which at once mark it out as the home of a keen amateur rather than a hard-bitten professional. There were framed pictures hanging on the walls, and a lovely painted flower frieze running around the interior base of the structure.

## The Italian connection

What became of the Great Scarborough Telescope? Unlike so many others of its ilk, this instrument was destined for an honourable and useful 'second life' in other hands at a much more favourable location, astronomically speaking.

Less than two years after the death of her husband, James Wigglesworth's second wife, Jane, is listed as living at a new address in the area. Clearly the old house and major effects had been disposed of. As mentioned above, James died in 1888 April; by October Robert Wigglesworth had already found a buyer for the 15½-inch telescope. In personal letters to the executors of James's estate he sought authority to sell the 'scope on a commission of 10%. In 1889 August and



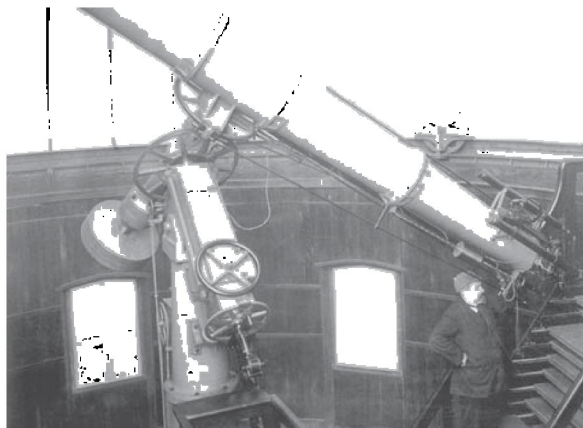
**Figure 10.** Collurania, Teramo, Old Observatory. *Courtesy OACT Teramo.*

September T. Cooke & Sons undertook maintenance and cleaning of the telescope in Scarborough, probably in advance of viewing by a prospective purchaser. The telescope and dome finally left Scarborough on 1890 June 30. The cost of cleaning, painting, dismantling and removal was £561 1s 6d (around £35,000 in today's money). The sale of the telescope raised £2011 14s 6d; the cost of the maintenance and removal were deducted from this amount. The executors' accounts show a total of £1455 13s 0d as the total amount raised from the sale.<sup>5</sup>

The equipment was bought by a rather singular young Italian gentleman, one Vincenzo Cerulli (1859 April 20–1927 May 30). He would have been only around 30 years of age when he acquired the equipment, and in a good position to use it to advantage. Cerulli was born in the town of Teramo, about half-way down towards the eastern side of the 'leg' of Italy. He gained a degree in physics from the University of Rome in 1881, pursued studies in astronomy in Germany for four years at the Berlin Observatory and the Rechen Institute, and specialised in orbital mechanics. In this sense, therefore, he was a professional astronomer – even though the Cooke–Wigglesworth telescope was his private property and he pursued his own self-directed investigations with this instrument. He was clearly a man of private means, in addition to his academic and practical training.<sup>12</sup>

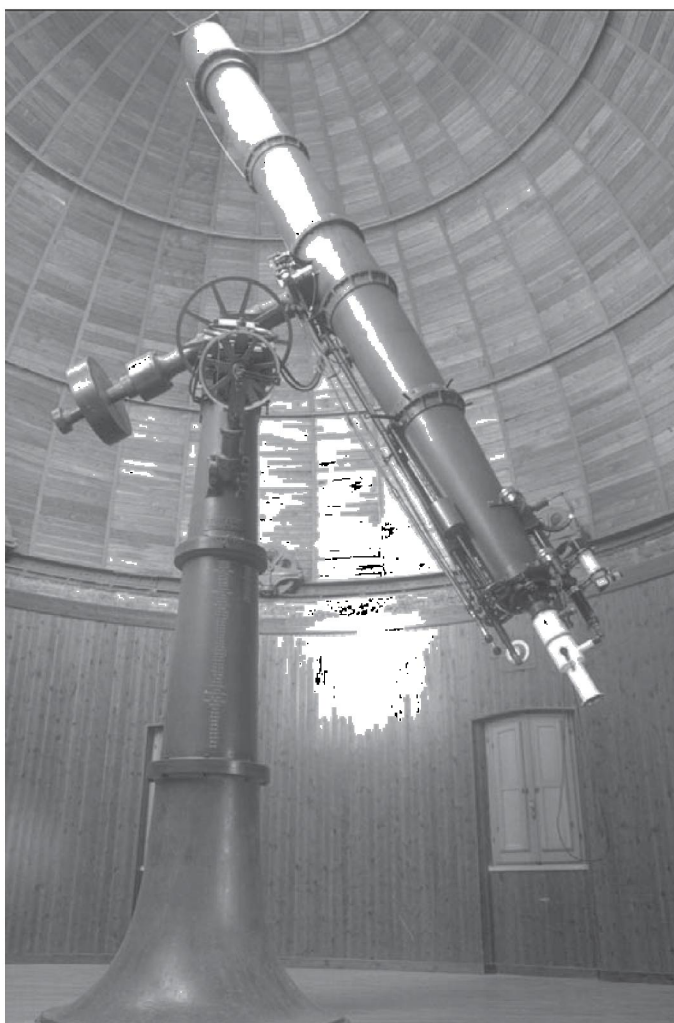
Cerulli set up the telescope in a new housing on a hill near the town of Teramo. The town's name is a contraction of the old Roman name Interamnina – 'between the rivers'; the new observatory was given the name Collurania – 'Hill of Urania', which is reminiscent of famous astronomers past.

Cerulli was a productive worker. He compiled a star catalogue jointly with one Elia Milosevich. He contributed to the ever-quickening debate over the 'Martian Canals', being of the opinion that they were essentially an optical illusion, the product of human physiology and perception, and the result of observing details right at the limit of vision. He discovered an asteroid (1910 October 2) which he named after his home town – (704) Interamnina, a relatively large



**Figure 11.** Vincenzo Cerulli at the Cooke telescope. *Courtesy OACT Teramo.*

body with an estimated diameter of some 350kms. As a result of his Mars work, he now has a crater on Mars named after him, in addition to asteroid (366) Vincentina. Observations were carried out on the planet Venus; Cerulli concurred with Schiaparelli's opinion that this body rotates only slowly on its axis.



**Figure 12.** The Cooke telescope at the Collurania Observatory today. *Courtesy OACT Teramo.*



With his mathematical abilities and training in orbital dynamics, Cerulli conducted studies on the orbital characteristics of double-star systems. His interests also carried him as far as attempting to speculate on the nature of the Galactic gravitational field, as derived from the motions of its component stellar systems.

Cerulli was President of the National Astronomical Committee of Italy and of the Italian Astronomical Society, Vice-President of the International Astronomical Union, member of the Directing Council of the Astronomische Gesellschaft, Honorary Professor of Astronomy at the University of Rome, honorary astronomer at the Vatican Observatory, member of the famous Accademia dei Lincei (as was Galileo), and held in addition numerous other foreign positions and awards. A worthy successor to our own James Wigglesworth indeed!

By the year 1917, this multitude of commitments had taken precedence over practical observing, and Cerulli offered his Collurania Observatory to the Italian state; the final transfer was made two years later. The observatory (despite inevitable subsequent vicissitudes) still thrives; indeed it has been fully refurbished (see Figure 13) and invested with modern telescopes and ancillary equipment. It undertakes a range of significant observational work to this day. An informative website can be found by those with Internet access.<sup>12</sup>

One feels certain that James Wigglesworth would have been delighted with the astronomical legacy of his efforts in Scarborough, noteworthy as they were for that location at that time. It is a little difficult to place him in the overall typology of astronomers: more than simply a dilettante, and yet not a 'grand amateur' in the Chapman sense. One could perhaps say that he represented the dying crepuscular glow of that tradition in this country, and yet in another sense he fits into that category of well-heeled private amateurs which remains very active into the present day, whose work tends rather to complement the work of the professionals than to provide leading-edge science. Wigglesworth's legacy therefore lives on, both materially and figuratively.



Figure 13. A modern view of the Collurania Observatory, Teramo. Courtesy OACT Teramo.

## References and notes

- 1 Chapman Allan, *The Victorian amateur astronomer: Independent astronomical research in Britain 1820-1920*, Wiley-Praxis, 1998
- 2 Personal visit to St. James's Church, Thornes, Wakefield by DH, in addition to genealogical research. NB: the MNRAS obituary (49, 1889 February, p.169) gives Wigglesworth's year of birth incorrectly as 1825. This error is repeated in secondary materials such as McConnell (see Ref. 3 below). The correct date of 1815 we have taken from census materials and Wigglesworth's gravestone (Figure 6).
- 3 McConnell Anita, 'Instrument makers to the world: A history of Cooke, Troughton & Simms', *Sessions of York 1992*, University of York, p.57
- 4 *ibid.*, p. 50
- 5 The John Goodchild Collection, Wakefield. An independent local history study centre for the Central West Riding: Central Library, Drury Lane, Wakefield, Yorkshire WF1 2TD. A selection of the Wigglesworth family personal papers, letters and accounts.
- 6 Sargent John S., 'Charles Waterton, Squire of Walton Hall (27th Lord of Walton)': [http://www.overtown.sgt.btinternet.co.uk/cw/Charles\\_Waterton/squire-overview.htm](http://www.overtown.sgt.btinternet.co.uk/cw/Charles_Waterton/squire-overview.htm)
- 7 MNRAS 47, 4, 1887; pp 162-4.
- 8 McConnell Anita, *op. cit.* (Ref. 3), p. 59
- 9 <http://www.klima-luft.de/steinicke/ngcic/persons/lohse.htm>
- 10 Corwin, Harold G. jr., *et al*: The NGC/IC Project, <http://www.ngcic.org>
- 11 Personal visit to St James's Church by RE. (But see also the church's website: <http://www.thorneschurch.freeweetools.com/index.html>.)
- 12 Burchi, Roberto: 'History of Teramo Observatory', web article of OACT (Observatorio Astronomico di Collurania, Teramo), at: <http://www.te.astro.it/storia.htm>

See also the following reference to Wigglesworth during his own lifetime: Smiles, Samuel: 'Men of Invention and Industry', Ch. 12, *Astronomers and Students in Humble Life*, John Murray, London, 1884.

Genealogical information researched by subscription to:  
*The Genealogist*: <http://www.thegenealogist.co.uk>  
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**Addresses:** RE: 39, Churchfield Lane, Rothwell, Leeds LS26 0NA.  
 [remery@bethere.co.uk]  
 DH: 11, Westfield Avenue, Scarborough YO12 6DG.  
 [davidhawkrige@btinternet.com]