

Alice Grace Cook: An East Anglian meteor observer

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Alice Grace Cook (1877–1958 and usually known by her middle name) was one of the first female Fellows of the Royal Astronomical Society. She was also briefly the Director of the British Astronomical Association Meteor Section. However, she is a little-known figure. This paper presents an overview of her life and contributions to astronomy.

Family background

Grace Cook's parents were Francis Rider Cook (1842–1917) and Alice Charlotte née Lingwood (1844–1926).¹ They married in the Suffolk town of Stowmarket in 1869.

Francis came from Whitechapel, East London, and was one of ten children in the Cook family. Their father, Edward Cook (1810–'68) ran a business making soap and disinfectants, while a secondary concern manufactured artificial manure. By 1861 the business employed 32 men and boys, including two of Edward's own sons.²

After the death of their father in 1868, Francis Rider and James William (1847–unknown) left the soap/manure works for Suffolk. It is possible that they came to exploit coprolite deposits: the Reverend John Stevens Henslow (1796–1861) discovered significant quantities in the east of the county in 1842 and publicised their use as a base ingredient for artificial fertilisers.³ However, their business partnership traded corn, coal and seeds. James left the partnership on 1876 Mar 18 and went to be a harbourmaster in Essex.⁴ Francis stayed on in Stowmarket and continued trading on his own account.

Grace Cook's mother's family were from the village of Battisford, located four miles south of Stowmarket. The large Ling-

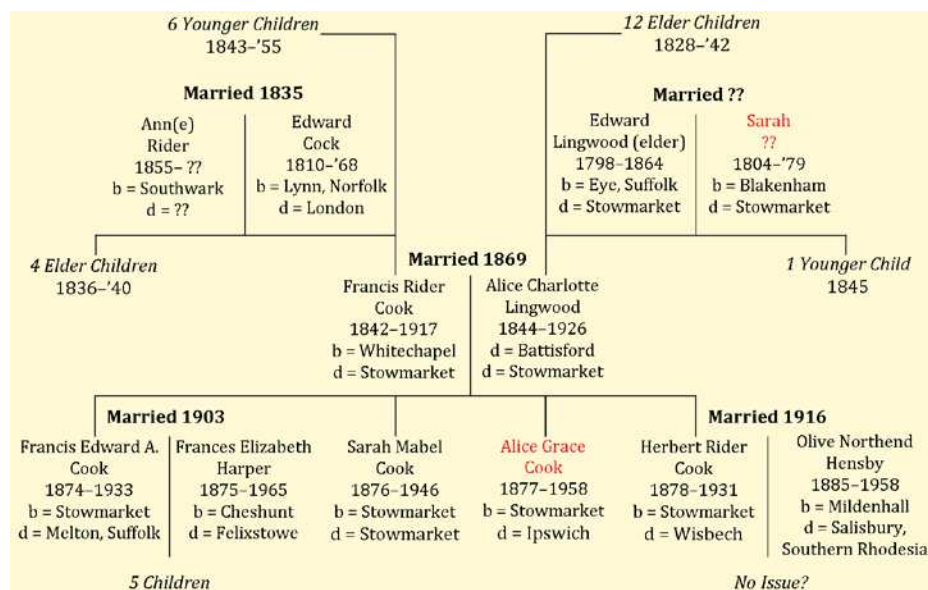


Figure 1. The Cook family tree.

wood family were mostly farmers and Alice Charlotte had a total of thirteen siblings. It is not known how Francis and Alice met, but family business connections would seem the most likely explanation.

Alice Grace was born at the family home of 'Woodside' in Stowmarket, on 1877 Feb 18.⁵ Francis and Alice Charlotte's other children were Francis Edward Arthur (b. 1874), Sarah Mabel (b. 1876) and finally Herbert Rider (b. 1878); a family tree is shown in Figure 1. Records before 1891 note their father as being a farmer and merchant, but after this date he is described solely as a merchant. Commercial directories since the 1880s also point to Francis Rider running an agency for the family's artificial manures.

Grace Cook's brothers, Francis Edward and Herbert Rider, diversified into flour milling. From 1892, they operated the Victoria Roller Mill in Stowupland Road. A substantial six-storey building contained modern machinery and ran seven pairs of mill stones. A malting business was also operated from other buildings nearby: as time progressed, they concentrated more on producing malt and the flour milling was allowed to run down.

Francis Rider's company name disappears from directories between 1922 & 1929. It is possible that the financial pressures of the Great Depression caused the business to fail. This could also be a cause for Francis Edward being committed to the St. Audrey's lunatic asylum, where he died in 1933.⁶



Figure 2. The Rookery, Stowmarket.

Up to 1911, none of the female members of the Cook family had any paid employment. This hints that they were sufficiently well-off to support three non-breadwinners. Additionally, the family employed two or three household servants at their residence, ‘The Rookery’ (see Figure 2). Grace Cook’s secondary education took place at the Girls High School in Bury St. Edmunds,⁷ while at least one son attended a boarding school at Witham in Essex.⁸

Not being employed was a clear advantage to Grace Cook when it came to night-time astronomical observing: it freed her from the responsibility of needing sufficient overnight rest before a following day’s work. It may therefore be no coincidence that, when circumstances required Grace Cook to obtain her own income, her output markedly decreased.



Figure 3. Alice Grace Cook in her observatory, published in the *English Mechanic*, 1915 Feb 19. From Ref. 20.

The astronomical world of Alice Grace Cook

In 1951 November, Grace Cook wrote to the Ipswich amateur astronomer Dennis Jack Fulcher FRAS (1918–’75;⁹ Fulcher and Cook were among the founding members of the Ipswich & District Astronomical Society in 1950). He was compiling a history of astronomy in Suffolk. In the letter, she ascribes her initial interest in astronomy to her maternal grandmother, one Sarah Lingwood (1804–’79). Sarah owned a small telescope, which she used fre-

quently. She also owned an astronomy reference book – an 1819 edition of Mylne’s *Elementary Treatise on Astronomy*. In the fullness of time this book, though not the telescope, came into Grace Cook’s hands.

In the autumn of 1909, Grace Cook attended a series of six astronomy lectures in Stowmarket.¹⁰ These ‘Cambridge Extension’ presentations were given by Joseph Alfred Hardcastle FRAS (1868–1917). At the first lecture he made an appeal for students; just under a dozen people subsequently stayed at the end of each lecture for additional tutoring. Sessions were also held at Hardcastle’s lodgings during mornings before the main lectures.¹¹ Some of these students, including Grace Cook, worked with Hardcastle to classify nebulous objects on Franklin-Adams’ plates. These photographs were the product of work by one John Franklin-Adams (1843–1912), who initially planned to map the Milky Way with a 10-inch (250mm) aperture Star Camera made by T. Cooke & Sons of York.

This survey was later extended to cover the whole sky.¹² To do this, it would be necessary to operate from two locations: the northern sky was imaged from the UK, and the southern from the Cape Observatory, South Africa. A total of 206 plates were exposed between 1902 & 1910, with 785 objects classified as I ‘spiral’, II ‘elongated’, III ‘diffused’ or IV ‘small’. Later, Hardcastle credited Grace Cook with undertaking the majority of this classification work.¹³ He also proposed her for election to the British Astronomical Association, which was seconded by Frank L. Grant.¹⁴ Her election took place on 1911 Feb 22. Hardcastle and Grant held the positions of joint BAA secretaries, with Hardcastle serving from 1904–’10 and Grant from 1907–’14.¹⁵ Cook and Hardcastle kept in touch by letter until the time of his death in 1917.¹⁶ Having joined the BAA, Grace Cook encouraged others in her area to join too; a table of these people has been constructed and is shown here.

Grace Cook lacked any observational aids at this point, so concentrated on naked eye work – atmospheric phenomena, aurorae, meteors and the zodiacal light all took her interest. BAA regulations require a membership of two years before the loan of an instrument can be applied for.

In 1913 Grace Cook acquired No. 27; a 5-inch (125mm) aperture clock-driven equatorial refractor.¹⁷ It had previously been owned by an original member of the Association, one Colonel William Alexander Pennington (1848–1911). He lived at Lake House, Netley Abbey, Hampshire with his four unmarried sisters.

Chronological Table of BAA members proposed or seconded by Alice Grace Cook

Name	Date	Address	Proposer	Second
Henry Frederic Whitrod	1916 Mar 29	Park Villas, Diss, Norfolk	A. G. Cook	W. F. Denning
Basil John Wait Brown (i)	1918 Nov 27	Rickingham Superior, near Diss	W. F. Denning	A. G. Cook
John Philip Manning Prentice (ii)	1919 Nov 26	Redcroft, Stowmarket, Suffolk	A. G. Cook	Basil Brown
Miles Talbot Brockman (iii)	1920 Nov 24	Eaton Cottage, Thames Ditton, Surrey	J. P. M. Prentice	A. G. Cook
Edward Howard Collinson (iv)	1920 Nov 24	64 Westerfield Road, Ipswich	J. P. M. Prentice	A. G. Cook
Hercules Dermot Wilfred Pakenham	1921 Apr 27	Langford Lodge, Crumlin, Antrim	A. G. Cook	M. Davidson
Rev. John Hixon Irving	1921 Dec 28	Cressington Ave., High Tranmere, Cheshire	A. G. Cook	J. P. M. Prentice
Wilfred Tidmarsh	1922 May 31	Northgate Avenue, Bury St. Edmunds	A. G. Cook	J. P. M. Prentice
Arthur Frederick Bennett (v)	1922 Jun 28	Haylings, Leiston, Suffolk	A. G. Cook	J. P. M. Prentice
Frank Egerton Walker	1922 Nov 29	Maisonette, Leiston, Suffolk	A. G. (F?) Bennett	A. G. Cook
Edward Allen Robert Pearce	1922 Dec 27	75 Whitworth Road, Dublin	W. F. Denning	A. G. Cook
George Eric Deacon Alcock (vi)	1935 Feb 27	59 London Road, Peterborough	J. P. M. Prentice	A. G. Cook

Notes:

- (i) Later excavated Sutton Hoo. (ii) BAA Meteor Section Director 1923–54. (iii) Gresham’s School pupil. (iv) BAA Mars Section Director 1956–79 & President 1952–4. (v) BAA Treasurer 1931–3 & 1936–7. (vi) Discovered five novae & comets.

Following his death on 1911 Aug 31, one of the Miss Penningtons donated his telescope to the BAA. It is therefore known as the 'Pennington Refractor'.¹⁸ The instrument has been quoted as having been made by one of several different manufacturers. In her 1951 recollection to Fulcher, she claims it to be Captain William Noble's (1828–1904) 4½-inch (105mm) aperture Ross refractor, which was also in the BAA loan collection at the time as instrument No. 19. There is, however, no contemporary documentary evidence that she ever had No. 19 over No. 27.¹⁹

A detailed description of the observatory built to the rear of the Cook family home (15 Tavern Street, Stowmarket), was published (see Figure 3).²⁰ A later reference to the instrument quotes an overall length of 2.4m (7ft 10").²¹ This excessive length meant that some taller users had to sit on the floor to observe, while an immovable roof support made observing across the meridian impossible. The Sun and the Moon were studied, along with the planet Saturn; the 1914 Nov 7 transit of Mercury was also observed.²² Later, Grace Cook recalled the happy times she enjoyed in this observatory, occasionally accompanied by a pet cat. A visitors' book kept the names of visitors, but this is not known to survive.²³ At the time of writing, the telescope is still in the BAA's possession; however, having gone through several users it has lost its original iron column stand. The current finder telescope is also not the original.

At the height of the Great War, on 1917 Oct 2, Grace Cook's 75-year-old father died.²⁴ His widow and daughters moved from 'The Rookery' to 'The Grove', on nearby Ipswich Road. Instrument No. 27 was returned to the BAA,²⁵ but at her new address Grace Cook continued work using a somewhat smaller 2-inch (50mm) aperture Ottway refractor. A 6-inch (150mm) aperture reflecting telescope was also used,²⁶ loaned to her by Hardcastle.

If a larger aperture was needed for a particular observational task, Colonel Tomline's Orwell Park refractor was used. Due to the distance from Stowmarket, these observations required an overnight stay in the village of Nacton. An unnamed friend both accommodated and operated the 10-inch (250mm) aperture telescope for Grace Cook. It is possible that this friend was John Maclean Wiseman (1863–1954), who was an Orwell Park estate

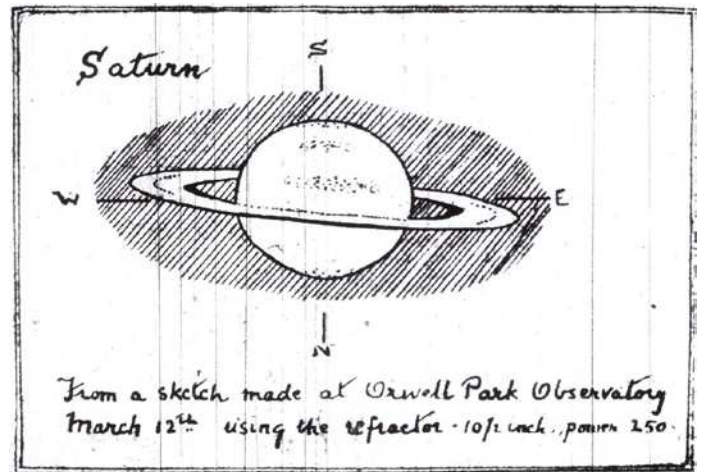


Figure 4. Sketch of Saturn by Alice Grace Cook. From Ref. 28.

worker known to have sufficient knowledge to operate the telescope.²⁷ An example of this type of observation was of the planet Saturn on 1920 Mar 12,²⁸ shown in Figure 4. It was undertaken in preparation for another on Mar 14, when the planet was due to occult the star Leipzig I. 4091. Unfortunately, the weather on the 14th was unsuitable for observation and the project was abandoned (observations were successfully carried out from South Africa though). A second example occurred on 1920 May 3, when Grace Cook joined a group to observe a lunar eclipse.²⁹

UK Meteor observing in the first quarter of the Twentieth Century

The established method of observation was to use a thin, straight wand about 5ft (1.5m) in length. Remaining mentally alert, observations were carried out from a deck-chair using this wand and a stop-watch. The instant a meteor appeared, the wand was held at arm's length parallel to its path, and the stop-watch was used to record the duration of the meteor's appearance. The magnitude of the meteor was estimated by comparing it with adjacent stars and planets. When the observer had all these details fixed in their mind, they were noted down. Once a night's observing was complete, the recorded paths could be transferred to a celestial globe. Taking reverse tracks along the recorded meteor paths allowed the radiant point to be determined.³⁰

As an aid to observation, Grace Cook also used a meteoroscope (Figure 5). This piece of equipment had been designed by the Reverend Martin Davidson (1880–1968) and was intended to ease the task of meteor observing, although it was only operable after some initial difficulty.³¹ It was exhibited at the BAA meeting of 1921 Mar 30.³² Reading the description reveals very little similarity to an 1848 instrument of the same name by James Challis (1803–'82).³³ A meteorometer was also devised by Davidson around this time, to rationalise discordant observations (Figure 6).³⁴

The BAA Meteor Section had five Observing Directors during this period. The first was Walter Ernest Besley (1877–1905) who served from 1900–'05,

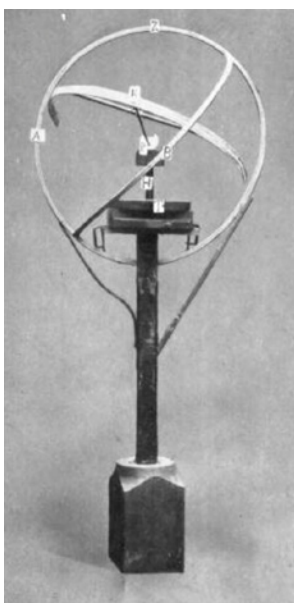
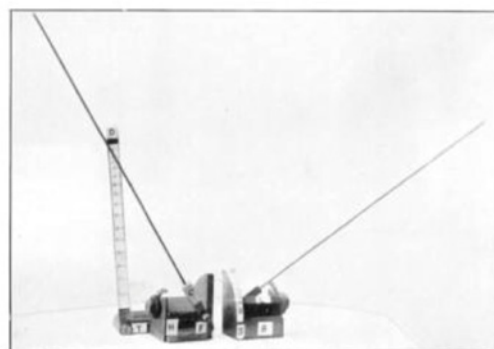


Figure 5 (Left). The Meteoroscope, as pictured in the *Journal* in 1920. From Ref. 31.

THE METEOROMETER.
A Mechanical Apparatus for the Determination of the Real Path of a Meteor.



Designed by the Rev. M. Davidson, and constructed by Mr. W. Hutchinson.

Figure 6 (Above). The Meteorometer. From Ref. 34.

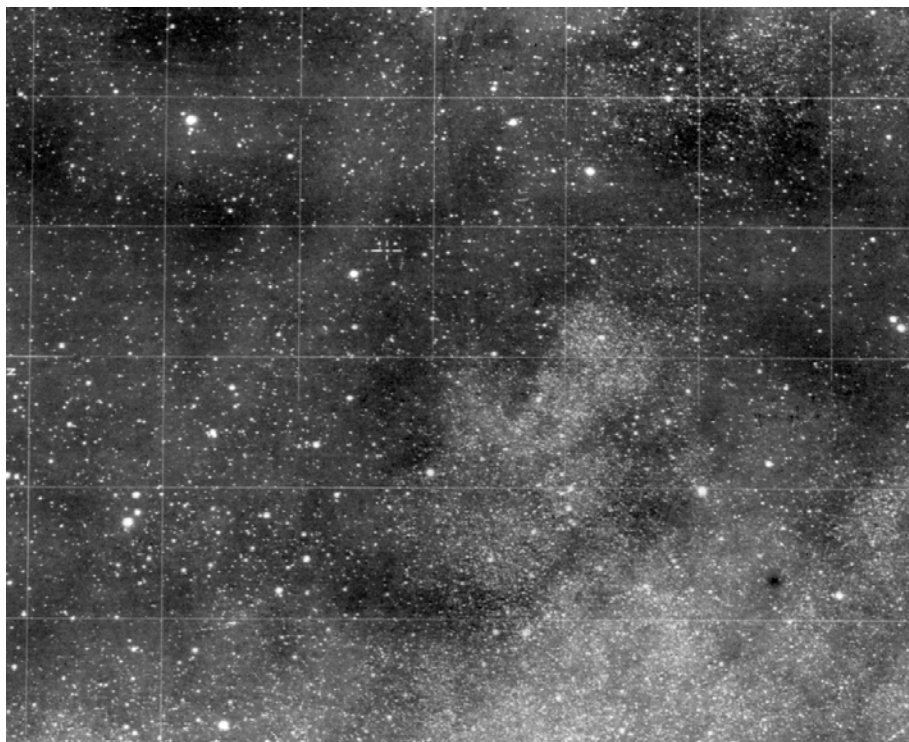


Figure 7. Field of Nova Aquilae 1918. From Ref. 31, between p. 274 & 275.

followed by Miss Catherine Octavia Stevens (1864–1959) from 1905–’11; the Reverend Martin Davidson from 1911–’21;³⁵ Alice Grace Cook from 1921–’23; and finally John Philip Manning Prentice (1903–’81) who served from 1923 onwards.³⁶ An active observing and recording programme was carried on, despite the section sometimes operating with very few members.³⁷

Observing reports were used to identify meteoric radiant points.^{38,39} One theory pursued was that of ‘Stationary Radiants’,⁴⁰ proposed by W. F. Denning. According to this theory, meteors could be seen emanating from a single point in the sky for several months at a time. ‘Proof’ of this concept appeared in 1922, when Cook and Prentice claimed to have observed meteors coming from a stable point near ϵ (Epsilon) Arietis between July and December, despite the Earth moving through nearly half its annual orbit in this period.⁴¹ It is now accepted that these were merely coincidences of random sporadic meteors.

The Great War

The First World War brought large social changes to the UK, as many of the male population were absent while serving in the forces. These changes affected the astronomical world too. In 1914 – perhaps in support of the Belgian nation – Grace Cook joined the Antwerp-based Société d’Astronomie d’Anvers,⁴² her membership being proposed by Charles Birkenstock (founding director of the Bureau Central Meteorique) and Félix de Roy (1883–1942).⁴³

On 1916 Jan 14, Grace Cook was elected as one of the first female Fellows of the Royal Astronomical Society. Her fellowship had been proposed by William Frederick Denning (1848–1931) on 1915 Nov 12. The other female Fellows elected that day were Mary Adela Blagg (1858–1944), Ella Katherine Church (1881–

1948), Irene Elizabeth Toye Warner (1882–1952?), and Fiammetta Wilson (1864–1920).⁴⁴ Of these at least Grace Cook and Ella Church knew each other; Ella and the Reverend Theodore Evelyn Reece Phillips (1868–1942) had advised Grace Cook on the design of her observatory.⁴⁵ Mary Blagg had also come to astronomy through Hardcastle’s lectures.⁴⁶ Fiammetta Wilson lived in North London, but she was originally from Lowestoft, Suffolk.⁴⁷

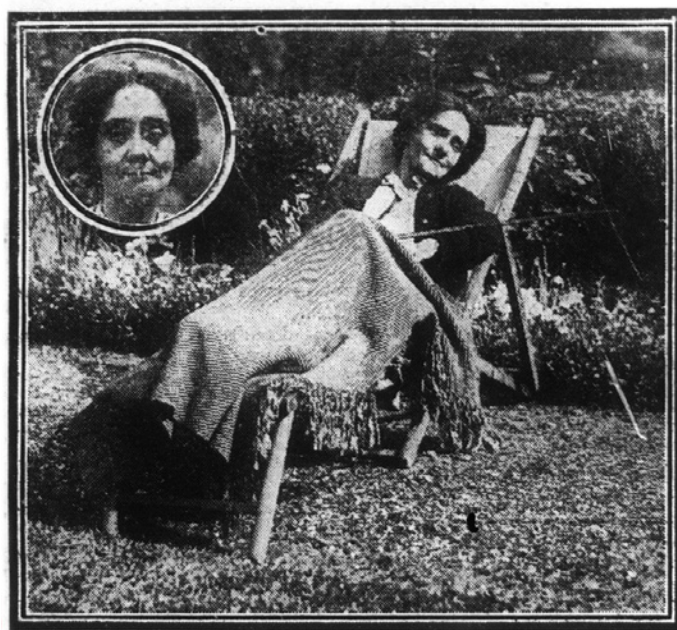
Cook and Wilson’s observational work continued despite the risk of Zeppelin air raids: both East Anglia and London were within Zeppelin range. Effective counter measures against the Zeppelins were only developed as the war progressed.

Perhaps the war also reduced the number of astronomical speakers available. Grace Cook filled this void in Suffolk, giving two talks to the Ipswich & District Natural History Society.⁴⁸ She lectured on ‘The Sun’s Family’ on 1916 Mar 4. She also lectured on ‘Some Astronomical Discoveries’ on 1918 Nov 9, just two days before ‘the guns fell silent’. The latter paper was reproduced by the Leeds Astronomical Society (of which Grace Cook was a

member)⁴⁹ in their *Journal* for 1918.

At 21:30 UT, on the evening of Saturday 1918 Jun 8, Grace Cook noticed a nova in Aquila (later designated V603 Aquilae; see Figure 7). She had been routinely looking for slow moving, bright meteors and noted in her *Klein’s Star Atlas*: ‘On June 8th 1918 first magnitude = Altair, 18h 45m [RA] + 1° [Dec]’.⁵⁰ Denning (with

DISCOVERED NEW STAR.



Miss Grace Cook, who has the honour of having first to record in Great Britain an observation of the new star that is the most extraordinary phenomenon of the heavens to be seen to-day.—(*Daily Mirror* photograph.)

Figure 8. Alice Grace Cook in her observing deck chair, pictured for the *Daily Mirror*, 1918 Jun 19.

whom Cook cooperated extensively in meteor observing) also saw it, but around half an hour later, so she has been credited as the first UK person to see it. Her observation was popularly reported in the *Daily Mirror* of 1918 Jun 11 (see Figure 8).⁵¹ The actual discovery is normally credited to George Noel Bower (1885–1951), who observed it from Nungambankan, Chennai (then known by its former name of Madras) in India, some five hours earlier at 16:30 UT.⁵² Bower was a customs officer in the Indian Civil Service, born in Norwich where his father was an iron founder, amateur astronomer and scientific instrument collector.⁵³ Bower Jr. retired to Suffolk and lived in the village of Brome.⁵⁴ Whether he had any contact with Grace Cook, some fourteen miles distant in Stowmarket, is unknown. This discovery was discussed by the Astronomical Society of India in 1918, but Bower does not appear to have been a member.⁵⁵

An interesting previous highlight of Grace Cook's career, if not an actual observation, occurred in 1913. She 'saw a fireball on July 29d 9h 43m while walking from the house to her observatory at Stowmarket. Unfortunately the glare of the hall gas and of a lantern prevented it being well seen, but part of its flight was observed. It moved almost perpendicular to the horizon, at least 15° of its flight being seen, and ended at 100° +60°. It had a magnitude >4, and seemed to be like a round globe, but did not burst. Cook wrote to the local papers, but no further data of importance were obtainable'.⁵⁶

The Chaldaean Society

Founded in 1890, the BAA soon established an enviable record for observational excellence. Unfortunately participation in their programmes often required instrumental aid, which left something of a gap when it came to basic astronomical observing. It was to fill this gap that a group called the Chaldaean Society came into existence in 1916.⁵⁷ The origins of this society and indeed the choice of name are, apparently, lost to history. A quarterly journal, *The Chaldaean*, aimed to help all those with a desire to study astronomy, and to further the study of elementary and naked-eye astronomy.

A national 'Director of Observations' would set up programmes of work. This post, however, seemed to be difficult to fill – only in late 1919 was Mrs Fiammetta Wilson appointed as Director. After she died – under a year later, on 1920 July 21 – the post remained vacant.⁵⁸

The 1921 Annual General Meeting of the Society was held on Oct 15. There, the Reverend David Ross Fotheringham (1872–1939), editor of *The Chaldaean*, advised the society to pay special attention to naked-eye work. He suggested

that members should watch for, and record specially:

- 1) The first appearance of planets after conjunction with the Sun
- 2) Every appearance of Mercury
- 3) Any appearance of Vesta, other minor planets, naked-eye comets, or Uranus
- 4) Observations of naked-eye variable stars like Mira Ceti or Algol
- 5) Halos
- 6) For those with keen sight, the careful mapping of the Milky Way.⁵⁹

In 1921, James Hargreaves (1884–1985) took over the Chaldaean Society presidency and promoted local branches.⁶⁰ These branches were to be formed wherever a voluntary 'Local Correspondent' could raise sufficient interest. An 'Observing Correspondent' would lead the astronomical work of the branch. The following branches came into existence in the UK, with the names of the associated Local Correspondents given:⁶¹

Luton	Edgar William Foster (1900–'87)
Tottenham	A. Slaughter
Hertfordshire	Eleanor A. Parker (1881–1971)
Warwick	Reverend Ivo Francis Henry Carr-Gregg (1876–1956)
Ipswich	Alice Grace Cook
Letchworth	H. L. Wiltshire
South London	W. Jennings
Isle of Wight	Francis Alan Styles (1902–'55)
Scotland	Thomas Logie MacDonald (1900–'72)

The formation meeting of the Ipswich Branch took place at the Museum in the High Street, on 1921 Aug 4. Grace Cook formally proposed that a branch be formed and her motion was seconded by the Ipswich optician and amateur astronomer Harry Hinsley Burgham (1874–1942).⁶² Grace Cook also started sub-branches in her home town of Stowmarket and the Suffolk village of Yoxford. The national president visited there on 1922 Mar 20 to deliver a public lecture.

Perhaps the highpoint of the Society nationally was the observation of the annular solar eclipse of 1921 Apr 8. A special edition of its journal published the results from some 58 observing stations across the UK.⁶³ Grace Cook observed the eclipse from Stowmarket, using her 6-inch aperture reflecting telescope. Her contact times were 07:36:00 & 10:06:50; she noted Venus was visible between 08:50 & 09:15.

Grace Cook wrote just one astronomical paper for *The Chaldaean* journal. Published in the Autumn 1921 number, it was on 'Halos'.⁶⁴ Additionally she wrote an obituary for a Mrs Flaxman of the Yoxford sub-branch in 1923.⁶⁵ When an Extraordinary General Meeting of the national society was held in the Royal Astronomical Society rooms on 1924 Mar 6, to consider the carrying on of the Society's work, the President (James Hargreaves) pointed to the success of the Ipswich Branch. The uniting of otherwise isolated ama-

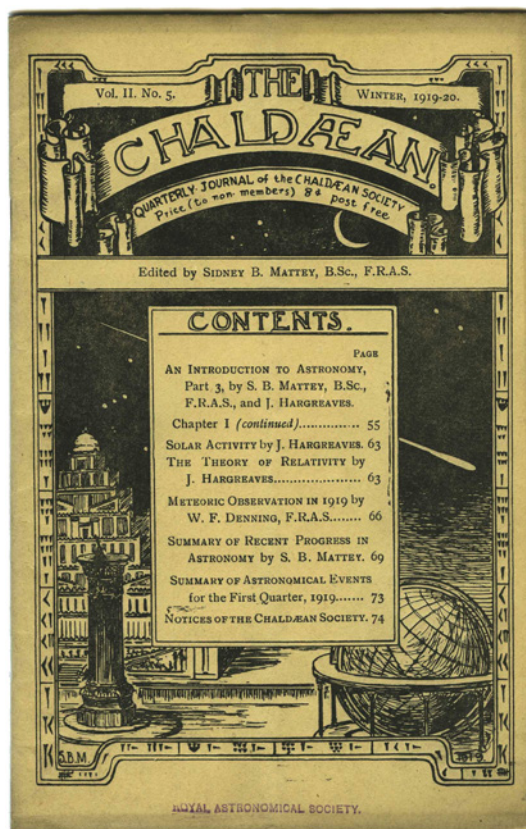


Figure 9. Cover of 'The Chaldaean' Journal.

teur astronomers in the district was also highlighted.⁶⁶ Whatever the outcome of this meeting, the society was ultimately unsuccessful. The Suffolk branches closed later that year and Grace Cook was presented with the remaining £3-0-0 financial credit balance. This was to be used to ‘further astronomical interests in the neighbourhood’.⁶⁷ When the national society started to falter in 1926, Fotheringham wrote to the *Journal* of the BAA to recruit more members. His appeal was supported by the *Journal* editor Annie Maunder (1868–1947),⁶⁸ but Society operations ceased around the time of the 1927 Jun 29 solar eclipse.⁶⁹

Edward Howard Collinson (1903–’90) and John Philip Manning Prentice were also members and attended local meetings. Extant copies of this society’s journal are extremely rare. The writer of this piece knows only of four incomplete sets in the United Kingdom, to be found in the British Library, the National Library of Scotland, the Royal Astronomical Society Library and the Radcliffe Science Library, Oxford. A further set may exist in the University of Chicago Library in the United States of America.

The Post-war period

With the cessation of hostilities, the Reverend Davidson returned to the BAA Meteor Section Directorship. He continued until offering his resignation in 1921, when Grace Cook was appointed in his place.⁷⁰



Figure 11. 44 Ipswich Road, Stowmarket.

As Section Director, she produced just one observing memoir (published as Part 3 of Volume 24 in 1923), which reviewed the observations made in the previous calendar year. However, she did continue the Reverend Davidson’s practice of placing ‘interim reports’ in the *Journal*.⁷¹ More was published, therefore, than is apparent at first. The calendar year 1921 seems to have been particularly productive for observing: Grace Cook noted 867 meteors in 291 hours of watching and J. P. M. Prentice noted 2079 in 349 hours watching.⁷²

The Edward C. Pickering Fellowship for Women was an annual award of \$500US, exclusively to assist female astronomers.⁷³ In 1920 it was presented, for the first time, to someone outside the USA. However, the intended recipient, Fiammetta Wilson, died before she received the award. The money was, therefore, subsequently transferred to Grace Cook.⁷⁴ She used it to obtain life membership of the BAA, reference books, telescope accessories and a Corona typewriter.⁷⁵

A contemporary report of 1922 states Grace Cook was assisted



Figure 10. RAS Centenary Celebration image (*MNRAS* vol. 82).

in her observing by ‘a keen school boy’.⁷⁶ This is unlikely to be a reference to J. P. M. Prentice, as he would have been nineteen years old. The school boy is also not likely to be either of the Eldridge brothers who assisted J. P. M. Prentice,⁷⁷ since they were born in 1918 & 1921, so would have been too young. Another contemporary report refers to the acquisition of a set of nine Backhouse Star Maps designed for meteoric observations.⁷⁸ These were produced by Thomas William Backhouse (1842–1920) of West Hendon House Observatory, Sunderland. The set belonging to Grace Cook were apparently seen many years later by Roy Panther (1926–2016).⁷⁹

The immediate post-war period was incredibly tough financially. Under wartime conditions, inflation had peaked at around 15%; but by the mid nineteen-twenties this had turned to 15% deflation. The BAA only survived by doubling its subscription rate, at a short notice Special General Meeting (SGM) on 1919 June 25.⁸⁰ The RAS also operated on an ‘emergency’ basis for several years. This delayed the society celebrating its centenary in 1920.⁸¹ Grace Cook attended the weekend celebration meeting (see Figure 10), which was finally held in London on 1922 May 30 (it is not known whether she made a frequent habit of attending other RAS meetings).⁸² 1922 also saw the Cook family, mother and two daughters having to downsize. They moved across the road from The Grove to 44 Ipswich Road (Figure 11).⁸³ Grace Cook’s name no longer appears in lists of RAS fellows after 1922;⁸⁴ it is possible that she could no longer afford the financial commitment of fellowship.

The changes undergone by the family can be imagined by considering the number of rooms in each of their homes: The Rookery had ten; The Grove, thirteen and 44 Ipswich Road, five.⁸⁵

In 1923 the Meteor Section Directorship changed hands again, this time to John Philip Manning Prentice.⁸⁶ Prentice was from an old, established family that had done much for the town. They leased the town gas works, Herbert Napier Prentice (1866–1931) introduced electricity to the town in 1896,⁸⁷ and they managed the Stowmarket Gun Cotton Factory.

Apparently the only source in the country, production started in 1863 and output was in the region of 2½ tons-per-week. Unfortunately, on the afternoon of 1871 Aug 11 (a Friday) two explosions partially destroyed the factory. The crater produced was 10ft (3m) deep and 40ft (12m) across. The sound was heard up to 30mi (48km) away. J. P. M. Prentice’s great-great uncle, Edward Henry Prentice (1838–’71) and great uncle William Ridley Prentice (1848–’71) were among the 26 people killed. They went to help in the rescue effort after the first explosion, which occurred at 2pm. No trace of Edward was ever found except a battered gold watch, which had stopped at five-minutes-past-three: the time of the second explosion. A total of 75 were injured.⁸⁸

Prentice was only twenty-one years old when he took over the BAA Meteor Section and had been a member of the BAA for three years. Grace Cook and J. P. M. Prentice lived only a few hundred yards apart, so it is possible that she recommended him for the position. Prentice’s secondary education had been at the Gresham’s School, Holt, Norfolk. Some of the school’s masters and boys ran a Natural History Society, which included an Astronomical Section.⁸⁹ Prentice’s fellow Astronomical Section colleagues were Miles Talbot Brockman (1903–?), Richard Adrian Crowther (1906–’92) and Wallace Russell Harper (1905–’70).⁹⁰ They con-

centrated on solar and meteor observing and, in due course, they all joined the BAA's Meteor Section. Other members around this time were:⁹¹

Basil Brown	(1888–1972)
William Bradshaw Housman	(1877–1955)
Alphonso King	(1882–1936)
Sidney Batt Matthey	(1886–1940)
Frank Sargent	(1872–1953)
Wilfred Tidmarsh	(1904–'86)
Raymond Whitehead	(possibly 1904–'65)

They were later joined by:⁹²

George Eric Deacon Alcock	(1912–2000)
Edward Charles Thomas Avann	(1903–'93)
Philip Emerton-Brown	(1862–1943)
Henry Patrick Folkard	(1900– poss. '38)
Arthur William Lane-Hall	(1904–'93)
The Reverend James William Maver	(1883–1960)
Henry Hayden Waters	(1880–1939)

Grace Cook continued meteor observing under the Prentice Directorship. They were joined locally by an Ipswich solicitor, Edward Howard Collinson. Prentice and Cook observed visually, while Collinson concentrated on photographic recording in cooperation with Waters.

In the early 1930s, a series of Meteor Section conferences were held.⁹³ These took place at the BAA's London venue of Sion College, on Saturdays. It was at the one held on 1931 Jul 4 that Grace Cook identified Alcock as 'taking the place of W. F. Denning'. Alcock was eighteen-years-old and only joined the BAA four years later, on the proposal of Prentice and seconded by Cook (see members table).⁹⁴

Following her mother's death in 1926, Grace Cook moved with her sister to nearby Combs. They lived at two sequential addresses on Poplar Hill before returning to Stowmarket;⁹⁵ from 1932 their final address was 'Sunlit', 56 Finborough Road.⁹⁶ During the Second World War – for unknown reasons – Grace Cook moved temporarily to Oswestry in Shropshire.⁹⁷ There is a definite downward trend in the homes the Cook family lived in over the years: it is possible that the main source of her income was the family business, which might have declined after her father's death. Both of her brothers were married and had financial commitments to their own families to prioritise.

Alice Grace Cook's writings

Between 1911 and its demise in 1926 October, Grace Cook made some 44 contributions to the *'English Mechanic'*.⁹⁸ These were on her usual range of subjects, such as atmospheric effects and meteor observing; she also reported on astronomical events occurring in Suffolk.

From 1919 February to 1920 April, a series of monthly astronomy articles appeared in the Ipswich-published *East Anglian Daily Times*. These unattributed articles appeared under the heading 'Astronomy – The Open Door'. They were frequently accompanied by illustrations with consistent handwritten captions. One of the captions has the monogram 'AGC'. Furthermore, an illustration of the lunar crater Clavius is identical to one which previously appeared in the *English Mechanic*, known to be by Cook (this observation was made, apparently, with the Association's Pennington

Refractor). From this it is assumed that all the illustrations and, by extension, the text, were produced by Grace Cook.

Another, longer series of astronomical/nature/travel articles was published in the *Stowmarket Recorder*, and *Needham Market, Combs & Stowupland Advertiser* newspaper. This series, under the title, 'On the Watch Tower', was written by a 'Mary Star'. They appeared throughout the newspaper's publication life of 1936 June until the outbreak of the Second World War in 1939 September. In her letter to Fulcher, Grace Cook credits herself as being Mary Star.⁹⁹ The articles detail some of her astronomical activities, such as twice visiting E. H. Collinson's observatory in Felixstowe.¹⁰⁰ The Orwell Park Observatory was used to carry out an observation on one occasion.¹⁰¹ She was also visited by an (unidentified) astronomical friend to chat about meteor observing.¹⁰² It is possible that both these columns were written for purely financial reasons.

From the mid nineteen-twenties onwards, Grace Cook could be described as an 'armchair astronomer'. She took an interest in astronomical events, especially local ones, but did not do any active work. When Fulcher started an astronomical society in Ipswich, she supported his efforts by becoming a founder member. Regrettably the Ipswich and District Astronomical Society only ran from 1950 June to 1957 April. This group had two presidents: the first was R. L. T. Clarkson (1889–1954) who served from 1950–'54.¹⁰³ The second was her old friend E. H. Collinson, who served from 1955 till the group's demise.

When Grace Cook eventually died, on 1958 May 27, neither the BAA or the RAS published an obituary for her.

Summary

Grace Cook's life can be viewed as having fallen into two parts, with a watershed in 1923. The first third of her life was that of success built on success. The remaining two-thirds were that of decline.

Alice was born into a wealthy provincial Victorian family where the men were the breadwinners. The ladies of the family were apparently free to pursue whatever interested them. Grace Cook chose a field where determined observational and analytical effort were facilitated by election to the BAA. She then gained the use of a powerful telescope housed in a convenient observatory. This period was finally crowned with election as one of the first female fellows of the RAS. A further prize was the observation, if not the actual discovery, of Nova Aquilæ 1918. The end of the Great War, however, marked a hiatus in Grace Cook's astronomical fortunes. The financial ramifications of her father's death resulted in the upheaval of a house move; a move that necessitated the relinquishment of the superb telescope. Nevertheless, 1920 marked the zenith of Grace Cook's astronomical career, with the *East Anglian Daily Times* newspaper column and the E. C. Pickering Fellowship award occurring in the same year.

Up to this point, it is possible to identify Grace Cook as a 'Grand Amateur'. The year 1923, however, saw the beginning of the decline. The Cooks had to leave 'The Grove', a house of similar grandeur to 'The Rookery'; their next home was the distinctly ordinary 44 Ipswich Road. Grace Cook resigned from her RAS Fellowship in March. The BAA Meteor Section Directorship was also resigned. Her regular monthly observing reports stopped in

November and 1924 brought little relief, with the closing of the Suffolk branches of the Chaldaean Society.

Did the Cook family business also fail in one of these years? That might explain these setbacks. Maybe she was withdrawing from the outside world to care for her eighty-year-old mother. Such care would, of course, have been without the modern household conveniences we all take for granted. Furthermore, all this was played out against the background of the Great Depression.

Grace Cook's mother Alice Charlotte died on 1926 Jul 6, some two months after the General Strike. There was then the expense and upheaval of yet another house move. If things weren't bad enough, her elder brother, Francis, died in 1933 in the county Lunatic Asylum.

It was at this point, however, that the rot stopped. That year, the two Cook sisters moved back to Stowmarket. They would spend most of the rest of their lives at this location. For three years before the Second World War, there was another newspaper column to write (although it was only for the local town paper, rather than the county-wide distribution enjoyed by the *East Anglian Daily Times*); this was to be her last major astronomical activity. The war brought its own difficulties and saw Cook move, albeit temporarily, from Suffolk to Shropshire.

Peace would have brought little comfort for Grace Cook, however. Her last living sibling – her elder sister, Sarah Mabel, with whom she lived – died 1946 Jun 10. Grace Cook did not abandon astronomy completely, but was only able to maintain a passive interest. She lived on alone for another twelve years, before she too died.

Grace Cook did not marry, so she has no direct descendants; her sister Sarah Mabel never married either. Francis Edward Arthur's marriage produced three children that survived to adulthood. As far as is known, Herbert Rider's marriage had no issue.

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Total solar eclipse expeditions

Argentina July 2019 / Patagonia Dec. 2020





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2019 SHA Spring Conference at Oxford University

The SHA 2019 Spring Conference will take place at Oxford University

It is a joint event between the SHA, the Paris Observatory and the Astronomical Society of France (SAF)

It will take place over a 2 day period on Friday 12th April and Saturday 13th April 2019

The Radcliffe Observatory and other sites of astronomical interest will be visited



There will be an optional conference meal at St Anne's College on Friday evening (separate charge). Optional accommodation will be available in St Anne's College, but the number of rooms is limited, so you need to reserve early at the accommodation booking website. The promotional code is **ASTRO27685**

The event will be held at St Anne's College, Woodstock Road, Oxford, OX2 6HS.

On Friday there will be a walking tour in the morning and afternoon. This will include expert guided tours of the Oxford Museum of the History of Science, the historic Radcliffe Observatory, and other places of great interest in the history of astronomy.



There will be a visit during the walking tour to the Oxford Museum of the History of Science in the Old Ashmolean Building

On Saturday the Conference will take place with speakers from the UK, France and the USA.

Talks include:

- The Discovery of the Outer planets** from Bill Sheehan (SHA)
- Pictures in the Sky – A History of the Constellations** from Ian Ridpath (SHA)
- A Tale of three Williams – the Mirror making/testing techniques of Herschel, Rosse and Lassell** from Bob Bower (SHA)
- Herschel's least known Telescope** - from David Valls-Gabaud (Société Astronomique de France)

Plus 2 other speakers to be confirmed.

Friday Tour: £17/ head for SHA Members
Due to restricted space at some of the historic sites, the maximum number on the walking tour will be 30 persons.

The Saturday Conference fee will be £10 for SHA members and £15 for non-members