NOTTINGHAM ASTRONOMICAL SOCIETY.

BULLETIN.

NO.20. MARCH, 1948

COMMENT.

At the last meeting our President, Mr.Lake Aske, made a plea to members to take a more active part in the general affairs of the Society. He even went so far, in his energetic way, to canvass for a few speakers for subsequent meetings.

It does seem an opportune time to stress the importance of each and every member to the Society as a whole, up to the present time we have relied far too much on one or two people, who seem to carry the rest of us on their shoulders. Mr.Lane Hall, our Director of Observation is a case in point. Month after month he has addressed each meeting with his night sky for the following month, and has even given an additional talk after this. If, for some reason he was unable to attend the meetings for say, several months, it would seem that our evenings together would be very empty. Messrs. Bennett, Lake Aske, Fox, Ashmore, the late Mr.Granger, are other members who have given talks, and it is significant to note they are, or were, all officers of the Society. Only Mr.T.H.Stirling as an ordinary member has given us a talk. No lady has ever expressed her views, neither have we heard the voice of youth as represented by the junior section.

Now, Ladies and Gentlemen, this is your Society, so why not take a more active part in it - express your views - give us your ideas - write articles for the Bulletin, and when the time comes, elect different members to the committee. Every member should feel himself or herself an active and essential part of our Society, so those of you who have promised the President to give a talk, don't stop at just once addressing your fellow members - plan to give a second one - write a short article - give us suggestions, both on the astronomical and social sides of the Society; urge those who seem too shy to ever voice their opinions, also to do something. Remember talks, articles, etc., need not necessarily be directly about astronomy; you could tell us why you became interested, and when, what particular aspect of the subject fascinates you the most, or you may know some out of the way relation of the subject to some other subject, such as the psychology of astronomy, astronomy and postage stamps; there must be dozens of angles of approach.

Do "have a go" - we are so keen to hear you, and if an any doubt about your subject matter, why not consult Mr.Lane Hall or your Secretary.

THE SKY FOR APRIL, 1948.

The Julian date for April 0 is 243 2642. For other dates add the date.

All times are given in Greenwich Mean Astronomical Time (0h.= noon) which avoids the inconvenience of a change of date at midnight. G.M.T. (0h.= midnight) may also be used in recording observations, and is used in the Nautical Almanac, B.A.A.Handbook, etc. "Summer Time" should NEVER be used.

THE SUN.

Solar rotation No.1264 began on March 5. Rotation No. 1265 begins on April 2, and Rotation No.1266 on April 29.

Observation is possible from 7h.55m. at the beginning of the month, and from 9h.00m. at the end.

THE MOON.

Evening moonlight interferes in mid-month. Lunation No.313 begins on April 9. The small partial eclipse of the moon on the 23rd is visible only from the Asiatic and Australian hemisphere.

The following occultations of stars by the moon have been computed for Nottingham. Both are disappearances at the dark limb.

Date.	Star	Mag.	Time GMAT.	Altitude.
13th April	k Tauri	5.6	8h.29m.	29°
25th "	19 Scorpii	4.8	12h.15m.	9°

P.T.O.

THE PLANETS.

Venus becomes a crescent in the second half of the month. It should be well seen at the outdoor meeting in the strong twilight. The disc will be much larger than Mars has recently been.

Mars is receding rapidly and will be no brighter than Saturn by the end of the month. It is drawing away from Saturn but will not re-pass Regulus until next month.

Saturn recedes slowly, and will continue to provide the most attractive object for viewing at the outdoor meeting. The rings close at an accelerated rate after the recent pause during the retrograde movement. Titan is in line with the Eastern end of the rings on the 12th and 28th, and North West and South at four day intervals.

Jupiter rises soon after midnight but is always low in the sky.

COMETS.

Bester's comet, 1947k, becomes circumpolar, but is best looked for in the morning sky. Positions for April, sufficiently accurate for plotting on Norton's atlas, are:-

April 7 18h.50m. + 50°4 April 23 14h.08m. + 73°1
15 17h.14m. + 67°5 May 1 11h.57m. + 68°7

It is expected to be about 7th magnitude and is becoming fainter.

FIXED STARS

The right ascension on the meridian at 8h. GMAT is 9h. on the 6th and 10h. on the 21st. This will be near enough to locate the constellations from Norton's atlas. The right ascension when facing due North will be 12h. greater in each case.

OPEN AIR MEETING - FEBRUARY.

The sky was very good and dark, without moonlight, for about an hour and a half on the 26th. Mars and Saturn both received good attention. Mars, though small, showed enough detail with the monocentric eyepiece brought by Mr.Fox and used on the 8½ in., to arouse widespread interest and enquiry. Saturn, and at least three satellites, occupied an even greater amount of time. The Orion nebula and theta Orionis were seen in the 6½ in., and in the 4 in. binoculars until cloud at 8h.30m. closed down the evening.

Mars was also sketched on various clear nights in the programme suggested by Mr.Fox, though conditions were very bad in the earlier part of the month. It may be possible, if observers volunteer, to carry out a modified scheme during next season.

As promised in last month's bulletin, here is Mr.Lane Hall's clear and concise explanation of the Age of the Moon formula.

The Age of the Moon Formula - An explanation.

These notes are a "writing up" of those I used for my short talk at the February meeting. The formula itself, and some worked examples of it, were published in the "Bulletin" for December last.

The rules strictly apply to the "mean moon", a fictitious body that moves steadily round the sky at the average rate. The true moon, because of the irregularities of its movement, is sometimes a little ahead, and sometimes a little behind the mean moon, but the difference is small, and in approximate rules like this, can properly be igner

The success of the formula depends on the remarkable coincidence of groups of lunations with years, and the balancing of the odd fraction of a lunation that accumulates at the end of a year at the end of each four year period, and the fact that the simple round figure of 30 days can be adopted for a lunation without accumulating significant errors.

The data were given in the footnote to the rules in the December issue.

Rule 1, dividing the year by 19, entirely prevents the accumulation of any errors beyond a period of 19 years (the classic "Metonic Cycle"). 19 years = 19 x 365¼ days = 6939.75 days. 235 mean lunations are 235 x 29.5306 days = 6939.69 days. The error is

only .06 days, or say 1½ hours. It would need over three centuries to add up the error to one day.

Rule 2 depends on the relationship that a normal year is 365 days, and 12 lunations (the greatest number a year will contain) are 12 x 29.5306 days = 354.367 days. By 21st December, therefore, the moon will have the same age as it had on the previous 1st January, and in the 10.633 days that remain in the year it will become 10.633 days older. Round this off and call it 11 days and rule 2 appears. The bulmoing up process in a four year interval is extraordinary. After one year the moon has "aged" by 10.633 days (see above), and after four years it will have "aged" by 42.532 days, and adding one more day for the leap year in the cycle, makes 43.532. Deducting the complete lunation gained (29.531 days) leaves a net "ageing" of 14.001 days. By the rule, which ignores the niceties of leap years we should compute for the four year period 11 days x 4 = 44 days, deduct 30 days for the lunation leaves 14 days. Error gained in four years is .001 days! Larger errors, not of serious amount occur of course, in the intermediate years, but obviously there is no systematic accumulation to four.

Rule 3 develops the greatest measure of uncertainty. The average length of a month is 30½ days, and a mean lunation is about 29½ days, so that date for date in successive months the moon is one day older than on the corresponding date of the previous month, averaging the months throughout the year. On account of the varying lengths of the months, departures from the average must occur, and these reach two days in May and July. Further, on account of the early incidence of the very short February there is a regular tendency for the computed age to be in excess of the real age throughout the rest of the year, but this excess provides a fund for the slightly over-large deductions of multiples of complete lunations (30 days instead of 29.5306), and a rough kind of compensation is provided. All this explains the reason for adding the serial number of the month, thereby gaining the one day per month. It only remains to establish the starting point for the serial numbering, so that the date in the month can finally be added in to give the "age".

As was stated in the foot-note to the original paper, the moon was new (= 0 days old) on 1st January 1900, the beginning of a 19 year cycle (remainder = 0). The first two rules would therefore produce a total of 0 in computing the "age" for this date. Skipping rule three for the moment, rule 4 (for the first of the month) would finally add 1, making the total 0 + 1 = 1. Rule 3, therefore, would have to produce -1 in order to reduce the age to its known value at this epoch of 0. The serial numbering of the months must therefore begin with January as minus 1, or as the rule has it "count March as 1".

There are so many compensating factors that come into play that it is very difficult to assess what maximum error can arise, but two days seems to be about the limit. A considerable amount of trial in the various parts of the cycle have not revealed any greater errors. Those with old almanacs or diaries at hand, may like to explore for themselves; they will become profoundly impressed if they do.

A.W.L.H.

NOTES, NEWS & ANNOUNCEMENTS.

1. New Members.

We extend a cordial welcome to the following new members who were elected on 4th March, 1948.

Mr.O.Vickers
Mr.O.Preston
Mr.A.J.Bradley
Mr.C.Cresswell
Mr.R.Howard
Mr.D.Howlett
Mr.G.Martin.

OPEN AIR MEETING.

The next open air meeting will take place on Thursday, 18th March, 1948, at 7 p.m. at Trent Boulevard Schools, West Bridgford, weather permitting. Should the conditions be unfavourable at 6 p.m. then the meeting will be cancelled and will take place instead the following Thursday, 25th March, at the same time.

The Schools may be reached by taking a No.12 'bus from South Parade (Council House Square) Nottingham, and alighting at Lady Bay Road, which is the second 'bus stop past the Canal Bridge. The fare is 2½d.

The following are the 'bus times:-

From South Parade:	From Lady Bay Road *
6.27 p.m.	8.06 p.m.
6.42	8.21
6.57	8.36
7.12 and every 15 mins.	8.51 and every 15 mins.

* The return stop is 100 yards from the School, away from Trent Bridge.

3. ORDINARY MEETING.

The next ordinary Meeting will be held at the Mechanics Institution, Trinity Square, Nottingham, on Thursday, 1st April, 1948 at 7.30 p.m.

4. SUBSCRIPTIONS.

There are, we regret to say, still a few subscriptions which have not yet been paid, and in view of the fact that we have reached our half year, these should be paid as soon as possible to the Hon.Treasurer, either at the ordinary meeting or posted to him at East Villa, Gunthorpe, Notts. Thank you -.

Members Queries.

If those members who find some point or points, either in Mr.Lane Hall's night sky series, or in general astronomy, will please let the Secretary know sometime before the ordinary meeting each month, the member will be answered at the meeting. Do make use of this service. You will be helping others besides yourselves.

Address.

Mr.A.H.Bennett will be giving an address at the next meeting, the subject of his talk being "Is the Solar System Unique?" This is the first of a series of addresses to be given by members which will follow Mr.Lane Hall's Night Sky for the Month.

Addresses.

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Nottingham.
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