

Charles Frederick Butterworth: The man with stars in his eyes

Gary Kewin

Isle of Man Astronomical Society

Charles Butterworth was a prolific variable star observer from 1897 to 1947, an early amateur spectroscopist who also experimented with photography. Honoured by British and French associations, his known observatories were in Cheshire 1910-27, and the Isle of Man 1927-41.

IN a quiet corner of the cemetery of the parish church of the Holy Trinity, in Rushen on the Isle of Man, is a simple grave.¹ The grave is that of Charles Frederick Butterworth and his first wife,



Fig. 1 Charles Butterworth's gravestone.
Photograph by author.

Margaret Anna.² It is the resting place of a remarkable, yet almost forgotten, amateur astronomer—Charles Frederick Butterworth. During his time as an observer he made more than 130,000 estimates of the visual magnitudes of variable stars, and photographed many stellar spectra. He has been largely forgotten for reasons that probably have more to do with a modest personality than with wilful neglect by his peers. Indeed, his contemporaries held him in high esteem. In addition to being elected to Fellowship of the Royal Astronomical Society, he was twice given prestigious awards by French astronomers, and was an early recipient of the Goodacre Medal and Gift of the British Astronomical Association (BAA). Yet within two generations of his death, he was forgotten, even by most amateurs who specialise in observing variable stars. The author knows of only a limited number of published sources of information about Butterworth's life and astronomy; all are short and contain no specific references to the origin of their content.^{3, 4, 5} This paper is written to present the main results of preliminary research on Charles Frederick Butterworth. Facts are sparse; the search continues for reliable information about him, his family and his astronomical work.⁶ It will be limited to outlining his life, achievements and for convenience is given broadly in chronological order.

Family beginnings

Charles Frederick Butterworth was born on Tuesday 29 November 1870, the first child of Joseph Francis Butterworth and Jessie El-

eanor, née Parry.⁷ At the time of his birth, the couple had been married for nearly three years, and had made a home at 4 Dudley Grove, Stretford, Lancashire.⁸ His father was a 'Grey Cloth Salesman', his mother, a 'Wife'.^{9, 10} In the United Kingdom census held on Sunday 2 April 1871, it is recorded that the Butterworth household included 13-year old Ellen Arrowsmith, a 'Domestic Servant (Nurse)', born in Manchester.¹¹ It is highly improbable that she could have been a wet-nurse, but perhaps her domestic duties included caring for the infant; or perhaps she was there to ease Jessie Eleanor's post-natal recovery. Butterworth's younger siblings were Joseph Francis (junior) born in November 1872; Harry Clement in May 1875; and Eleanor Emma, in July 1877.

Sometime during the period May 1875 to July 1877, the Butterworth family moved home to Glebeland Road, Ashton-upon-Mersey in Cheshire, where they were still living at the time of the 1881 census.¹² Butterworth was then 10 years old and a 'Scholar', although where his school was located, has so far eluded discovery. His 32-year old father was described as 'Salesman Grey Cloth' with the words 'Cotton Dealer' added to the record at some stage. A general domestic servant was also in residence. Here are clues that the Butterworth household was, perhaps, no longer typically working class—a move away from the back-to-back, terraced housing of the southern Manchester suburbs to a much more desirable residential area a few miles away in north-west Cheshire. It is also possible that Joseph Francis Butterworth, although described as a salesman was by then self-employed.

On Christmas Eve 1884 seven-year old Eleanor Emma died from diphtheria after a short illness, her father registering the death on Boxing Day, Friday, 26 December.¹³ Thereafter, the coming of Christmas must have been a sad time for the Butterworth family; the grieving and mourning surely lasted for many years. Apparently increasing family affluence caused another move of home. The census of 1891 recorded Joseph Francis and Jessie Eleanor Butterworth and two of the three sons living at Mayfield, 20 Alexandra Road South, in the parish of Withington, in the Whalley Range district of

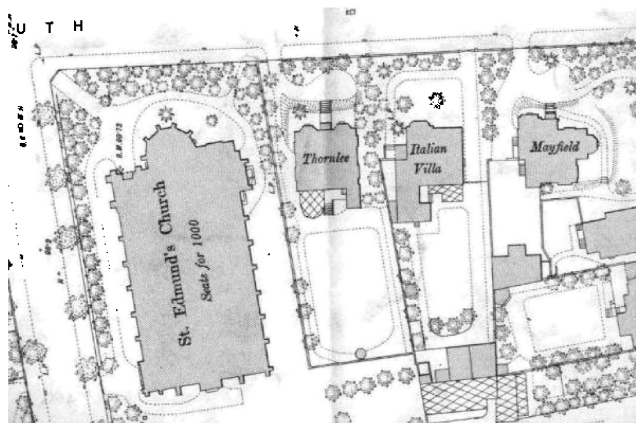


Fig. 2 Alexander Road South.

Image supplied by Tony Cross, Manchester Astronomical Society



Fig. 3. Italian Villa next to Mayfield Mansions, in background.
Photograph by Tony Cross, Manchester Astronomical Society.

present-day Greater Manchester.¹⁴ The house no longer stands, the site now being occupied by Mayfield Mansions, a block of flats erected in the 1930s, but it is clear from the map that the size of the plot was considerable. The type of house that once stood on it can be imagined from the house next door, the Italian Villa, which retains its imposing Victorian exterior. Apart from the prestigious address, the 1891 census gives further evidence of the apparent growing affluence of the Butterworth family. Joseph Francis (head of the family) is now recorded as being an employer – a ‘Grey Cloth Agent’. The 20-year old Butterworth is a ‘Grey Cloth Salesman’, his 18-year old brother, Joseph Francis (junior), is a ‘Grey Cloth Warehouseman’, both are recorded as employees.¹⁵ It is tempting to think of the sons working for the father, but no evidence has been found to substantiate this. The household included a 26-year old ‘Nurse Housemaid’ and a 35-year old ‘Cook’, Annie Waterson, born on the Isle of Man.

The Butterworth family changes

After census day in 1891, the family started to disperse – the start of a decade of change for Jessie Eleanor. First it was due to Butterworth himself, who was married on Sunday 29 August 1894, in St Paul’s the parish church of Withington. His wife, Margaret Anna Clarke, a spinster one year his senior, was born in the terraced housing of Lower Broughton, a mainly residential district less than one mile north-west of Manchester city centre, but was living before her marriage in Withington. At the time of his marriage, Charles Butterworth was living less than three miles south of the family home in Alexandra Road South, at 6 Northern Grove, Didsbury. It was probably here that the newly-weds set up their first home together. They were destined to have a long, but childless marriage; they were together for nearly half a century.

On Sunday 16 August 1896, Joseph Francis (senior) died from pneumonia.¹⁶ He was just 47-years old.¹⁷ Even in a time when adult life-expectancy was shorter than it is today, the loss of a husband of 27 years, the head of the family and principal breadwinner must have dealt an enormous blow to Jessie Eleanor. Up to this point, Joseph Francis has been painted as successful and prosperous (but not ostentatiously

so). It therefore comes as a surprise to find that the place of his death is given as ‘Union Workhouse Withington’.¹⁸ This is mitigated when we realise that in addition to their statutory task of administering the provisions of the Poor Law Amendment Act 1834, by caring for the needy of the community, workhouses cared for the sick—they were hospitals.¹⁹

Move to Waterloo and the setting up of his first observatory

In 1897 Charles Butterworth acquired a 999-year lease on a property named Waterloo in the rural village of Poynton-with-Worth in north Cheshire, about 7 miles (12km) south-east of his Didsbury home. Waterloo was a substantial dwelling, converted in the early 1870s from its former role as a pump-house for nearby coal mines.²⁰ Although he was the lease-holder, he did not live there immediately. We know that on Sunday 31 March 1901, the date of the census, he was living about half a mile from Waterloo in a house named Fellerigge. At this time, presumably having sold Mayfield after her husband’s death, his widowed mother and youngest brother, Harry Clement, were living (with a domestic servant) in Cheadle Hulme. His other brother, Joseph Francis was living in Didsbury to where he had moved after his marriage to Dora Peters a few months previously, in September 1900.

Butterworth was still at Fellerigge when the 1902 edition of Kelly’s Directory of Cheshire was published. However, by the time of the publication of next edition in 1903, he had taken up residence at Waterloo. The house was described in 1920 as ‘...built of Brick with Rough-Cast Exterior and Slated Roof, and contains about ten Rooms with Bathroom and W.C.’ The area of the house and ‘Garden and Orchard’, which he rented separately, amounted to 0.700 English acres.²¹ He also rented separately, some farmland about half a mile away, at Sprink Farm. At some point after he took up residence at Waterloo, his mother came to stay, for she died there on Saturday 13 April 1907, aged 60 years.²²

Waterloo is situated on the south-eastern edge of Poynton village, on ground that gave him open views to the east, south and south-west. It is at Waterloo that the story of Butterworth’s serious observing really begins, for here, in 1910, ‘...he put up a 6-inch Grubb equatorial refractor...’, with which he made the vast majority of over 106,000 visual estimates of the magnitudes of variable stars.²³ He was now 40 years of age, married with no children, and it may be assumed with the means (perhaps inherited from his late mother) and space at his disposal to indulge himself in his hobby.

His astronomy can be considered as comprising two distinct phases. The first was in the period before he acquired the Grubb equatorial in 1910; the second, from then until 1941, when he stopped making formal observations.

Butterworth’s astronomy before 1910

Both F. J. Sellers, president of the BAA in 1941 when Butterworth was given the Goodacre Medal and Gift of the BAA and W. M. Lindley, his Royal Astronomical Society obituarist, describe circumstances that place his interest in astronomy as starting before he



Fig. 4. Waterloo.
Photograph by the author.

was 16 years old.^{24, 25} He is said by both to have been a foundation member (*membre fondateur*) of the *Société Astronomique de France*, which was formed in January 1887 by Nicolas Camille Flammarion (1842-1925).

This begs the question: How did a boy who had just left school, or was about to do so have the contacts and language skills necessary to do this? We don't know where he was educated, but circumstantial evidence suggests that he and his siblings may have had private tuition. In the absence of evidence, conjecture may be allowed limited liberty. It may be relevant to our question that his family home, Mayfield was adjacent to St. Bede's College, a Roman Catholic school that had moved into the premises of the former Manchester Aquarium in 1877. Next door to the College was St. Gertrude's (Roman Catholic) Convent, which numbered amongst the sisters several of French nationality (see Fig. 7). The order to which the nuns belonged was not closed; that is, the nuns were not confined to the convent but were able to undertake suitable duties outside its walls. It is possible that through one or other, or both of these neighbours, Charles Butterworth was introduced to astronomy and to French connections.²⁶

The BAA's Variable Star Section was founded in 1891 and until 1910 had 10-15 members, but until 1900 was chiefly concerned with a search for novae and new variables. It was apparently only after 1900 that a programme was organised to observe about 35 long period and interesting irregular variables. Perhaps Butterworth's early interest in the French society had been complemented by his own interests evolving beyond those early ones of the BAA section before 1900.

However his interest came about, it is axiomatic that to progress in competence and knowledge, an amateur astronomer in Victorian times, as now, needed guidance, training and mentoring. In 1887 and before, Butterworth's choice of colleagues and his access to astronomical information and equipment, was somewhat limited. The Liverpool Astronomical Society (LAS) had been formed in 1881 and by 1890 had a membership from a very wide geographical range, not only in the north-west but as far afield as the Isle of Man and South America. Its success was in fact its temporary undoing, when financial difficulties forced the society into an hiatus during 1890, a void filled almost immediately by the formation of the British Astronomical Association in that same year. Two years later in 1892, the BAA encouraged the formation of the North West Branch of the society in Manchester, but there is no record that Butterworth joined at that time. However, he may have established communications with other members of the LAS living in the Manchester area from which his skill in variable star observation may have been acquired.²⁷

Observations after 1910

The scarcity of information about Butterworth was mentioned in the opening paragraphs of this paper. The author is aware of no autobiographical material. Furthermore, only the two items mentioned in Notes 3 and 4 contain biographical material whose audit trail, though implicit, can be taken as reliable. However, a third source originating from the *l'Association Française d'Observateurs d'Étoiles Variables*, which he joined in 1923, contains plausible content that we shall utilise, despite the source unidentified. He was a very active member of the Association, contributing 30,000 observations beyond the stars within the prescribed programme of the BAA Variable Star Section. For this he was awarded in 1927 the Abbot Silver Medal from the University of Lyons and in the following year the *Palme d'officier de l'Académie* by the President of France.²⁸

In 1936, *l'Association* published an article about him and three other recipients of the Abbot Silver Medal. Part of it reads:

'We have been able to collect some information about the scientific activity of the individuals concerned, but in Butterworth's case there were problems because of his extreme reluctance to speak about himself, or to let others do so. Chronic insomnia from his youth onwards led Butterworth to carry out astronomical observations during night-time cycle rides, beginning with meteors. This led him to observe variable stars, enabled by his favourable situation 26 km from Manchester and 130 m above sea level... His only regret was that he didn't start 20 years earlier.'



Fig. 5. Butterworth—Stonyhurst July 1921.

Image supplied by Kevin Kilburn, from Manchester Astronomical Society archives.

The inference we draw is that it was at Poynton, perhaps when he was still living at Fellerigge that his serious interest in astronomy and variable stars in particular, began. The earliest Butterworth observation in the database of the Variable Star Section of the BAA is of R Aquilae on 16 June 1911. Having established his home at Waterloo, Butterworth set up a 6-inch Grubb refractor in a small observatory. He says that he chose the eyepieces with care to match the optics of the instrument and to minimise chromatic aberration. With the instrument, later augmented at times by 10¼-inch and 15-inch Newtonian reflectors, he made what was for the time, the longest and most continuous series of magnitude estimates of variable stars of any observer.

Although Butterworth was an unassuming man and we can only glean limited details of his private life, as a prolific observer of variable stars, he was a regular contributor to the astronomical societies of which he was a member. Much of what we know is taken from his obituary in the *Monthly Notices of the Royal Astronomical Society*, to which he had been elected a Fellow on 13 December in 1918. His other affiliations to United Kingdom societies included the British Astronomical Association, in which he was a member of the Variable Star Section and the Spectroscopic Section and the Manchester Astronomical Society. While it is not known when he first submitted observations to the BAA, it is clear that after 1910 he was active, and also attended meetings of the Manchester Astronomical Society (MAS). By 1914 his technical ability is evident from papers submitted to the BAA from 1913 to 1920.

At the Manchester Astronomical Society he would have met Rev. A.L. Cortie, S. J., F.R.A.S., MAS President and one of the most respected authorities on stellar spectra. At the opening meeting of the 1914 session, 7 October 1913, Butterworth exhibited some photographs of the spectra of Delavan's Comet and a comparison star, taken with a lens of 25.8mm diameter in conjunction with a mirror of size 26mm and focal length of 650mm, the flint glass prism having an angle of 21° .²⁹ On 4 March 1914, he exhibited a number of spectrograms of Mira (o Ceti) and β Aurigae.³⁰ At the Thirteenth AGM of the MAS, on 1 November 1916 Butterworth drew attention to the magnitude of Mira as being 4.5 and remarked that on 18 October, with a two hours exposure, no Hydrogen- β line was visible in the spectrum. He also exhibited a light curve of SS Cygni made during the previous two years and called for observations to be made by more observers.³¹ His later spectrograms were taken with a 6½-inch prismatic camera, his work being described in his lecture, 'Nova Aquilae', which he gave to MAS on 2 October 1918. The instrument he then used, was a prismatic chamber whose aperture and focal length were respectively 6⅓ and 42½-inches; the prism had an angle of 21° , thus allowing the recording of spectra from Hydrogen- α to H without inclining the plate. A summary of the information obtained by these spectrograms was published in the *Journal of the Manchester Astronomical Society*, 1917-20, pp. 32-3, with two plates as its frontispiece showing a reproduction of the negatives.

Butterworth was one of those rare variable star observers who had the opportunity to measure his own vision as regards spectral sensitivity. During 1911, with three experienced spectroscopists, he examined the rays of the solar spectrum in a Rowland system (grating) spectroscope and found that he was more than usually sensitive towards the violet end of the spectrum. This may explain a notably consistent personal equation seen in his variable estimates. His observations of Long Period and Irregular Variables communicated to the Variable Star Section of the BAA between 1911 and 1941 amounted to just less than 80,000. This series is equally noteworthy for the uniformly high proportion of early morning observations, perhaps driven by his chronic insomnia, when most amateur observers find it difficult to be active owing to work commitments the next day. As a result, Butterworth was able to achieve in his observations, made with the same instrument, a higher consistency and continuity in method than most.

In 1927, aged 57, Charles Butterworth retired to Port St. Mary, Isle of Man, buying Beach Villa (now Balla Maria) for £900 and later described 'as a beautifully situated, commodious detached residence fronting Main Street and with views over Port St. Mary Bay'.^{32, 33} He built a wooden observatory for the 6-inch Grubb refractor and resumed his variable star observations. The reflecting

telescopes were not used again after his retirement and were sold. For the remaining twenty years of his life, he apparently lived comfortably on the proceeds of his career in the Lancashire textile industry. Astronomy was not his only interest, he was a keen cellist and pianist and spent a great deal of time on chamber music, especially string quartets, having acquired a very fine set of old Italian instruments to ensure balanced tone in the ensemble. In an amusing anecdote related by Simon Butterworth, his great-nephew, on the outbreak of World War II Charles Butterworth took his Steinway piano out into his garden along with his German music and burned the lot.³⁴ 'It fell to my father to explain to Uncle Charles that Steinways were not made in Germany but in the USA!' Ornithology, botany and geology also interested him as did his yacht and the growing of roses.³⁵

Yet in comparison with this apparently idyllic lifestyle, the last few years of Charles Butterworth's personal life were quite extraordinary for a man who had lived privately during his most productive time as a variable star observer and held such ideals against Germany. On Friday 14 March 1941, his wife Margaret Anna died from heart failure, after suffering a cerebral haemorrhage. At about the same time he stopped observing. Eleven months later, aged 71, he married a German woman, over thirty years his junior, who had been interred at the women's camp at Rushen. Scandal ensued as Erica Fruhling had been released from the camp under a Home Office order and had nursed Margaret until her death. Butterworth had attempted to get permission for Erica to become his housekeeper, but was unsuccessful because the village was a protected area.³⁶ In June 1941, Erica went to live in England, and there married Charles on 12 February 1942 at Brentford, Middlesex.^{38, 39} The couple returned to the Isle of Man, but Erica was barred entrance into Port St. Mary under the orders of the chief constable, as it was still a protected area. The newly-weds initially decamped to a hotel in Douglas and, until they could return to Beach Villa, from 4 March 1942 took up lodgings with a friend, Mr. Harry Corrin at his home, Avondale, at Colby a small village a couple of miles from Port St. Mary.⁴⁰

Charles Butterworth, now an elderly man, was very upset about the affair and declined to say anything more about it except that his health had suffered. He died 22 September 1946. Erica sold Beach Villa for £3000 in 1950 and moved to Morcombelake in Dorset.⁴¹ She died in 1981 having not remarried.⁴² According to her wishes she was cremated.

Conclusion

During 30 years of observing Charles Frederick Butterworth made on average of more than ten magnitude estimates a night, a remarkable achievement and one which put him in the fore-front of English variable star observers with a total of 106,000 magnitude estimates submitted between about 1911 and 1941. He was the first British observer to exceed 100,000 observations, and in 2008 only one other has exceeded his achievement. On his retirement as the most prolific variable star observer, in 1941 he was awarded the Walter Goodacre Medal and Gift of the British Astronomical Association. In 2006, John Toone of the Variable Star Section of the British Astronomical Association proposed the creation of a special, occasional award, the Butterworth Award, for outstanding service in the field of variable star astronomy. It was first awarded to Dr. Arne Henden, the director of the American Association of Variable Star Observers (AAVSO) during his visit to the United Kingdom that year. The second recipient was Gary Poyner on 12 April 2008 in recognition of becoming the first European to accrue 200,000 visual observations of variable stars.^{43, 44}

Fig. 6. Beach Villa as it is today and inset showing observatory.
Photograph by author.

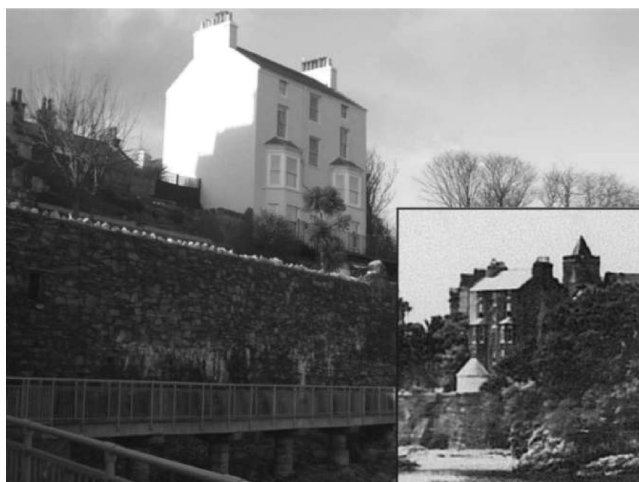




Fig. 7. Erica Butterworth.
Photograph supplied by the author.

Acknowledgements

It is a pleasure to acknowledge assistance for this article from Mr. Simon Butterworth, great-nephew of Charles Frederick Butterworth; John Qualtrough; Tony Cross of the Manchester Astronomical Society; John Toone and Roger Pickard of the BAA Variable Star Section; Emile Schwitzer of the French Variable Star Association; The staff at the Manx Museum; *The Dorset Echo*; *The Manx Independent*; Debbie Winters, education and liaison officer, Dorset Family History Society; The Society for the History of Astronomy—especially Dr. Reg Withey, Roger Jones and Kevin Kilburn

Notes and References

1. The church is dedicated to the Holy Trinity, but is commonly referred to as 'Rushen Church' and spoken of as 'Kirk Christ'. The grave is in the north east corner of the section of the southern cemetery nearest the road.
2. Her second forename on birth certificate is given as 'Anne'; but on her marriage and death certificates as 'Anna'.
3. 'La Médaille Abbott', *Bulletin de l'Association Française d'Observateurs d'Étoiles Variables*, 1936, 5, 2 (1935), 33–38, pp. 33–34.
4. The award to Butterworth of the Goodacre Medal was made at the meeting of the BAA held on Wednesday 25 June 1941, 'Report of the Ordinary General Meeting of the Association', *Journal of the British Astronomical Association*, 51, 7 (August 1941), p. 7. The record of the award to his representative on 29 October, which contains biographical and astronomical detail, is 'Report of the Annual General Meeting of the Association', *Journal of the British Astronomical Association*, 52, 1 (December, 1941), pp. 4–6.
5. Lindley, W. M. 'Charles Frederick Butterworth', *Monthly Notices of the Royal Astronomical Society*, 107, 1 (1947), pp. 40–41; William Lindley (1891–1972) was Secretary of the Variable Star Section of the BAA from 1934 to 1939, then Director until 1958. This was the time of great activity by C. F. Butterworth.
6. Some of the facts in this paper have appeared in the *British Astronomical Association Variable Star Section Circular*, 134 (December, 2007), pp. 24–27; and from a presentation by the author in *Nebula: Newsletter of the Leeds Astronomical Society*, 36, 1 (April, 2008), pp. 12–13.
7. The marriage took place on Saturday 30 January 1869 in the cathedral in Manchester.
8. Stretford was then a township of about 2000 lying a few miles to the south-west of Manchester, on the northern side of the River Mersey. It later became an increasingly larger dormitory suburb for 'white collar' Mancunian workers. In 1974 it became part of the unitary Authority of Greater Manchester.
9. Grey-cloth was the name given to unbleached cotton cloth. The industrial north-west of England was, in Victorian times, the major centre for cotton weaving and for the manufacture of garments and other items from that cloth. For context see: Rose, Mary B. (Ed.), *The Lancashire Cotton Trade: A History Since 1700* (Manchester: Lancashire County Books, 1996).
10. From Charles F Butterworth's Birth Certificate.
11. It is difficult to judge the financial status of the Butterworth household. Working-class families quite often had living-in servants; of the six households recorded on the same page, three had live-in servants.
12. Information is taken from the 1881 Census.
13. Her death certificate records 'Diphtheria. 5 days.' At this time, the three commonest fatal diseases of children were diphtheria, pneumonia and tuberculosis; all bacterial lung infections, for whose prevention or treatment there were no vaccines or antibiotics.
14. The 1891 census records the 15-year old youngest son Harry Clement Butterworth (and one other boy) as a 'Scholar' and 'Visitor' respectively in the home of Miss Mary Beatrice Stooke, employed as a 'Governess in School' in the Fairfield parish of Buxton, then as now, a fashionable Georgian spa town in the Peak District of Derbyshire, about 20 miles south east of Manchester. It is unclear if the house, number 1 Elleslee Villa, was a school, or merely a house where two scholars happened to be visiting a school governess on census night. The indications are that the house was semi-detached with its immediate neighbour, 2 Elleslee Villa: if it was a school, it must have been a small, possibly privately run one.
15. C. F. Butterworth is said to have left school when 15 years old.
16. Information from his death certificate.
17. Having reached the age of 45 years, Joseph Butterworth could have expected to live for about another 22 years. This information is calculated and promulgated by organisations such as the Department of Health. A convenient, independent historical analysis on life expectancy (from the year 1841) has been prepared by the Office of Health Economics – www.ohe.org.
18. The word 'Union' refers to the practice of several adjacent civil parishes being united to administer the requirements of the Poor Law Amendment Act 1834. Until this time, individual parishes had been responsible for care of the poor and needy. The Chorlton upon Medlock Poor Law Union comprised twelve parishes of northern Cheshire. In 1844–1845 a new building for 1,500 inmates was erected—the Withington workhouse. An aerial photograph and information about it is given in: Peter Higginbotham, *Images of England: Workhouses of the North* (Stroud, Gloucs., Tempus Publishing, 2006). The author's excellent website at www.workhouses.org.uk gives a history of the Chorlton Union workhouses, extensive modern photographs of the buildings, a map and a 'bird's-eye view' of the Withington workhouse, which in 1915 became Withington hospital. The formation of the National Health Service in 1948 led to the integration of many former workhouse hospitals (infirmaries) into the newly-created NHS.

- 19 Workhouses were not the only infirmaries at this time. Charity-supported hospitals were present in most cities. The Manchester Royal Infirmary was built in 1755 on the site of the present-day Piccadilly Gardens. Why Joseph Francis Butterworth was not taken here is unclear. His death certificate states that he was a 'Commission Agent of Hulme, Manchester'. If he lived in Hulme, then the Manchester Royal Infirmary was the natural place for him to be taken. If, however, he still lived in Alexandra Road South, then the Royal Infirmary was more distant than the infirmary of the Withington workhouse. It may be significant that C.F.B. lived just a few minutes' walk from the Withington workhouse.
- 20 For a discussion of coal-mining in the Poynton area, see: Shercliffe, W. H., Kitching D. A., and Ryan, J. M., Poynton, *A Coalmining Village; Social History, Transport and Industry 1700-1939* (Stockport: W. H. Shercliffe, revised edition 1990).
- 21 This description appears in the 'For Sale' catalogue of Poynton Estate, which was held on Friday 19 March 1920. See Lot 33 on pages 24-25, and Lot 34 on page 25. A detailed map accompanied the sale catalogue. The map has a scale of about 12.7 inches to 1 mile, and was inscribed, '...based upon the Ordnance Survey Map...'. It was probably a half-scale (1:5000) copy of the 1:2500 Ordnance Survey sheets covering the Estate. A copy of the catalogue and its coloured map of the Estate is held in Poynton Library, SK12 1RB.
- 22 The date and place of death are taken from her death certificate, on which her age is erroneously given as 62 years.
- 23 Lindley, W. M., 'Charles Frederick Butterworth', *Monthly Notices of the Royal Astronomical Society*, 107, 1 (1947), pp. 40-41.
- 24 See Note 4. Francis John Sellers (1875-1959) was Secretary of the BAA 1928-1938, from 1939 to 1951 Director of the Solar Section, and President 1940-1942; see Newbegin, A. M., 'Francis John Sellers' *Journal of the British Astronomical Association*, 70, 5 (May, 1960), pp. 235-37; Newton, H.W., 'Francis John Sellers' *Quarterly Journal of the Royal Astronomical Society*, 1, 2 (December, 1960), pp. 242-44.
- 25 See note 5.
- 26 Kelly, Howard L., The British Astronomical Association, the First Fifty Years, BAA Memoirs, vol. 42, 1 (London: BAA, 1948), p.117.
- 27 Butterworth is listed as one of the 122 members of Manchester Astronomical Society in its *Journal of the Session 1916-1917*, and it may be significant that several other names are known to have been members of the Liverpool A.S. and North West Branch of the BAA in the last decade of the 19th century.
- 28 With a view to encouraging the observing of variable stars at the Lyon Observatory, one of the members of the French Association of Variable Star Observers, M.W.N. Abbott, generously provided a gift of Fr.1000 in 1926 for the establishment of a prize. The interest from this sum would enable a silver medal to be given to a deserving and diligent observer whose observations would constitute a complete and permanent record.
- 29 *Manchester Astronomical Society Journal of the Session 1914-1915*.
- 30 *MAS Journal of the Session 1913-1914*.
- 31 *MAS Journal for the Session 1916-1917*.
- 32 Thus implying that his income and likely inheritance to that date was sufficient to allow retirement and the continuation of his observations in the manner he had enjoyed at Poynton.
- 33 Gary Kewin in the article, 'Charles Butterworth... man who had 106,000 stars in his eyes', *Manx Independent* [newspaper], Friday 14 September, 2007.
- 34 Personal communication to the author.
- 35 Lindley, W. M., 'Charles Frederick Butterworth' *Monthly Notices of the Royal Astronomical Society*, 107, 1 (1947), pp. 40-41.
- 36 Erica Johanna Henriette Fruhling, b.16 December 1902 at Gr. Fluttbeck [?], Germany arrived at Dover on June 10 1937; UK Registration Card 622179 dated June 11 1937. She is described as a cook. This document suggests that she was only allowed to stay in the UK for 12 months but she may have been joining relatives already settled in Middlesex, possibly to escape Nazi extremes in Germany.
- 37 In 1939 she was working for him looking after his wife who was dying. He tried to adopt her to help her avoid returning to Germany, which she did not want to do. Upon his wife's death he probably discovered that if he married her the authorities would not be able to deport her. Personal Communication from Simon Butterworth to the author.
- 38 Interred at Rusden December 19 1939 as an enemy alien, 'until further orders', Erica was initially released to live in the Isle of Man on 30 May 1940 and again released 19 June 1941 to reside at 7 Charlbury Grove, Ealing, London W5. Ref: Release document date stamped 19 June 1941.
- 39 The witnesses to the wedding were Erica's sister, L.B.H. [Louise Beate Hermance] Cockshutt and Joseph Cockshutt, presumably Erica's brother-in-law.
- 40 Letter dated 4 March 1942 from Inspector J. G. Kneal [?], Castletown, to Major J. W. Young O.B.E. Chief Constable of I.O.M.
- 41 Advertised for sale with vacant possession by public auction in the, *Isle Of Man Examiner*, 6 January 1950, p. 8
- 42 According to her Will, Erica left most of her estate to her sister Hildegard Cornelia Brann of Kingston-on-Thames, with proceeds from the sale of her house being equally shared between her sister Louise Cockshutt and Clive Butterworth, Charles Butterworth's nephew.
- 43 As of 2008 the only observers to have accomplished this amazing feat of over 100,000 variable star brightness estimates include Albert Jones with over 500,000 and still observing; Danie Overbeek with around 285,000 and Wayne Lowder who made some 209,000 observations. From Britain only two other observers have achieved 100,000, John Toone with 128,000 observations and still counting and, of course, Charles Butterworth who made some 106,000 measurements and was the first to achieve the goal.
- 44 'Out of London Meeting, 2008 12 April held at New Hall, University of Cambridge, jointly with the meeting of the BAA Variable Star Section and the American Association of Variable Star Observers', *Journal of the British Astronomical Association*, 119, 2 (2009), 96-99, p. 99.