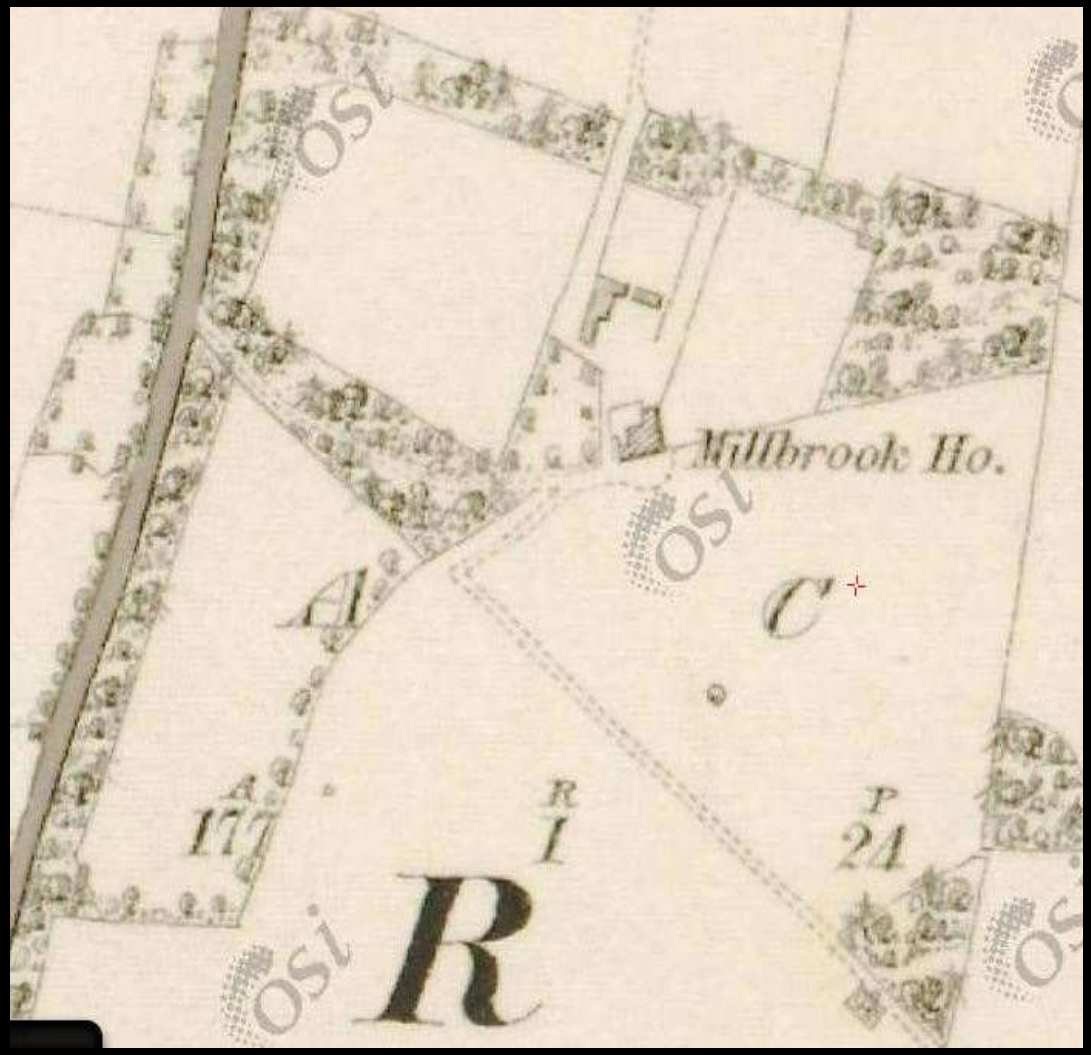
# *Millbrook Observatory, Co. Galway*

## *1865 - 1884*


*A Star in the Western Sky*




Place of observation, Lat. 53° 37′ 43″, Long. 8° 53′ (approximate).


Sliding roof Wooden Observatory

In front of house

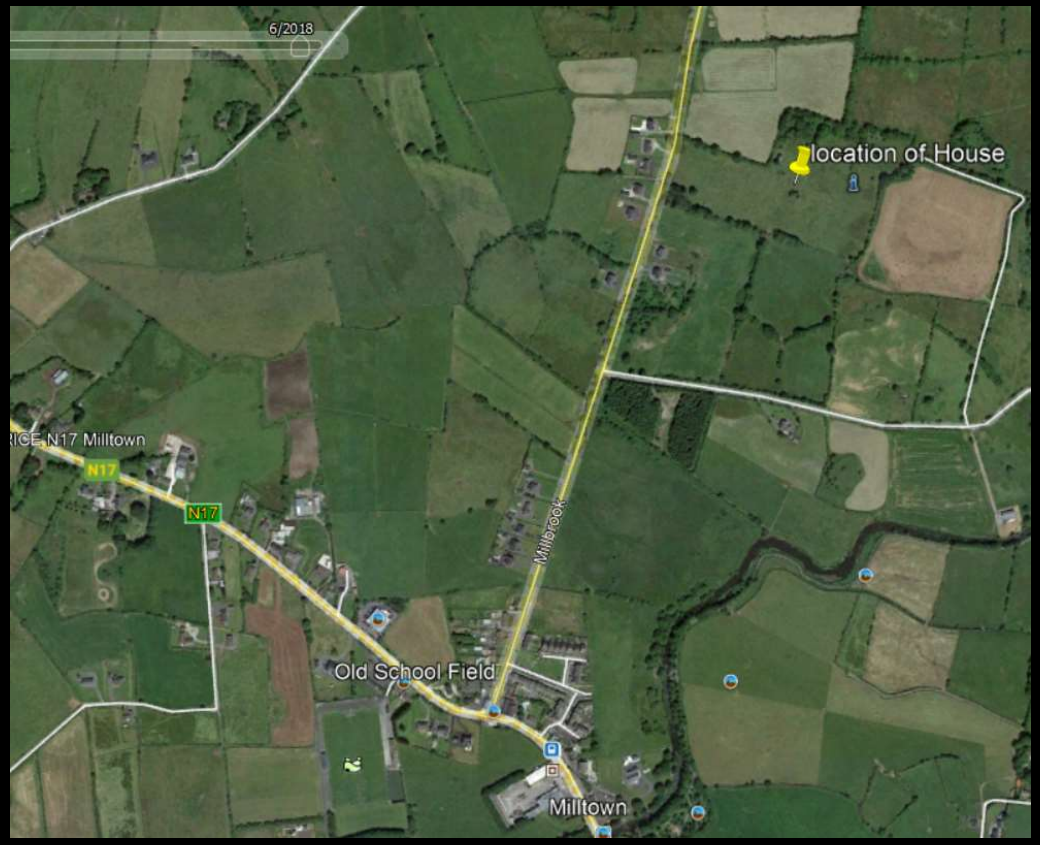
Secondly on Flat roof

John Birmingham owned 711 acres in county Mayo and 359 acres in county Galway.

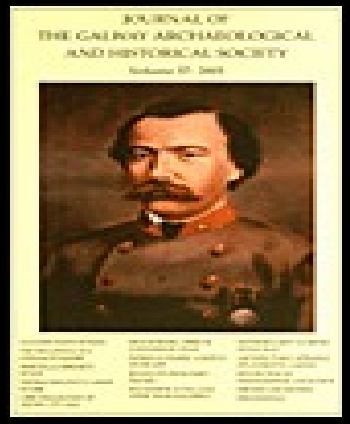

Place of observation, Lat. 53° 37′ 43″, Long. 8° 53′ (approximate).

Outside this house he used a powerful 4.5 inch refractor telescope made by Thomas Cooke of York. Purchased for £120 at the time and to fit it with a lens made by Grubb of Dublin, at a cost of £70.

His telescope was smaller than those used by other Irish amateur astronomers of the period


6/2018
location of House
RICE N17 Milltown
N17
N17
Milbrook
Old School Field
Milltown


Loch Chluain Drain
CLOONBROOK LAKE
MILBROOK HOUSE




Edward Birmingham
Dalgin Estate

Michael Birmingham / Elly Bell
Millbrook Estate

Denis J Kirwan
Mary Louisa Birmingham

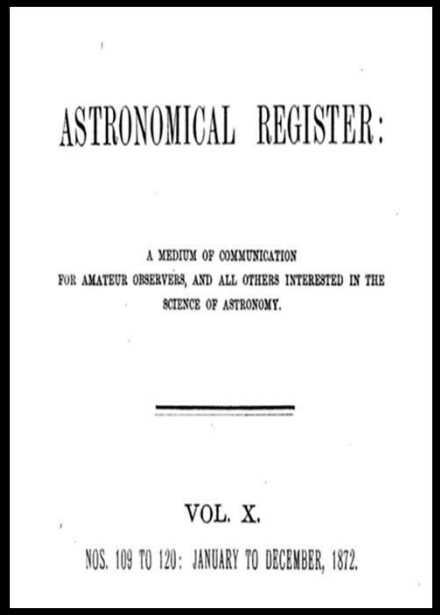
John Birmingham
Millbrook Estate

Denis J Kirwan
Millbrook Estate

- He was a meticulous celestial observer and had a gift for communicating science in layman's terms.

- He Enthusiastically spoke on comets, lunar craters, and a host of planetary topics.

- He published almost 100 articles in astronomical journals (the Monthly Notices of the Royal Astronomical Society, the society's journal the Astronomical Register and its successor the Observatory, the German Astronomische Nachrichten, and the London journal Nature. In the following pages you will see some of these submissions.

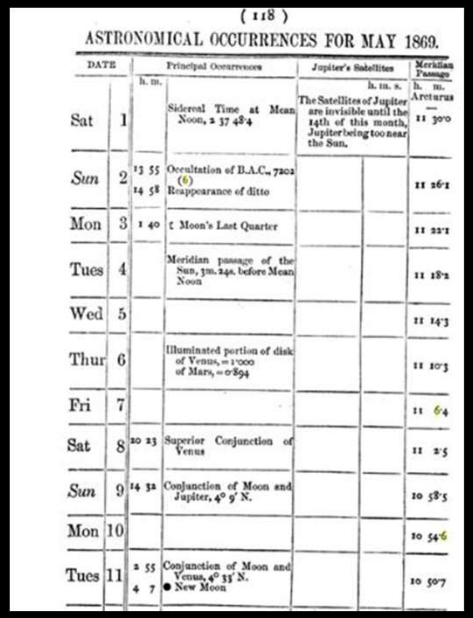


ASTRONOMICAL REGISTER:

A MEDIUM OF COMMUNICATION
FOR AMATEUR OBSERVERS, AND ALL OTHERS INTERESTED IN THE SCIENCE OF ASTRONOMY.

VOL. X.

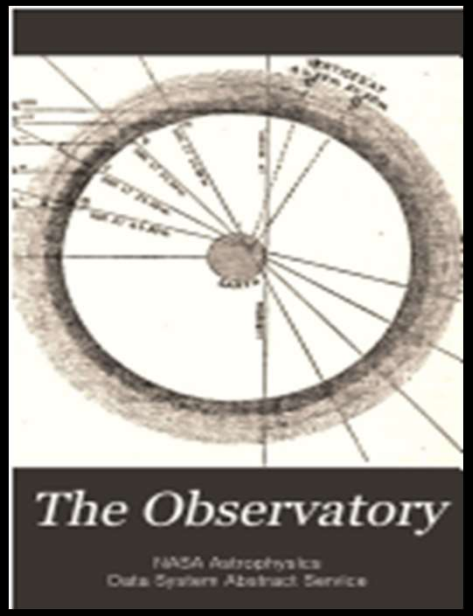
NOS. 109 TO 120: JANUARY TO DECEMBER, 1872.



( 118 )

ASTRONOMICAL OCCURRENCES FOR MAY 1869.

| DATE | | | Principal Occurrences | Jupiter's Satellites | | Meridian Passage |
|---|---|---|---|---|---|---|
| | | h. m. | | | h. m. s. | h. m. |
| Sat | 1 | | Sidereal Time at Mean Noon, 2 37 48·4 | The Satellites of Jupiter are invisible until the 14th of this month, Jupiter being too near the Sun. | | Arcturus — 11 30·0 |
| Sun | 2 | 13 55<br>14 58 | Occultation of B.A.C., 7202 (6)<br>Reappearance of ditto | | | 11 26·1 |
| Mon | 3 | 1 40 | ☾ Moon's Last Quarter | | | 11 22·1 |
| Tues | 4 | | Meridian passage of the Sun, 3m. 24s. before Mean Noon | | | 11 18·2 |
| Wed | 5 | | | | | 11 14·3 |
| Thur | 6 | | Illuminated portion of disk of Venus, = 1·000 of Mars, = 0·894 | | | 11 10·3 |
| Fri | 7 | | | | | 11 6·4 |
| Sat | 8 | 10 23 | Superior Conjunction of Venus | | | 11 2·5 |
| Sun | 9 | 14 32 | Conjunction of Moon and Jupiter, 4° 9′ N. | | | 10 58·5 |
| Mon | 10 | | | | | 10 54·6 |
| Tues | 11 | 2 55<br>4 7 | Conjunction of Moon and Venus, 4° 33′ N.<br>● New Moon | | | 10 50·7 |




From 1852 Birmingham began to publish notes on astronomy in local papers, principally the Tuam Herald and Galway Vindicator.

- Letter on the Aurora Borealis in the Tuam Herald, February 21st 1852.

This report was referring to a magnificent display of the “Northern Lights” which occurred on the 19th of February 1852. Few, if any, Auroral displays on record were as remarkable as was this one for brilliancy or for geographical extent throughout the northern portion of our continent.

- Letter on Donati’s Comet in the Galway Vindicator, October 6th 1858.

Donati's Comet, formally designated C/1858 L1 and 1858 VI, is a long-period comet named after the Italian astronomer Giovanni Battista Donati. He first observed it on June 2nd 1858. After the Great Comet of 1811, it was the most brilliant comet that appeared in the 19th century. It was also the first comet to be photographed.

- Letter on the Donate Great Comet of 1861 in the Tuam Herald, July 9th 186.1

The Great Comet of 1861, formally designated C/1861 J1 and 1861 II, is a long-period comet that was visible to the naked eye for approximately 3 months.[3] It was categorized as a great comet—one of the eight greatest comets of the 19th century with a tail over ninety degrees in length. It was not visible in the northern hemisphere until June 29, but it arrived before word of the comet's discovery.

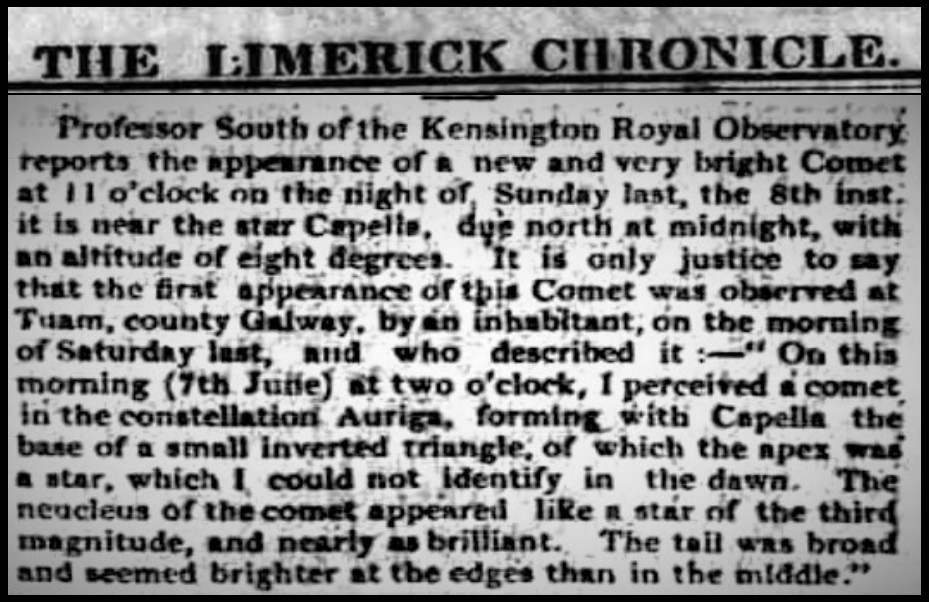
Letter about the Sun in Tuam Herald, July 13th 1861.


The Tuam Herald
Great Western Advertiser. Established 1837.
SATURDAY, OCTOBER 3, 1863.
MILLTOWN WIN FIRST JUNIOR FOOTBALL TITLE.
More Transport For Beet Campaign.
AUCTIONEER'S LICENCE SETS LEGAL PROBLEM.
Mystery Driver Had “An Intent Look.”
Engineers Delay
HEADFORD MINORS BEAT


The Galway Vindicator.
AND CONNAUGHT ADVERTISER.
GALWAY, WEDNESDAY, JUNE 13, 1855.
SAMUELSON'S
IMPROVED DOUBLE ACTING HAYMAKING MACHINES

*Painting of Donati's Comet from Oxford on the 5th of October 1858 by William Turner*

*Drawing of the Great Comet of 1861 by the Austrian amateur astronomer; Edmund Weiss*

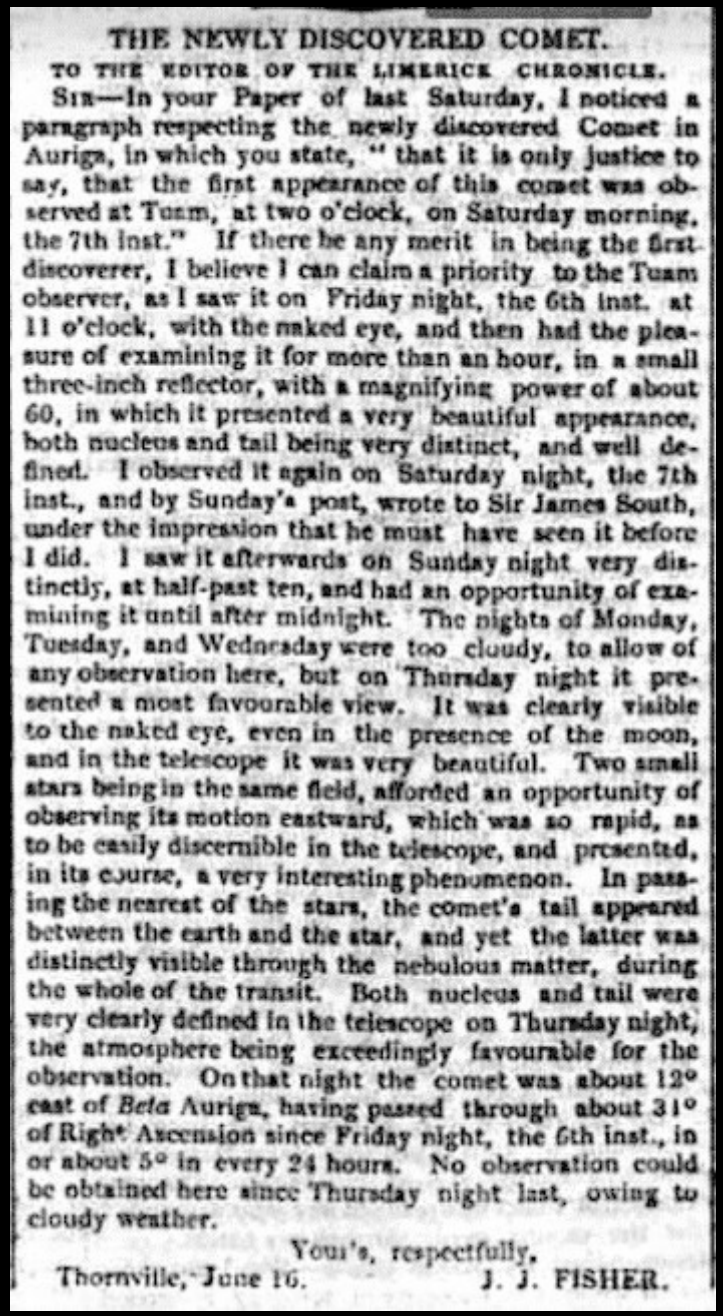


THE LIMERICK CHRONICLE.

Professor South of the Kensington Royal Observatory reports the appearance of a new and very bright Comet at 11 o'clock on the night of Sunday last, the 8th inst. it is near the star Capella, due north at midnight, with an altitude of eight degrees. It is only justice to say that the first appearance of this Comet was observed at Tuam, county Galway, by an inhabitant, on the morning of Saturday last, and who described it :—" On this morning (7th June) at two o'clock, I perceived a comet in the constellation Auriga, forming with Capella the base of a small inverted triangle, of which the apex was a star, which I could not identify in the dawn. The neucleus of the comet appeared like a star of the third magnitude, and nearly as brilliant. The tail was broad and seemed brighter at the edges than in the middle."

But after some recent research it was found that his first submission to a newspaper was actually on the 18th of June 1845 in the Limerick Chronicle when he was mentioned as the first person in the British Isles to have noticed the bright Colla's Comet.

While two days later in the same newspaper a Limerick observer by the name of James Joseph Fisher contradicted Birmingham's original assessment. He was a quaker and amateur astronomer who eventually moved to New Zealand where he died in 1860.



THE NEWLY DISCOVERED COMET.

TO THE EDITOR OF THE LIMERICK CHRONICLE.

SIR—In your Paper of last Saturday, I noticed a paragraph respecting the newly discovered Comet in Auriga, in which you state, " that it is only justice to say, that the first appearance of this comet was observed at Tuam, at two o'clock, on Saturday morning, the 7th inst." If there be any merit in being the first discoverer, I believe I can claim a priority to the Tuam observer, as I saw it on Friday night, the 6th inst. at 11 o'clock, with the naked eye, and then had the pleasure of examining it for more than an hour, in a small three-inch reflector, with a magnifying power of about 60, in which it presented a very beautiful appearance, both nucleus and tail being very distinct, and well defined. I observed it again on Saturday night, the 7th inst., and by Sunday's post, wrote to Sir James South, under the impression that he must have seen it before I did. I saw it afterwards on Sunday night very distinctly, at half-past ten, and had an opportunity of examining it until after midnight. The nights of Monday, Tuesday, and Wednesday were too cloudy, to allow of any observation here, but on Thursday night it presented a most favourable view. It was clearly visible to the naked eye, even in the presence of the moon, and in the telescope it was very beautiful. Two small stars being in the same field, afforded an opportunity of observing its motion eastward, which was so rapid, as to be easily discernible in the telescope, and presented, in its course, a very interesting phenomenon. In passing the nearest of the stars, the comet's tail appeared between the earth and the star, and yet the latter was distinctly visible through the nebulous matter, during the whole of the transit. Both nucleus and tail were very clearly defined in the telescope on Thursday night, the atmosphere being exceedingly favourable for the observation. On that night the comet was about 12° east of *Beta* Auriga, having passed through about 31° of Right Ascension since Friday night, the 6th inst., in or about 5° in every 24 hours. No observation could be obtained here since Thursday night last, owing to cloudy weather.

Your's, respectfully,

Thornville, June 16. J. J. FISHER.

## IMPORTANT ASTRONOMICAL DISCOVERY.

It affords us much pleasure to find that Mr Birmingham was the first discoverer of the new star, which had escaped the notice of the professional astronomers. To remark a strange visitor among the countless numbers of the heavenly host, and in no way distinguished from them in appearance, betrays a preciseness of knowledge and a keenness of observation that is highly creditable to one in Mr Birmingham's position of a country gentleman. But it is not alone in astronomy that the gifted author of *Anglicania* is distinguished. In literary acquirements he is probably not surpassed in any living man, while as a linguist, a geologist, and a mathematician he stands alone, at least in this country. He is indeed a man to be proud of, and truly we are proud of this distinguished Galwayman, who has mastered all the sciences, and who is more familiar with the celestial spheres than even most learned men are with a map of the world. We sincerely congratulate Mr Birmingham upon the honour he has achieved in having been the first to make this important discovery.—*Galway Vindicator.*

His first major contribution to astronomy came on 12 May 1866, when he discovered the variable star T Coronae in the constellation Corona Borealis

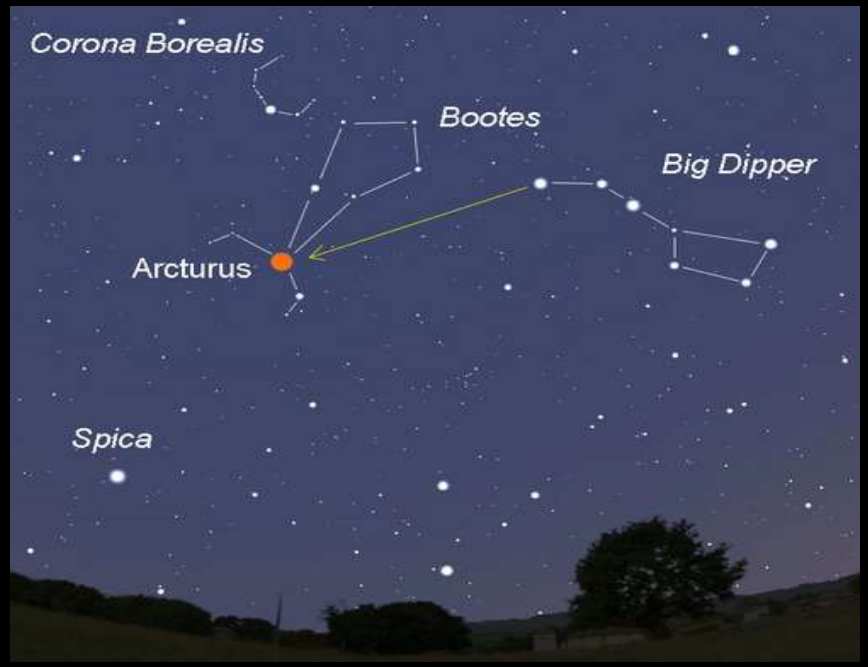
## *MR. BIRMINGHAM'S SUSPECTED NEW STAR.*

Sir,—On the occasion of a visit to the Sydney Observatory, since I sent you my letter of the 10th instant, I consulted the catalogues in that institution, with a view to ascertain if Mr. Birmingham's suspected new star had been previously observed. In Lalande's Catalogue for 1800, published in 1847 by the British Association, there is a star of the *sixth* magnitude, numbered 14599, whose position brought up to the beginning of 1875·0, is R. A. = 7h. 23m. 27s., N. P. D. = 100° 4′·0. This object is, doubtless, the one observed by Mr. Birmingham, if not, either Lalande's star or Mr. Birmingham's is not now to be found.

I am, sir, your obedient servant,

JOHN TEBBUTT.

Private Observatory, Windsor,
N. S. Wales : June 12, 1875.

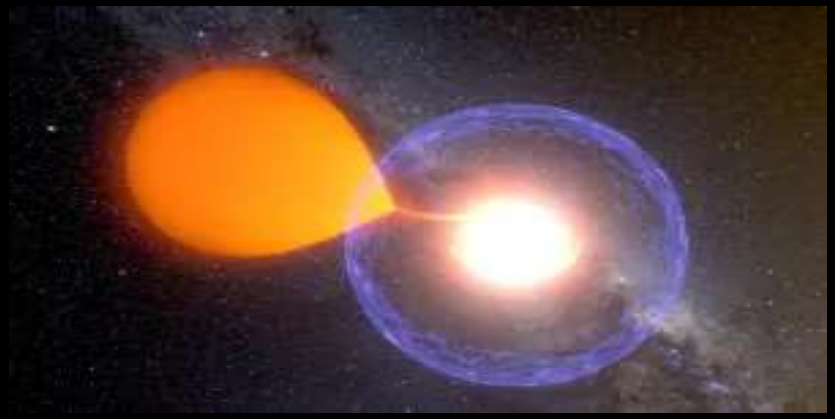



T Coronae Borealis (*T CrB*), informally nicknamed the *Blaze Star* and is one of 10 galactic recurrent nova

It has been seen to outburst twice, reaching magnitude 2.0 on May 12, 1866 and magnitude 3.0 on February 9, 1946

1866 - 1946  80 yrs

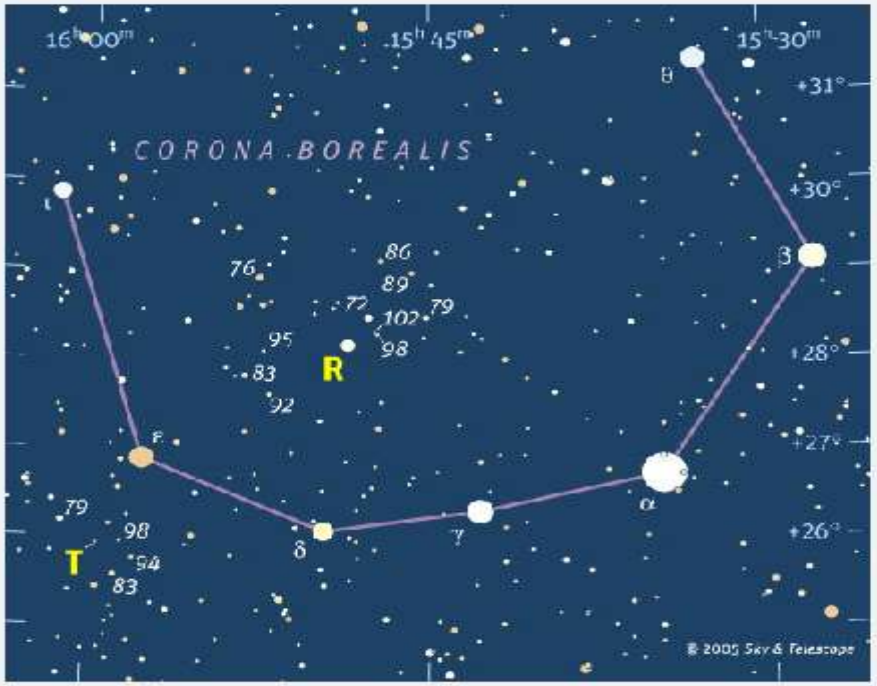
1946 – 2020  74 yrs



## Is T CrB About to Blow its Top?

By: **Bob King** | April 20, 2016

*The recurrent nova T Coronae Borealis last made a splash just after World War II. Does its current restive state hint at an imminent outburst?*




This finder chart covers about as much sky as the field of view in a typical pair of 7-power binoculars. It includes both R CrB (currently at ~14 magnitude) and T CrB. The italic numbers next to stars are their visual magnitudes to the nearest tenth (with the decimal point omitted).

We've been struggling lately in northern Minnesota to get past winter and get on track with spring. That's why I was so surprised to step out my door the other night and hear the frogs in full, throaty chorus.

Variable stars can be like that, too. You can watch a particular variable for months, even years, and its brightness might fluctuate by a few tenths of a magnitude. Then all of a sudden, it blows up like a firecracker when you least expect.

Take **T Coronae Borealis** (T CrB). It's one of only about 10 stars in the entire sky classified as a

Brightening since February 2015 from magnitude 10.5 to about 9.2. A similar event was reported in 1938, shortly before the 1946 outburst.

The discovery led to the purchase of a better telescope by Birmingham, a 4.5-inch [11.5cm] refractor which cost him the considerable sum of £120 (it survives in St Jarlath's College in Tuam). It was with this that he decided to make a study of red-coloured stars, many of which were subject to episodes of varying intensity[25]. He updated a previous red star catalogue compiled by the Danish astronomer Hans Schjellerup (1827–1887), and published in 1866. In the period 1872 to 1876, he listed 658 stars, and the work, 'The Red Stars: Observations and Catalogue', was published in a 106 page paper in *The Transactions of the Royal Irish Academy*. He commented[26]:

> The Red Stars must be considered as a class of heavenly bodies particularly worthy of attention; for not alone, as compared with the other stars, do they seem to differ most widely in constitution from our own sun, but they show a peculiar inclination to periodic change, while some of the most noted Variables are found amongst them….
>
> Although my original plan was to describe only my own observations of the Red Stars noted by Schjellerup, I determined subsequently to form a new list, with the positions brought up to 1880 [although the paper was read in 1876 and published in 1877], with several additions taken from various authorities, so as to make my work as useful as I could to the observer….I have added about ninety new Red Stars found by Mr. Webb and myself….
>
> Further – considering the special interest attached to the Red Stars on account of their spectra, which often exhibit features peculiar to themselves….I thought it might be useful to add the spectroscopic observations of several stars in the catalogue, especially since the publications from which I have taken them may not all be conveniently attainable by many observers in this country.

Accounts of the Meteors of 1866, November 13–14, were also received from—

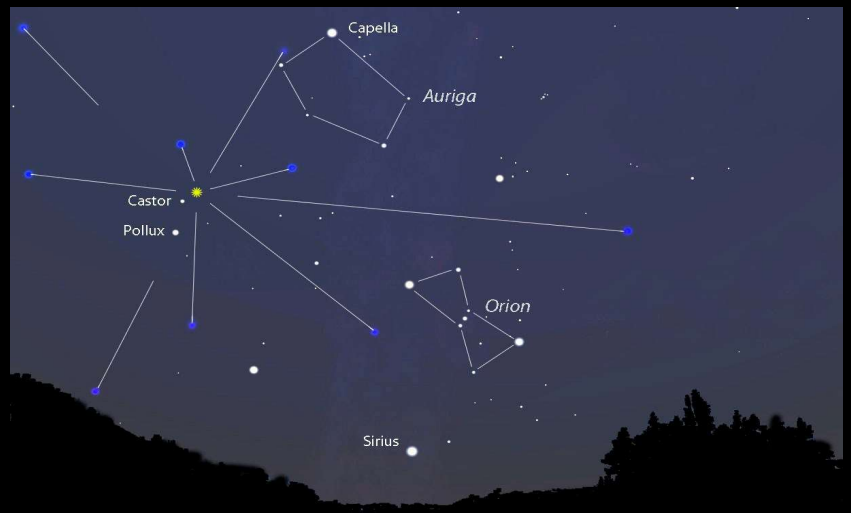
Mr. J. Birmingham, at Milbrook, Tuam. The position of a starlike and stationary meteor in about R.A. $10^h\ 2^m\ 30^s$ and N.P.D. $69^\circ\ 28'$, is referred to as seeming to mark the radiant-point. The number of meteors counted up to $12^h\ 50^m$ was 1500, but from that time the counting could no longer be depended upon. The meteors are described as having the nuclei generally red or deep orange, while the tails were greenish or bluish, and often left a line of vapour in their place after their extinction. In one instance this smoky streak began instantly to move sideways at right angles to its motion when luminous; and in another, where it formed a considerable mass, it curled up in a crescent that for a short time continued its forward course very slowly and then as slowly retrograded; it was observed plainly for half-an-hour, and might have been visible longer.

John Birmingham account of the legendary Leonid meteor shower on its peak night of the 13/14 November 1866 from Monthly Notices of the Royal Astronomical Society, Vol. 27, p.49

*The Meteors of December* 12–13, 1866, *as observed at Millbrook, Tuam.* By J. Birmingham, Esq.

Though the December meteors could not be compared to the wondrous display of the previous month, still in scientific interest they may be considered quite equal to their more brilliant precursors ;

Up to $1^h\ 25^m$ on the morning of the 13th I counted 260 meteors diverging to every point in the heavens, but the greater number fell towards the horizon between the south and the north-west. Unlike the full, glowing disks that traversed the sky on the 14th November, the present meteors might be described as having a *cindery* aspect, with, however, some notable exceptions. They were mostly of a bluish white colour; and red

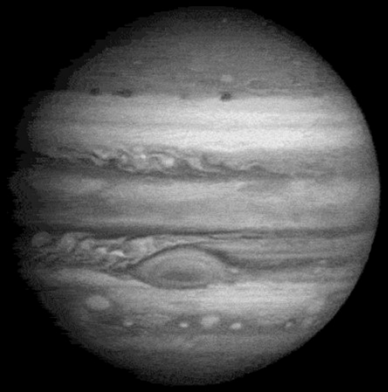



*Facing east around 10 p.m. local time Dec. 13th and 14th*

On May 11, I had excellent views of the two comets now visible. *Coggia's* was bright enough to be easily seen with a binocular, and rather behind its calculated place. *Winnecke's* comet, though larger than *Coggia's*, was not near so bright. Though it plainly condensed about the centre, there was no marked nucleus, but at times I fancied that I saw it sprinkled with minute points of light, like Comet II., 1871. It seemed quite circular, with a diameter of from 5′ to 6′.

Millbrook, Tuam : May 13, 1874. J. BIRMINGHAM.

By Mr J. Birmingham, Jan. 1872.



Sir,—My only observations of Jupiter since April 3, 1871, were on the 11th and 13th of the present month when I was truly surprised at the changes in his belts and general appearance.

current number. This will be shown by the accompanying rough sketch where some new forms will be seen that up to the above date were not observed by Mr. Gledhill. Of these the most striking is the belt-like streak that descends from the south, crossing the truncated end of 5 at a sharp angle, and reaching down to 4.

Jan. 15, 1872. J. BIRMINGHAM.

## CORRESPONDENCE.

*To the Editor of 'The Observatory.'*

### *Meteors.*

SIR,—

On July 20, at $9^h$ $50^m$ Dublin Mean Time, I saw a meteor descending the north-eastern sky to Pegasus, and disappearing near $\eta$ of that constellation.

The first meteor was, perhaps, the finest I ever saw, of a diameter equalling a third of the Moon's, and of intense brightness. A large tail showed all the prismatic colours of the most brilliant hues, changing to pure white just before extinction. The nucleus was light orange. There was no explosion at disappearance, which took place rather suddenly in a clear sky.

a In the 'Irish Times' of the 22nd inst., under the heading of "A Phenomenon," there is an account of a huge descending ball of fire, which the observer at first mistook for a falling star, but afterwards discovered it was not a star when it alighted

Millbrook, Tuam, 1881 July 23.

## *AURORA BOREALIS.*

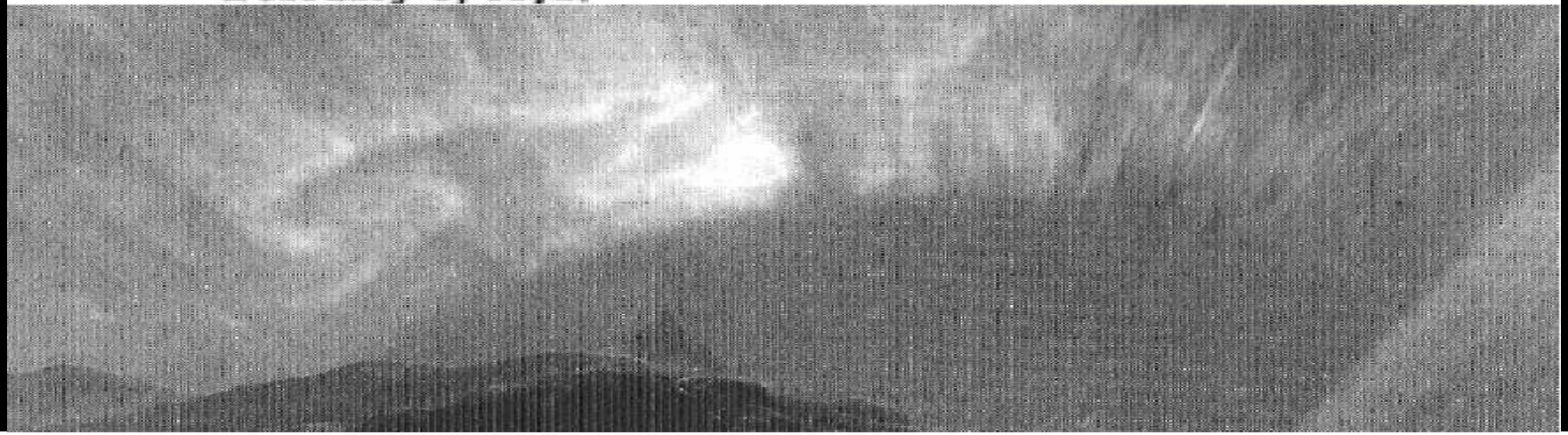
On Feb. 4, soon after sunset, in bright twilight, two or three auroral, clouds of glowing crimson were observed in the South. As night came on, the sky in that direction became fitted with similar appearances ; and only for the formation of a corona in the usual position, south and east of the zenith, the display might have been referred to an extraordinary extension of an Aurora Australis.

At 9 o'clock Sirius was sparkling with unusual fitfulness in a flood of red. Shortly afterwards a fan of white light spread up from the south-east; and so perfect was the mimic dawn, that one might almost imagine that a strange sunrise was about to follow.

At about 10 o'clock the colours grew fainter everywhere, but brightened at intervals until midnight, when clouds came on and prevented any further observation.

Millbrook, Tuam : J. BIRMINGHAM.

February 8, 1872.



## *Red and probably New Star.*

SIR,—

On May 22 I found a deep red or crimson star 2° 51′ 20″ north of α Cygni, and I consider that it may be a new one, as it does not appear in the Bonn Catalogue. The nearest position in Argelander is that of his +47° 3167, which corresponds closely enough with a white star that I found at the same time. The positions for 1855 would be as follows:—

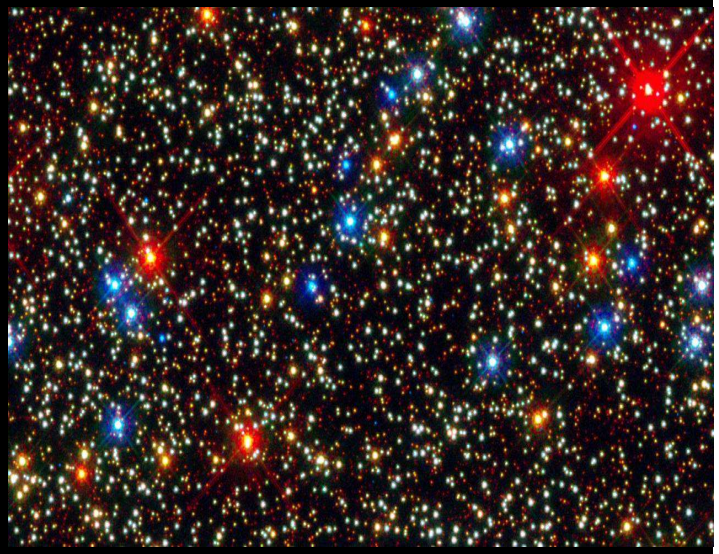
| | | | | | | |
|---|---|---|---|---|---|---|
| Red star, 9 mag. ..... | $20^h$ | $36^m$ | $33^s$ | ; | +47° | 36′·9 |
| White star, 10 mag..... | 20 | 36 | 23 | ; | +47 | 46·9 |
| BD. 47° 3167, 9·5 mag. .. | 20 | 36 | 28 | ; | +47 | 46·8 |

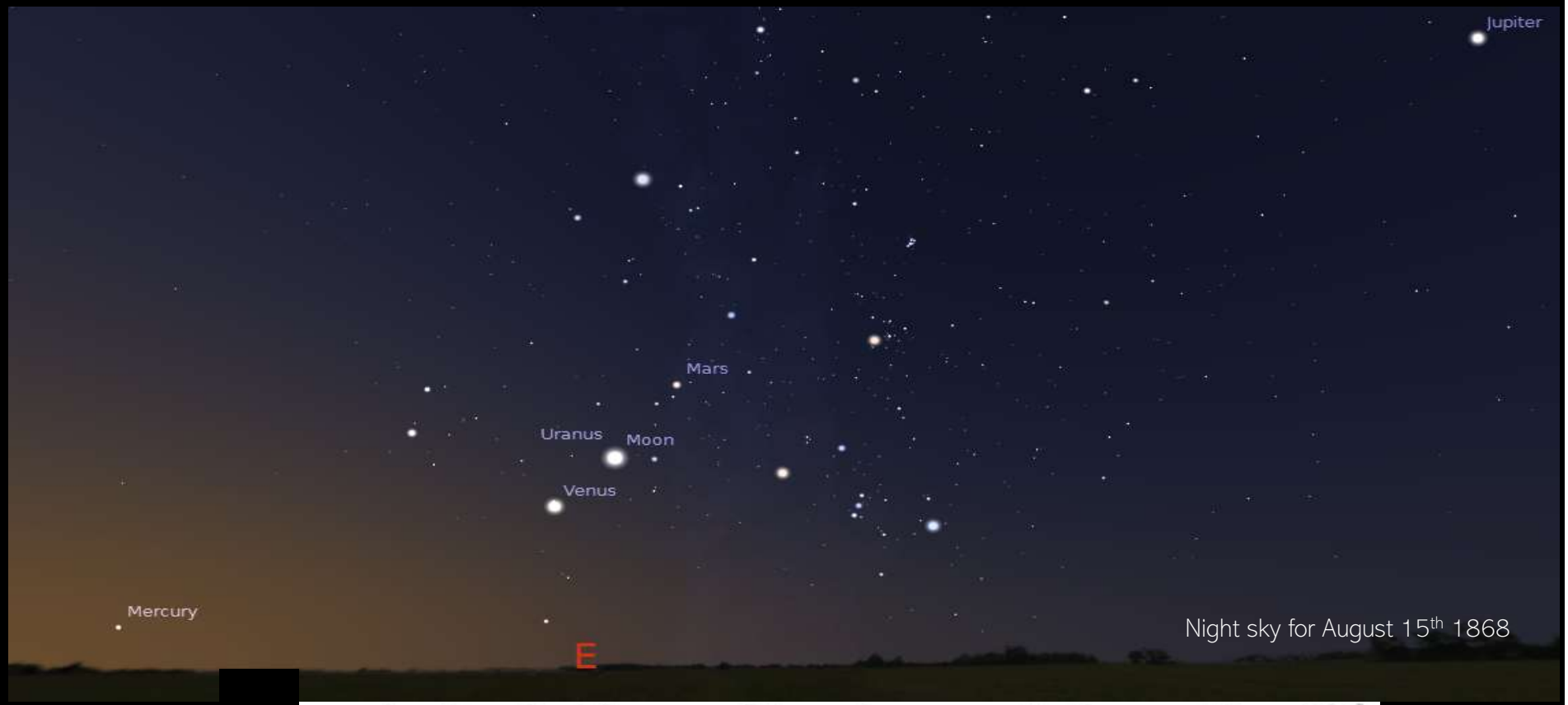
Argelander's 9·4 mag. equals my (Smyth's) 10, and the white star and +47° 3167 agree closely enough in position, according to my measurements, to make me consider them identical. The red star is therefore not to be suspected as possibly +47° 3167 on account of any supposed error in Argelander's position of the latter.

I believe that the newly-appearing stars, when of small magnitude, and observed for colour, are generally found of a red tint.

I am, Sir, yours faithfully,

Millbrook, Tuam, 1881, May 25. JOHN BIRMINGHAM.






Night sky for August 15th 1868

now, leaving the telescope, I turned my eyes to the most beautiful scene that I ever witnessed in the heavens.

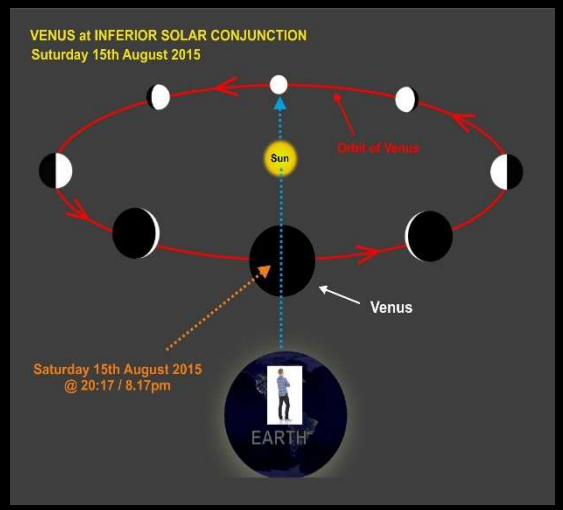
High in the south was Jupiter in solitary greatness. To the east appeared the red splendour of Mars. Lower down was the moon—a black globe half-edged with light. Still more eastward was Venus, of wondrous brilliancy, and with far-shooting scintillations conveying the idea that she was actually throwing out her lustre with life-like efforts. Surrounding Mars, Venus, and the moon, were the great stars of Gemini, Auriga, Taurus, and the northern half of Orion; and all were still shining in the twilight when Mercury made his appearance, struggling up with fitful sparkles through the yellow denseness of the lower atmosphere.

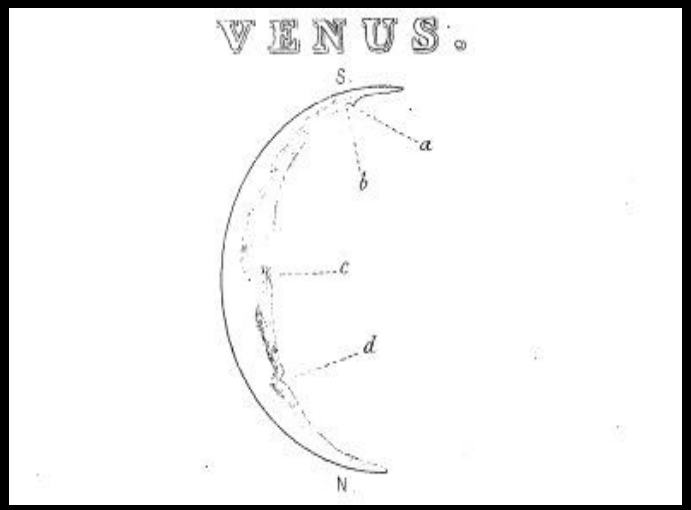
As I observed Saturn earlier in the night, I thus saw all the old planets, the moon, and a comet on this occasion: a rare spectacle that tended, I must admit, to excite simple admiration rather than scientific reflections.

Millbrook, Tuam: Aug. 15, 1868.

## VENUS.

Sir,—I made several careful measurements of Venus at the late inferior conjunction, and found a prolongation of the cusps to a degree that quite surprised me. In fact the measure from a line joining the cusps to the limb was nearly, if not quite, three-fourths the of full diameter. Of course I expected a certain prolongation, but not to so great an extent




# *TRANSIT OF VENUS, 1882–BRITISH EXPEDITIONS*

E. J. STONE, S. P. LANGLEY & JOHN BIRMINGHAM

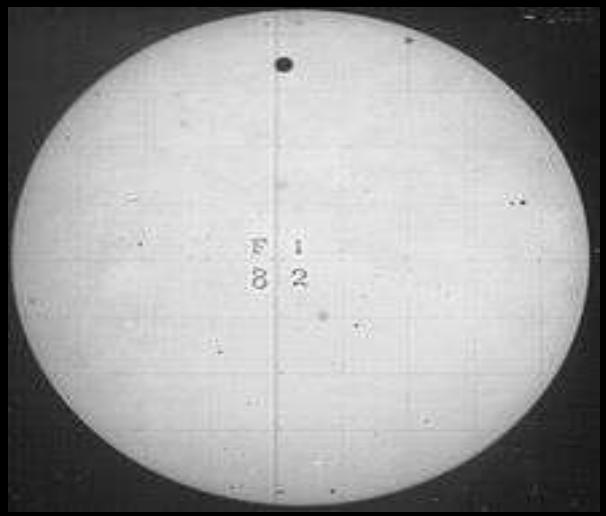
THE transit was observed here in a cloudless sky up to sunset, but the low position and great atmospheric disturbance rendered measurements and observations of contact unreliable.

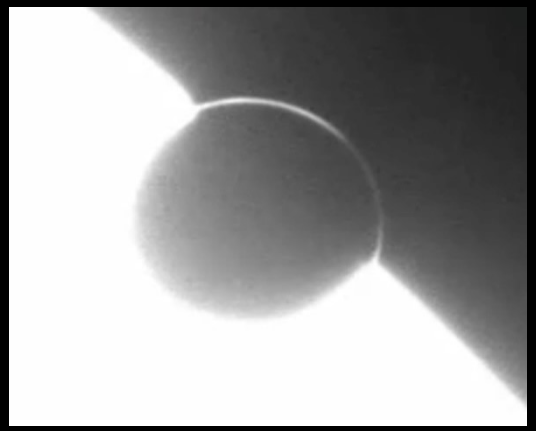
When Venus was half in on the sun, I distinctly perceived a fine curved thread of subdued light on the south-eastern edge outside the sun, and not reaching to the latter, nor extending far on any side. With three-fourths on, the thread of light reached round the remaining fourth outside, and completed the periphery. The segment of light disjoined, as when first observed, would seem to indicate a superior refractive power of the planet's atmosphere in the locality at the time.

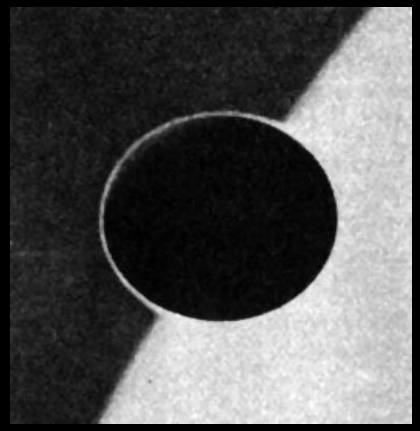
A short time before complete ingress, the solar cusps appeared to project out from the disc in double concave forms to join the aureole. The aureole disappeared after complete ingress, but the outer portion of the planet seemed much less dark than the central, which was perfectly black within a dark brown ring of from 5″ to 10″ in breadth. I saw no trace of the black drop or ligament, and, indeed, I should imagine that the aureole crossing the position of the ligament would prevent its appearance. I found nothing like a satellite. I thought the micrometer showed a diameter of the planet rather greater from east to west than from north to south, but the *boiling* of the limbs prevented any measures that could be depended on. I remarked no distortion of the planet as recorded by observers of the previous transit.

JOHN BIRMINGHAM

Millbrook, Tuam, December 8





## SUN SPOTS.

By John Birmingham, Esq.

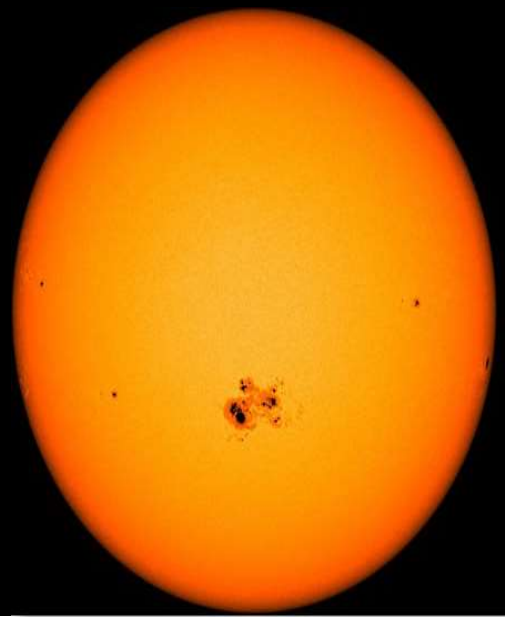
The accompanying sketches represent a remarkable group of spots that lately appeared on the sun, and formed one of a line of groups that crossed the disc at about 10′ from the southern limb.

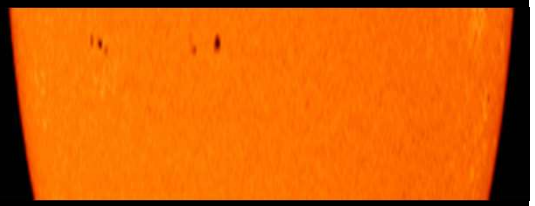
| | |
|---|---|
| Length of great nucleus | 0′ 29″·5 |
| Greatest breadth of ditto | 0′ 11″·3 |
| Length of penumbra | 1′ 6″·2 |
| Breadth of do. *a*——*b* | 0′ 48″·0 |
| Do. of do. *c*——*d* | 0′ 40″·0 |

Allowing 450 miles as the value of 1″ on the surface of the sun at this date; without taking projection into account, the measurements would give the nucleus a length of 13,275 miles, and the penumbra 29,790.

Millbrook, Tuam: July 16, 1869.

*Fig. 2.*





John Birmingham died aged 58 on the 7th September 1884 at Millbrook House of heart disease accompanied by dropsy and jaundice; his estate amounted to £532 3s. 11d.

His papers and effects were lost, stolen or destroyed after his death, but his telescope was bought as a memento by Dr Kilkenny of Saint Jarlath's College, Tuam where it was preserved, until being moved to its permanent home at Milltown Community Museum.

26.06.1886

# IMPORTANT SALE BY AUCTION.

In Re JOHN BIRMINGHAM, Esq., deceased.

I HAVE been favoured with instructions by the Administrator in the above matter, A. D. BELL, Esq. to Sell by

PUBLIC AUCTION

At his Residence

## MILLBROOK,

ON TUESDAY, the 20th JULY next,

*The entire in-door and out-door effects of the deceased :*

Among several other valuable mathematical instruments there is a Magnificent *Telescope*, (four and a half lens) by Cook, set on a solid cast iron cylinder, and revolving on a pivot, fitted with regulating gauge and lever. This is considered to be one of the most powerful Telescopes in the United Kingdom, having cost originally 120 guineas.

The Library is exceptionally well-stocked, containing over 700 vols., of the Choicest Gems of Literature, ancient and modern, embracing the Best Books on all the Sciences, simple and obstruse, all the known languages ; works of poets, historians, and lexicographers, together with works of fiction, novel and naval and military adventure. For further particulars see catalogue, which may be had on application to Subscriber. The Library also contains a large collection of fossils, and mineral specimens, which would be invaluable to the geologist or naturalist. A valuable Cremonia Violin that cost £30 0s 0d. Four Book Cases and Cabinet combined ; one large Book Case ; Kalendescope ; Spectrascope ; Quadrant. Sextant ; Copying Press ; Barometer ; Superior double and single barrelled guns, and six chambered revolver. The Furniture Comprises :—Mahogany, Telescope, Leaf, Card, and Side Tables. Hair Seated Chairs, Sofa, and Side Board ; Cheffioner Wardrobe, Breakfast, Tea, and Dinner Service, Culinary Utensils, Beds, Bedding, and Bedroom Furniture, &c., &c.

Out-door Effects—One First Class Family Car, by Colclough, nearly new ; one Hack, do very little used ; one Whitechapel ; sets of double and single harness ; Cart, one set of harness; Double Harrow; Plough, Winnowing machine, Triangle, Beams, Scales and weights, &c

Sale to commence at 12 o'clock, sharp.

TERMS—Cash, with 5 per cent Commission.

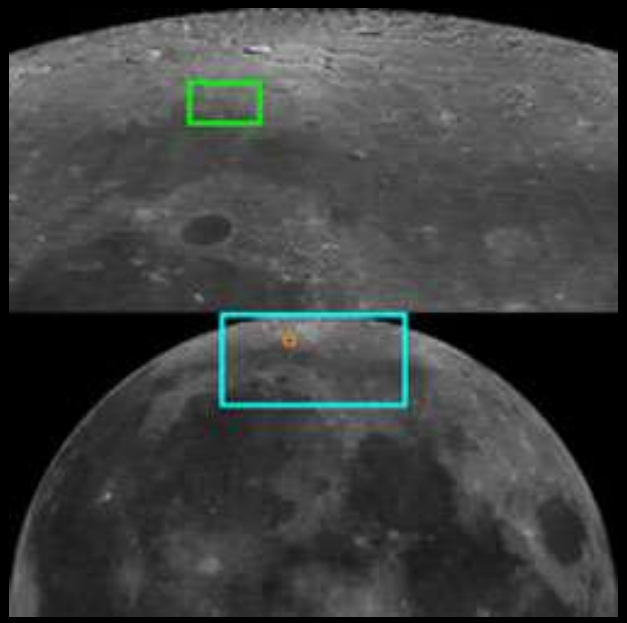
JOHN ROGERS,
Auctioneer, &c.

Castlebar, 17th June, 1886. 19-26-j.

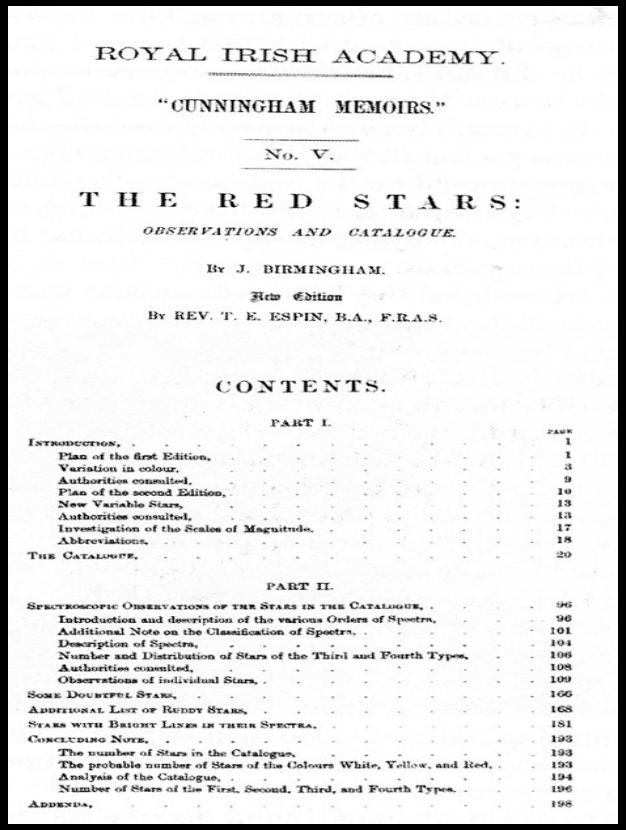
## AUCTION

On the 23rd July, Mr John Rogers, of Turlough, had a most important and highly successful auction at Millbrook, near Tuam, the residence of the late John Birmingham, Esq. Several hundred volumes of excellent books were disposed of, and a very superior Telescope was purchased for 25 guineas by Dr Kilkenny, of St Jariath's College. It is said to be good value for thrice that amount.

The 4.5 inch Cooke refractor once owned by John Birmingham, seen here in Saint Jarlath's College, Tuam during a visit in 2002 by Galway Astronomy Club



Red star catalogue from 1877 entitled 'Transactions' contained 658 stars. Here is an updated version collated by the British amateur astronomer Henry Epsin. You can view the original copy at the James Hardiman Library at NUI Galway.



ROYAL IRISH ACADEMY.

"CUNNINGHAM MEMOIRS."

No. V.

THE RED STARS:

*OBSERVATIONS AND CATALOGUE.*

By J. BIRMINGHAM.

New Edition

By REV. T. E. ESPIN, B.A., F.R.A.S.

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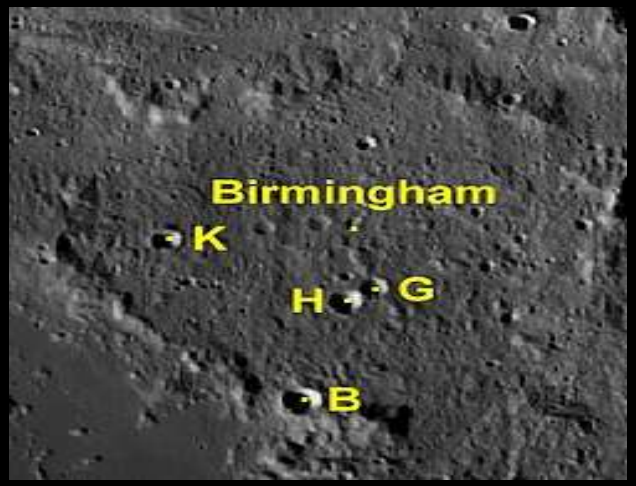
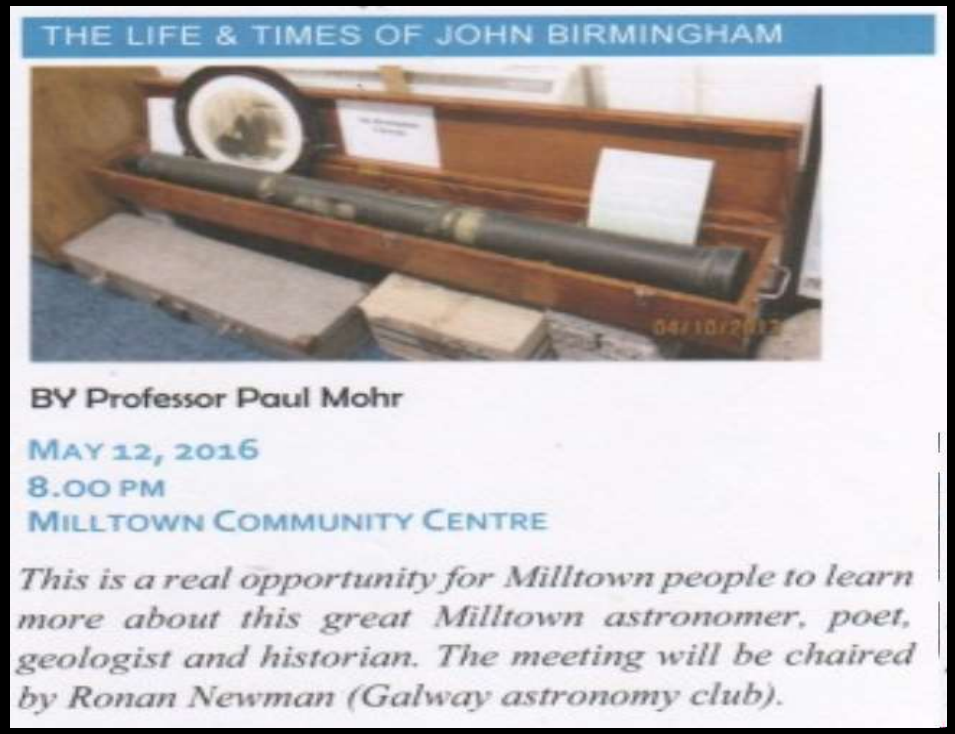
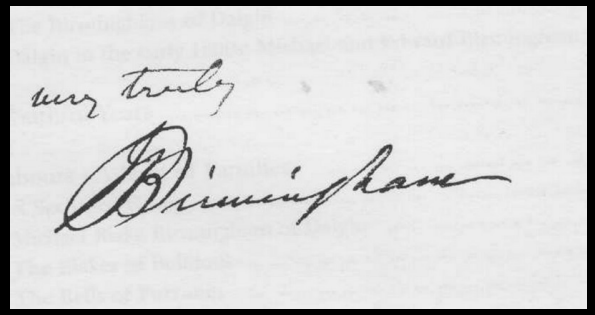



Birmingham crater on the Moon





A special event in May 2016 commemorating the 150th anniversary since the discovery in Milltown of T Corona Borealis