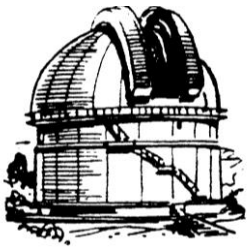
Journal

of the

Nottingham Astronomical Society

Saturday 23rd May 2026 - Special 80th Anniversary Edition



Saturday, 23rd May 2026

Today we welcome
Members of NAS
to the Observatory

Celebrating 80 years since Nottingham Astronomical Society was formed in 1946

NAS Members at the 80th Anniversary event

Recollections of a Journal Editor - Roy Gretton

The regular "Message from the Chair" that appears on the lower half of Page 1 of the Journal has been a feature of the magazine since April 2020 when the then Chairman, John Hurst, wrote a piece explaining our intention to persevere with our monthly meeting schedule despite the pandemic, by making use of Zoom.

When Julian took over the chair from John following the AGM held in January 2021 (again on Zoom), he continued the practice of writing a monthly message to the membership, which continues until this day.

Prior to the pandemic, messages from the Chair/President were rare, except occasional ones when Paul Stocks was president and when David Lukehurst occupied the post (he always signed off as El Presidente).

So for about 17 years, in the absence of a presidential message, the Editor was left with the problem of filling the otherwise white space below the Table of Contents and details of that month's talk. It therefore became my habit when I took over as Editor in 2002 to search for a brief news item to fill the gap.

Looking back, I've chosen a few of my favourite "space-fillers" to look back on.

From **April 2003**

STARRY NIGHTS!

How often do we complain of the cloudy British climate? Ruining our view of the heavens! My personal memories of a typical winter seem to be of one clear night per week on average.
Not 2003! March has given us clear views of the stars night after night. And this is the third astronomer-friendly month in succession! The following sunshine records for England and Wales are gleaned from the BBC weather website:

January 2003: 142% of the 1961-90 average, which is in the exceptionally above average category. 2nd sunniest in series.

February 2003: 152% of the 1961-90 average, also in the exceptionally above average category. 2nd sunniest in series.

From **October 2004**

FINDING EXOPLANETS WITH SMALL TELESCOPES

A Jupiter-sized extrasolar planet has been discovered by an observer belonging to the Astrophysical Institute of the Canaries, using a 4-inch aperture telescope. Much larger telescopes have now begun to find extrasolar planets comparable in size to Neptune. The discoveries of three of these were announced in August.

From **March 2005**

DISCOVERY OF THE FIRST METEORITE ON ANOTHER PLANET

In January this year the Mars rover Opportunity discovered a “rock” on the Martian surface that is almost certainly an iron meteorite. The discovery was made when Opportunity was inspecting the area around the remains of the heat shield used when the rover was entering the Martian atmosphere. The object, about the size of a baseball, is the only meteorite so far to be discovered on the surface of another planet. Analysis with the thermal emission spectrometer on Opportunity showed that the object had the composition of an iron meteorite rather than that of a Martian rock.

From **March 2006**

COMING SOON: A Notable Event in the History of the Society

This year the Nottingham Astronomical Society will be sixty years old. To celebrate this event we are holding an Anniversary Lunch on May 13th. This will coincide with the official opening of the Society's observatory. Please would members and friends take note of the important announcement later in this Journal.

From **October 2007**

50th Birthday of the Space Age

Where were you when you heard the news of Sputnik One? (You will need to be well over fifty to answer that question). I was in bed on the morning of the 4th of October 1957 when my mother, having heard the headline on the 8 am or 9 am news on the BBC Home Service, burst into my room to announce, *The Russians have launched a satellite!*
The news caused consternation and anxiety in the USA. American pride was hurt. People feared the threat of nuclear attack implied by the Soviet ability to send payloads across the globe on rockets that were much larger than any available in the West at that time. Barely a month later things got even worse when the Russians launched Sputnik Two, carrying an unfortunate dog, on November 3rd. If I remember correctly, the then Astronomer Royal, Richard Woolley, described space travel as "bilge". Now, of course, satellite technology is an indispensable part of everyday life, like microwave ovens, freezers and mobile phones.

From **November 2009**

A HOT ROCKY PLANET!

A planet 500 light-years away from Earth has been found to be the fastest moving planet known, orbiting its star once every 20.4 hours. The planet, known as CoRoT-7b, is only 2.5 million kilometres from the star, and is the first extra-solar object to be unambiguously confirmed as a rocky planet. It was discovered in February 2009 from transit data for the star, CoRoT-7, collected by the French-led stellar seismology and planet-hunting spacecraft CoRoT. One difficulty encountered when making the measurements was believed to be the presence of a large number of starspots on the surface of the parent star,

thought to be typical of relatively young stars. These spots tended to interfere with measurements of the light from the star. Although there are several planets suspected of being less massive than this one, and equally rocky, CoRoT-7b is nevertheless the first small exoplanet to have had its properties measured to this degree of accuracy through both transits and radial velocity measurements. It is also the closest planet to a star ever found, being less than one-twentieth of the distance from Mercury to the Sun. It is expected that NASA's Kepler spacecraft, which was launched in March, will find many more rocky low mass planets in the coming years.

From **May 2011**

Probable Delay to the JWST

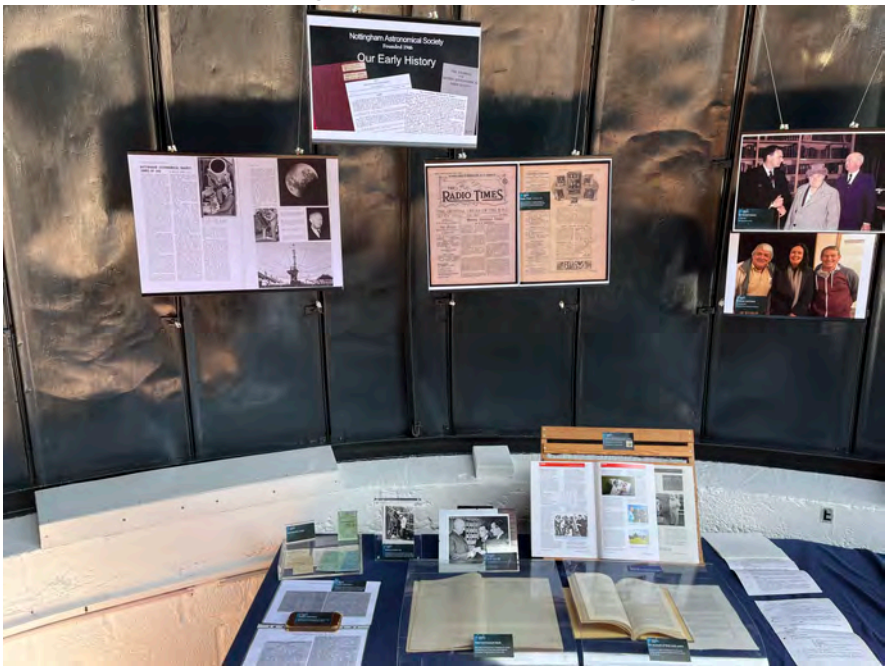
The launch of the James Webb Space Telescope (JWST), which was planned for 2014 or 2015, may be postponed for four years due to severe problems with the American budget. Last November an independent review panel said that the JWST needed an extra $500 million over the next two years to have a chance of being launched by the end of 2015. However, in view of the massive US deficit, it now appears that the money simply isn't available. Most of the hardware for the telescope is already in production, including the 21-foot (6.5-metre) primary mirror, composed of 18 segments made mainly of beryllium, all of which must be accurately polished at cryogenic temperatures (below 50K), a procedure which is hugely expensive. The telescope, with a focal length of 131.4 metres, will operate 1.5 million kilometres from Earth, at the Lagrange 2 point. Its main areas of investigation will centre on the earliest luminous objects to be formed after the Big Bang, and the properties of extrasolar planetary systems.

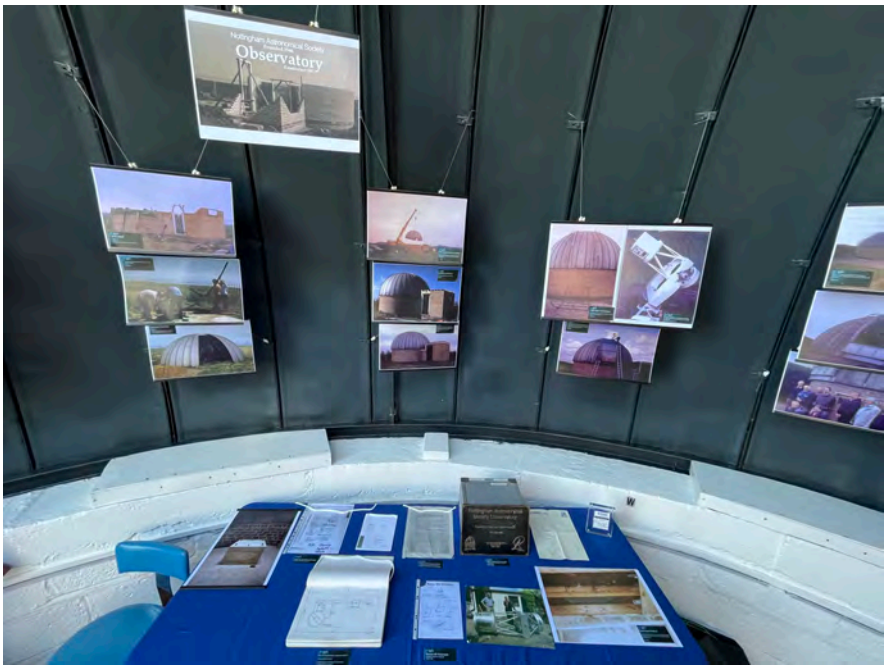
From **June 2016**

Online Parliamentary Petition on Light Pollution

Here is an opportunity for everyone to support measures to combat light pollution, which is so damaging to our hobby. Although this particular petition makes only a brief reference to astronomical matters, and concentrates on human health issues and the terrestrial environment, it represents another chance to make our voice heard in our ongoing quest to protect the night sky. At 10,000 signatures, the government will respond to the petition. At 100,000 signatures, this petition will be considered for debate in Parliament. The deadline for completing this petition is 22nd July.
Please take part if you are concerned about this issue; and, if possible, encourage your friends to support us.

NAS Observatory 80th Anniversary Exhibition





T H E

NOTTINGHAM ASTRONOMICAL SOCIETY

B U L L E T I N

NO. 5 DECEMBER, 1946.

COMMENT

The December meeting was marked by another good attendance when 48 members and friends (only 2 short of the record September meeting) assembled to hear Mr. R. F. T. Granger's excellent summary of the pitfalls awaiting space travellers. It was intended to have a general discussion on space travel but Mr. Granger's remarks rather knocked the base of the discussion away by showing how difficult, if not impossible, space travelling would most likely be. In the face of such cool reasoning, it would be wrong to argue otherwise.

Your Secretary trusts that his talk on 'The Star of Bethlehem' was of some interest if it was a little incoherent and inconclusive in parts.

The favourable total eclipse of the Moon on December 8th, another rather rare and interesting spectacle which it was hoped would provide a pleasant attraction in the night sky, was itself 'eclipsed' by a heavy cloud layer! After a few days of clear frosty weather, the morning of December 8th dawned with an overcast sky. In the afternoon, towards the commencing time of the eclipse, rain fell and continued to fall throughout the night.

It was an ironic touch to see the Moon shining bright and clear the following evening at the eclipse time!

Such is the measure of exasperation awaiting all astonomers at some time or other!!

It is the more dismaying to recall that there will not be a total lunar eclipse visible in England during 1947.

As this is the last issue of 'The Bulletin' this year, it is timely to tender the best of wishes for happiness and good health during 1947 to all our members.

May you all have a very happy time at Christmas and in the New Year.

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CURRENT EVENTS IN THE SKY

The Julian Date for December 0 is 243 2155. For other dates add the date.

The Sun

Solar activity is continuing and days without spots are uncommon. Solar Rotation No. 1247 began on November 27th, and No. 1248 begins on December 25th.

The Moon

Details were circulated in November of the total lunar eclipse on December 8th, soon after sunset.

There is an occultation of the bright star Kappa Gemini on December 10th at 16h.11m.GMAT; re-appears 17h.10m.GMAT. There is a possible grazing occultation of Bode 24 Ceti (6th magnitude) on December 30th about 7h.10m.GMAT; a short occultation occurs at Edinburgh and at Greenwich the Moon passes just north of the Star.

Planets.

Uranus is now 'up' all night and can be seen retrograding fairly rapidly from the 'horns' of Taurus towards the Hyades, in the same binocular field as Zeta Tauri.

Saturn is well placed from about 10 p.m. onwards. A line projected down through Alpha and Beta Geminorum passes near to it, and its first magnitude brightness will identify it.

Jupiter and Venus can be seen in the South-East just before dawn, both very bright and unmistakable.

Meteors.

The Geminid maximum on December 12/13th will be partly interfered with by a low moon. The Quadrantid shower on January 3rd will be badly affected by bright moonlight. Both showers produce many meteors at the maximum phase. These are the last showers of note until late April.

Algol

Minima at convenient times before midnight occur on December 24th - at 11 hrs.GMAT; 27th - at 7 hrs. GMAT and 30th - at 4 hrs. GMAT. Can we make a concerted effort to time the minimum on the 27th?

Mira Ceti

This star has suddenly increased several magnitudes to easy naked-eye visibility. It may not increase much more but the slow fade can be followed until the star is lost in the February twilight.

A. W. Lane Hall.

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NEWS OF THE DAY

WAR DAMAGE - ROYAL OBSERVATORY, GREENWICH

The annual report of the Royal Observatory, Greenwich, to the Board of Visitors contains the news of some of the damage sustained by the Observatory during the war.

Flamsteed House, the original building, suffered bomb damage although it has now been repaired sufficiently for the Astronomer Royal to resume residence there.

The famous dome of the 28" refractor was badly damaged by blast and is beyond repair. It is not to be renewed owing to the impending move to Hurstmoncieux Castle.

The 28" telescope itself is to be dismantled and stored until it is possible to re-erect it on the new site.

CAMBRIDGE UNIVERSITY OBSERVATORY

The University of Cambridge has decided that in future, the Professor of Astrophysics (Professor F.J.M. Stratton) will be Director of the University Observatory as well of the Solar Physics Observatory. Hitherto, the Plumian Professor of Astronomy and Experimental Philosophy, (to give the full title) was Director of the University Observatory.

A further item of news from Cambridge is that Professor Harold Jeffreys, reader in geophysics at Cambridge, has been appointed to the Professorship of Plumian Astronomy, vacant since the death of Sir Arthur Eddington - one of our greatest astronomers.

A. J. Ashmore.

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RADAR AND METEORS

Further details are to hand regarding the use of radar for detecting the meteor trails of the Giacobini shower of October 9th last.

Although the night was cloudy and disappointing for visual observers in England, the Radio Research Station of the Department of Scientific and Industrial Research at Slough, and the Army Operational Research Group at Richmond Park obtained good results by means of radar.

The meteor trails caused radar echoes of short duration which were recorded photographically.

The use of radar for such purpose are due to the experiments of Sir Edward Appleton and Mr. R. Naismith, who noticed some curious radio echoes of a very short duration coming back occasionally from reflecting objects in the atmosphere about 60 miles above the ground. It was noted that these brief echoes were observed by day and by night so they could not be due to any solar phenomenon. Since then, evidence has been fairly conclusive that most of these radar echoes are caused by meteor trails.

THE STAR OF BETHLEHEM

by

A. J. Ashmore.

Christmas time is here again and this year it is marked by a splendid display by the planet Venus, which as a morning star rising some three hours before the Sun, reaches greatest brilliancy on December 23rd.

In such circumstances, Jesus Christ may have been born and it is therefore an appropriate time to ask if the legend of the Star of Bethlehem guiding the wise men of the east to the infant Jesus is in fact based on the apparition of a known astonomical body.

Before we can decide whether this or that heavenly body can be identified with the Star of Bethlehem we have to establish the date of the event. In other words we need to know the date of the nativity, and strangely enough, this is the first and greatest stumbling block.

If one asks a layman the date Jesus Christ was born, he would probably give a queer look and say 'Why! December 25th, 1946 years ago, of course'. Unfortunately there is every reason to doubt this statement now for, as we shall see, Jesus was almost certainly born a few years before the date on which we base our present system of chronology.

The explanation offered for this apparent paradox is that our reckoning of years from the birth of Christ was not instituted until the 6th century afterwards, when Dionysius Exiguus - Abbot of Rome - calculated that the nativity took place in the 28th year of the reign of Augustus. However, it appears that he mistakenly reckoned from the date the Roman ruler assumed the name Augustus, and not from the time when he, under his original name of Octavius, won his victory over Antony and Cleopatra, which was 4 years earlier.

If this statement is true, Jesus was born in 4 B.C. and Exiguus was in error in actually reckoning our current year numbering system from the 32nd year of Augustus' reign instead of the 28th, as he supposed.

We now turn to what should be our unimpeachable authority on Christian matters - the Bible. The gospels of the New Testament appear to have been written in the latter half of the first century and do not, therefore, give quite the same attention to detail as a contemporary account.

Famous classic scholars and historians such as Livy, Virgil, Horace and Pliny the Younger lived about the time of Christ, but none of them so much as mention our Lord. In fact, no writers referred directly to Christ until over 50 years afterwards.

We have, therefore, to rely entirely on the information given in the Gospels. St. Matthew and St. Mark make no mention of the nativity at all and St. Luke gives a rather brief narrative so we are obliged to turn to St. Matthew for the greater detail we require in this investigation.

Although none of the Gospels indicate the date of the nativity with any certainty, St. Matthew gives a good clue when he informs us that Jesus was born in the days of Herod the King.

Herod was the Roman appointed King of Judea and it is fairly well established that he died in the Spring of B.C.4. There was an account of an eclipse of the moon shortly before his death and it has been calculated that such an eclipse actually took place on the night 12/13 March, B.C.4., which helps to prove this case.

This also shows that Christ must have been born before the early part of B.C.4, most probably at the end of B.C.5.

It is interesting to find that there is also a considerable divergence of opinion as to the month and day of the nativity despite our celebration of Christmas Day on December 25th. In this case, however, the determination of the precise day is less important than the year, and it is sufficient to accept the fact that it was winter.

So we are fairly safe in considering that Jesus Christ, the founder of a great religion embracing 700 million people of this Earth, was born at the end of B.C.5.

Now we delve into the facts of the Star of Bethlehem itself.

Again, the source of our information lies in the gospel of St. Matthew only. St. Matthew's gospel informs us simply that 'wise men

came from the east to Jerusalem to enquire where he that was born King of the Jews was to be found, as they had seen his star in the east and had come to worship him. Herod heard of these things and after enquiry as to what time the Magi had seen the star, sent them to Bethlehem to find the child. The Star they had seen in the east went before them and stood over where the child was.'

Just who the wise men were, from which country they came, or even how many there were is not known, although it is generally considered that they were three in number. It is most likely that in view of their observation of the 'Star' in itself, they were scholars, probably Chaldeans, whose astrology gave birth to our present-day science of astronomy. Since they came from the east and the star was seen in the east, the simple diurnal motion of the sky from east to west would suffice to give rise to the belief that the star was leading them. Their journey was presumably of some duration and it may be inferred that the star rising in the east and its nightly motion westwards would be their guide for a period of some weeks and it is understood they travelled by night and rested during the day.

The actual question of identifying the Star of Bethlehem now comes before us. It was obviously a conspicuous phenomenon and lasting for a fair period of time so we can limit our quest for likely objects to novae, comets and planets.

Taking novae first, historical records list several bright objects which may have been novae but it does not appear that any of them occured about the time of the nativity. The Star of Bethlehem may have been a nova but is unlikely, to say the least for some record would assuredly have been passed down to us by other writers of that time.

A comet? J. R. Hind, in the last century, made a careful and exhaustive investigation into comets of historical times and in his book entitled 'comets', he lists all known comets.

His records show a comet which appeared in A.D.66. but the last comet to appear before that was one which was seen 'over Rome' in 11 B.C. This is confirmed in Hutchinsons' remarkable book 'The Splendours of the Heavens', which lists the A.D.66 comet and the preceding comet as reaching perihelion on October 8th, B.C.12, obviously the same as that Hind gives for B.C.11.

The earlier comet is definitely too early and the other much too late, so the possibility of identifying the Star of Bethlehem with a comet must be also set aside.

Another reason why the comet theory can be safely ruled out is that such a phenonomenon as a bright comet complete with tail would have certainly caused a minor sensation and would surely have been far more widely known and commented upon by the superstitious people of that time.

Finally, we consider our friends and neighbours in space - the planets. As individual objects, we may dismiss Saturn and the outer planets, together with the minor planets, at once, as being inconspicuous and not at all likely to attract special attention.

Mercury, the nearest planet to the Sun, may also be ruled out, as although quite bright on occasions, it is usually too close to the Sun and consequently involved in twilight to be as remarkable as the Star of Bethlehem must have been. There are many people who, even to-day, have never seen Mercury at all.

Venus is probably the most likely single heavenly body to have appeared to the wise men from the east, although the weak point is that Venus was well known in those days as a morning and evening star and although it was often regarded as two separate objects, the 'wise' men would have presumably been able to recognise the 'Star' as a known planet. As it was seen in the east, it must have been as a 'morning star' that Venus was seen, if we accept that planet as the 'Star of Bethlehem'. In such circumstances, she rises at her most favourable elongation about four hours before the Sun and attains a magnitude of - 4.4, which renders her so conspicuous as to cause speculation about the 'New star' even in these enlightened days!

Venus appears to have been a morning star during the period of October-November, B.C.5 so it is quite possible that Venus, which gives such a fine morning display this Christmas, may have been the 'Star of Bethlehem', although as we have already stated, the difficulty of wise men of those days failing to recognise a known planet still remains.

Mars and Jupiter are bright enough at opposition times to attract attention but the flaw in the Venus theory also applies here; would men of the desert, especially if they were Chaldeans, attach so deep a

meaning to the normal apparition of known heavenly objects? All the planets visible to the naked-eye have been known as such since the earliest historical times. Accordingly, we must answer in the negative, and pass to the only course remaining open, that the Star of Bethlehem was actually two, or three, bright planets in close conjunction!

We have seen how unlikely it was that the wise men undertook their journey to the scene of the nativity on the appearance of a bright but familiar planet. A close conjunction of two planets, however, gives a different aspect to the story. Such an apparition would certainly have led to speculation on the possibility of its presaging a special event, especially when we recall that the study of the stars in ancient times was chiefly undertaken for astrological purposes.

Kepler, the eminent astronomer, calculated that no fewer than 3 conjunctions of Jupiter and Saturn occurred in B.C.7, and that in B.C.6, there was a triple conjunction of Mars, Jupiter and Saturn, which would have appeared very significant to the people of those days.

The latter conjunction occurred in a part of the sky which was supposed by astrologers to be directly concerned with the fortunes of Judea, in which Bethlehem lies!

There was, however, another and even more prominent conjunction which occurred in B.C.6, on May 8th, that of Venus and Jupiter - the two brightest objects in the sky - after the Sun and Moon. Of all the possible objects, this dual appearance of Venus and Jupiter seems the most acceptable and the most likely.

Discussion of the identity of the 'Star of Bethlehem' at a meeting of the British Astronomical Association in 1892 led to the general belief being expressed in accordance with our opinion stated above - that it was actually a conjunction of Venus and Jupiter.

Earlier in this article, it was considered that Jesus Christ was born at the end of B.C.5., and we now believe that the 'Star of Bethlehem' can be identified with a phenomenon in May of B.C.6, which is 18 months earlier. We do not know how long the wise men travelled or whether they lingered for a time before commencing their journey and after seeing the 'Star'. The only difficult point to explain is that St. Matthew tells us that the 'Star' led them to Bethlehem after reporting to Jerusalem - a short six mile journey southwards. Since they arrived after the birth had occurred, the 'Star' must have still been conspicuous at the end of B.C.5. - our most likely date for the nativity.

In view of the very vague nature of the gospels and the lack of corroborative evidence regarding the nativity, it will be conceded that consideration must be given to the intermixture of legend with fact, so that the difficulty of agreeing the two dates - May, B.C. 6 and December, B.C.5 - need not upset our conclusions.

There we leave the question of the Star of Bethlehem and its identity. Though we are unable to make any final deductions, we can safely say that it was more likely to be a conjunction of two planets - Venus and Jupiter - than any other heavenly phenomenon, and that the birth of our Lord Jesus Christ took place between 6 and 4 B.C., most probably in the winter of B.C.5/4.

So with that rather vague but acceptable summary, we conclude our efforts to identify 'The Star of Bethlehem.'

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GLOSSARY

ABSOLUTE MAGNITUDE

The intrinsic brightness, or luminosity, of stellar bodies, The scale is that degree of magnitude shown when the stars are reduced to a common distance of 10 parsecs.

APPARENT MAGNITUDE

The apparent degree of brilliancy of the heavenly bodies. The scale is such that a star of magnitude 1.0 appears 2.512 times brighter than a star of magnitude 2.0 et seq. The limit of naked-eye visibility is magnitude 6.0, which is equivalent to a hundred times less light than magnitude 1.0.

Objects brighter than magnitude 0.0 are indicated by a negative magnitude, e.g. Venus (on most favourable occasions) magnitude - 4.4.

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NOTES AND ANNOUNCEMENTS.

NEW MEMBER

A sincere welcome is extended to Mr. D. Turgoose, who was elected on December 5th, 1946.

TALKS BY MEMBERS

An invitation is extended to members, with or without qualifications, to give any type of talk at the meetings, provided it has general appeal. The Secretary will be pleased to discuss the matter with any member who has some news or information to impart.

OBSERVING SECTION

The Committee are to discuss a proposal for the formation of an observing section at the January meeting. It is hoped to encourage all members who can and will take part in active observing work, however small their contribution, to join the proposed section. The section will have the assistance and guidance of our more experienced and seasoned members.

Further and fuller details will be available after the matter is discussed next month.

NEXT MEETING

The next meeting will be held in the Mechanics Institute, Burton Street, Nottingham, on Thursday, 2nd January, 1947, at 7.30.p.m.

The president, Mr. A. K. Bennett, is to give a special talk on 'The Calendar' and Mr. Lane Hall will be present to describe the 'Night Sky in January.'

Members are invited to bring their friends along. There will be no obligation entailed.

NOTTINGHAM
11th. Dec. 1946.