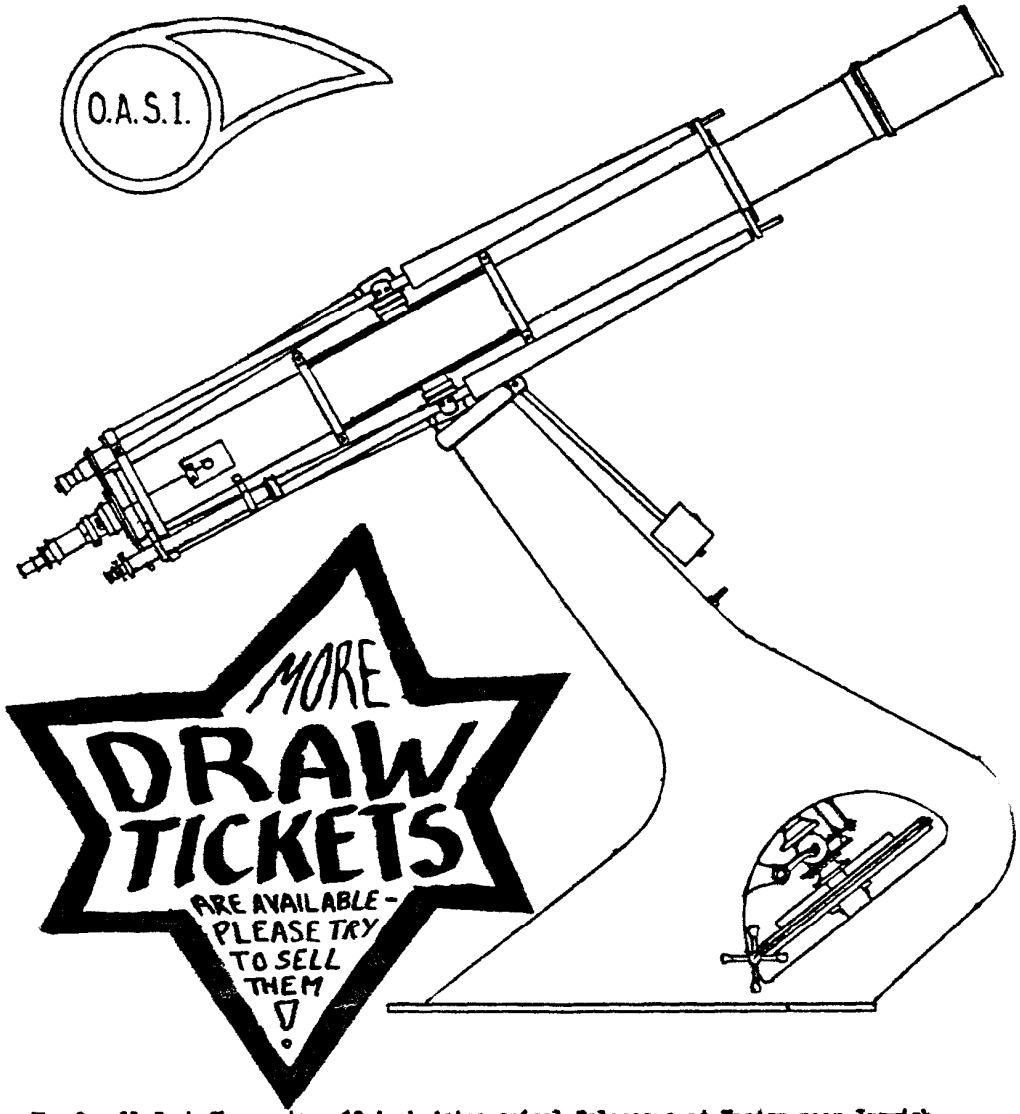
THE JOURNAL OF THE ORWELL ASTRONOMICAL SOCIETY (IPSWICH)

1982
NOVEMBER

Your submissions of items for the Journal will be welcome.



The Orwell Park Observatory 10-inch Astronomical Telescope at Nacton near Ipswich

THE NIGHT SKY AS SEEN FROM ORWELL PARK IN NOVEMBER

PERSEUS, riding the Milky Way with Andromeda to the west and Auriga wheeling behind to the east, are prominent in the higher southern skies this month. At lower altitudes Taurus with the Pleiades and Hyades; Orion with Lepus underfoot are strong constellations. Canis Major and Minor give chase further east.

For those viewing from areas with clearer, darker skies, Eridanus winds its sparkling way near the southern horizon.

Gemini shows in the east later in the evening, followed less conspicuously by Cancer. Cassiopeia is Queen of the zenith sky early in the evening.

Now is a good time to see the rich Milky Way region abundant in scintillating clusters running through the zenith and down through Auriga and Gemini. The Horsehead Nebula in Orion's sword is another worthy object.

Now is also the time to see the diminution in brightness of Epsilon Aurigae, once in 27 years. This star is a spectroscopic binary and fades nearly a whole magnitude for a short time.

THE SUN The Sun moves from Libra to Scorpio during November. At the start of the month, sunrise is at 07h 00m; at the end of the month it is 07h 50m. Sunset is from 16h 30m to 15h 50m.

THE MOON - Phases. Full Moon 1d 12h 57m New Moon 15d 15h 10m
Last Quarter 8d 06h 38m First Quarter 23d 20h 05m

Occultations -

	Star	Phase	Mag.	Time
	911	R	6.3	5d 02h 29.8m
D = Disappearance	1224	R	5.4	7d 02h 11.7m
R = Reappearance.	1479	R	6.3	9d 02h 36.5m
Stars listed according	3150	D	6.5	22d 19h 31.6m
to Zodiacal Catalog	3536	D	4.7	26d 00h 03.3m
(ZC) numbers.	368d	D	6.3	28d 21h 54.5m

Times listed are those for the latitude and longitude of Greenwich.

THE PLANETS

Mercury is still a morning object early in the month, at mag. -0.9 on November 2nd. It will be at superior conjunction on the 19th so will not be easily seen, rising less than an hour before the Sun. Its diameter will then be 5.1".

Venus is not expected to be visible for the whole month, being at superior conjunction on 4th November.

Mars is low in the sky (24°S) in the middle of Sagittarius, at mag. +1.2. Angular diameter only 5.1" makes this not the best time for detail to be seen!

Jupiter is in conjunction on the 13th, but may be a difficult object (just visible) right at the end of the month in the morning.

Saturn will be visible again early in the month, also in the morning, at mag. +0.9. At mid-month it should be rising about two hours before the Sun, R.A. about 13h50m, Dec -9°. Its angular diameter will be about 14" (polar).

Source: BAA Handbook 1982. All times are U.T.

'Leader' and information selection this month by Roy Adams standing-in for Paul Burt whom we have to thank for this article on all previous occasions for some considerable time past.

METEOR NOTES for NOVEMBER 1982

1) The Taurids Maximum is on November 4th, and the shower's normal limits are from October 20th to November 30th. Quite a long time. The ZHR is 12, radiants RA 03h44m +14° and 03h44m +22°. There is a richness in fireballs.
2) The Leonids Maximum, November 17.8. NL Nov. 15th to 20th. Listed ZHR is 10 but activity has been rather poor in recent years. Radiant is RA 10h 08m +22° Dec. Neither the Moon nor fireworks should interfere much with this shower's visibility.

If you are interested in co-ordinated meteor observing please contact David Barnard as some arrangements may be in the offing for a Meteor Watch.

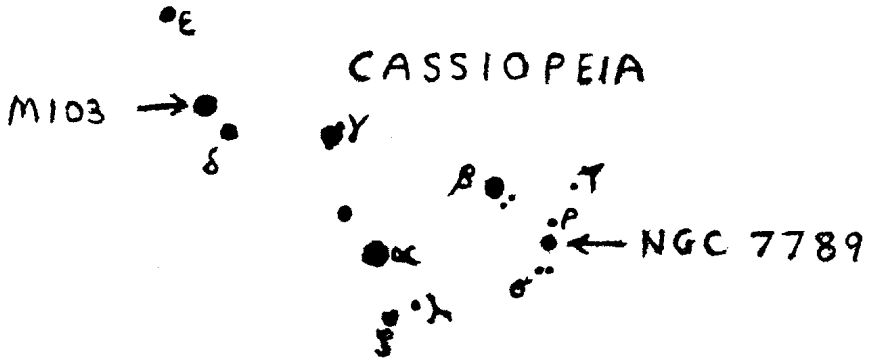
RCA

TWO DEEP SKY OBJECTS FOR NOVEMBER by D. B. Payne

The objects suggested for last month were fairly low down in the sky in the south. This month the two objects described are almost overhead. They are the galactic clusters M103, the last object in Messier's original catalogue, and NGC 7789. Both objects are in Cassiopeia which occupies the zenith region during November.

The cluster M103 contains about 40 stars that are true members. It is a fairly compact group containing several bright stars around mag. 8 including one red giant star the colour of which is obvious even in small telescopes. The cluster is easily found with binoculars about one degree north east of Delta Cassiopeiae. In a three-inch telescope the brighter stars are clearly visible with many of the fainter stars discernible. The distance of the cluster is about 8 000 light years and would therefore be about 15 light years in diameter.

NGC 7789 is a much richer though fainter cluster containing some 1 000 stars in the magnitude range 11 to 18. It is visible in binoculars as a faint misty patch between the stars Rho and Sigma Cassiopeiae. In a three-inch telescope the brighter members of the cluster can be seen as a sprinkling of faint stars against the hazy background of still fainter stars. With each increase in aperture more and more stars are resolved, making this a fine object for telescopes of all sizes. It is a fairly ancient cluster estimated to be between 1 000 million and 1 500 million years old. The estimated distance is 6 000 light years, giving a diameter around 50 light years.



VISIT TO NORWICH ASTRONOMICAL SOCIETY ON FRIDAY 19TH NOVEMBER

A very limited number of places is available. Contact R. Gooding or D. Payne as soon as possible if you are interested in coming. If weather is bad the date will be changed to 26th November and the Variable Star Section meeting cancelled.

GAME FOR A LAUGH - REPORT ON GRAZING OCCULTATION OF 11th OCTOBER 1982

0400 hrs U.T. on 11th October 1982 saw three members of the 'Looney Eye-balers' section of the O. A. S. I. standing in a farmyard in the middle of Suffolk. As is customary on these occasions, the weather was far from ideal to observe the grazing occultation of ZC 1269 by a 38% illuminated Moon.

There was a heavy ground mist with a fog bank advancing ominously closer as every minute passed. With extreme difficulty only the largest of the telescopes, erected on a site that turned out to be more like Piccadilly Circus during the rush hour, managed to just pick out the mag. 7 star. Because the seeing was so bad we couldn't decide whether the disappearances of the star were due to the Moon's surface or the fog.

After the usual photographs we returned to (of course) the completely clear skies of Ipswich, just going to prove that the O. A. S. I. is 'game for a laugh'.

A. J. Smith.

REPORT ON THE F. A. S. MEETING AT HERSTMONCEUX by Roy Gooding

A Willhire minibus was hired for the Society trip to South Sussex and the Federation of Astronomical Societies meeting at Herstmonceux on 2nd October. Around 8.00 a.m. the minibus with Martin Cook at the wheel began the journey by picking-up the various members who were going for the day out. By 8.20 a.m. we were thundering along the A12 towards Chelmsford where Roy Cheesman was waiting. Having gained experience of collecting people, the method was now finely tuned. As Roy struggled to shut the rear van doors from the inside, David Payne jumped out of the passenger seat and forced the doors shut from the outside. Do all transit vans have doors impossible to close from the inside?

Once again we set off, heading towards Brentwood and the Dartford Tunnel. By this time, navigation was being conducted by a committee, all seated behind the driver. Approaching a roundabout, a voice shouted, 'No! Turn Right!' Upon which command Martin, presumably using a skill learnt in Scotland, violently swung the wheel to the right, sending the van's occupants into a heap, whilst narrowly missing two bollards and a signpost before careering down the correct road.

Approaching the tunnel toll gates, a pass was produced with the compliments of a company that shall remain nameless. Beyond the tunnel, David took over the driving for the remainder of the journey which passed without incident. We arrived at Herstmonceux at about 11.30 and reported to the reception desk in the foyer of the Castle. After picking-up a programme of the day's events, it was decided to return to the van for lunch. After consulting the programme it was obvious that it would not be possible to see and do everything; there were lectures being held in two venues simultaneously, three guided tours of parts of the Royal Greenwich Observatory and numerous trade stands and society exhibits to see. We were not all of a similar mind as to which events to attend, so for some of the time we split up.

Walking around the trade stands, we found Bretmain Ltd. manned by O. A. S. I. member Ron Hebbs. One exhibit that proved most unusual was a collection of holograms. The first guided tour we had booked was at 2.30 p.m. Beforehand it was decided to attend a lecture scheduled to start at 2.00 p.m. However, the talk did not start until 2.15, and we learnt was to be recorded. The talk started, along with howls from David's youngest son, Martin. After five minutes we chose to beat a hasty retreat, leaving through a creaking door manned by a Federation official muttering, 'It's not that bad, is it?'

The first guided tour was round the R. G. O.'s new Laser Ranging Telescope. This instrument should be fully operational before the end of the year. It consists of a laser mounted beside a Cassegrainian telescope and is the U.K.'s station of a worldwide network of similar instruments, principally to be used for studying the orbit of the Lageos Satellite that was launched in 1976. Eventually the results may assist the understanding of Plate Tectonics. The telescope is completely electronic with a T.V. camera at the eyepiece and controlled entirely from a room below.

Our second tour was round the 26-inch refractor's dome. This telescope is considerably larger than our refractor, and for ease of access to the eyepiece, the whole observatory floor can be raised and lowered. This telescope is used exclusively for photography. It has a finder telescope - a 13-inch refractor.

The final tour was round the R. G. O.'s star-link computer. This complex is one of six identical, linked computers around the country, and is used for analysis of data obtained from the astronomical observatories operated by the U.K. Initially, all of our group had intended visiting the computer centre, but due to other distractions only four arrived. By the time the tour was over it was approaching 5.30 and thoughts of tea were in our minds.

Back at the van we found David and were told that Roy and Simon Cheesman were both at the talk to be given by Heather Couper, and that the lecture room was completely full. After grabbing a quick bite to eat, we adjourned to the R. G. O.'s cafe for further refreshments, where we joined David and his family. A few minutes later, Mat Irving (of B.B.C. fame) brought over one of his radio-controlled K9 dogs from the Castle, and it trundled round the cafe, much to the amusement of several children.

So far, nothing has been mentioned about the weather. This, like most prearranged astronomical events, had Spode very much in evidence. After the two previous sunny days, Saturday turned out very wet and blustery. It drizzled most of the morning and afternoon. Two consequences of the rain were Glyn Buckley-Jones travelling home with a differently-coloured shirt than the one in which he had arrived (the dye from his jacket started to wash out) and Martin, having jumped out of the minibus, slipped and landed on his back, much to the amusement of onlookers.

Knowing that it would be some time before the Heather Couper lecture was over, it was decided to find the Bar that was scheduled to open in the evening, to pass away some time. Outside the R. G. O.'s Members' Clubhouse, other F. A. S. members with similar ideas were found huddled in groups under the trees, sheltering from the rain. After a quarter of an hour a car arrived, from which a voice shouted the Bar could not be opened as no barman had arrived. Everyone walked back to the Castle to get out of the rain muttering words of indignation along the lines of, 'Talk about not being able to organize a beer party in a brewery'...

There was nearly 20 minutes to wait before the lecture was over and Roy and Simon reappeared. The weather was by now quite monsoon-like, and with everyone in agreement it was decided to head for home. With bated breath, David switched-on the minibus' ignition. Nothing happened! He tried again. Still nothing happened! Several more attempts failed to start the engine. With visions of either having to push the van or to have a jump-lead start, the engine eventually spluttered into life. This left only one more possible problem - would the van get stuck on the grass where it had been parked? At 7.15 p.m. with all problems solved, the journey home was commenced.

David drove to the Tunnel, after which Martin carried on to Ipswich. The only stops on the way home were at a fish and chip shop somewhere in south-east London, the Dartford Tunnel, and at Chelmsford to drop Roy off. This trip must rank as one of the only 'Dry' Society outings to date.

As a postscript, it turned out that Roy and Eric Sims were at school together, and this was the first time they had seen eachother for, dare I say it, nearly thirty years!

The only people [redacted] not mentioned [redacted] SO FAR [redacted] are Linda, Darren and Angela Payne.

VARIABLE STARS by Mike Nicholls

This month I thought we would look at how variable stars were named.

It was in the 19th century that the German astronomer Argelander decided that variable stars should be catalogued with a naming system of their own. By this time Beyer had used the Greek alphabet for his catalogue of the brightest stars. Flamsteed had used numbers in his; small Roman letters had been used and capital Roman letters up to Q had been used for the then newly-charted southern constellations.

It was decided to use capital Roman letters starting with R up to Z, for example R CrB, W Cyg, and so on. This catered for only nine variables per constellation; nowhere near enough. So it was decided to use double letters starting with RR up to RZ then SS to SZ and so on up to YY, YZ and ZZ. After this came AA to AZ, BB to BZ etc., finishing up with QZ. The two letters were kept in alphabetical order, for example, combinations like WA, SR, BA etc. were not used. Also the letter J was not used to avoid confusion with I. This system allowed for 234 variables. However, constellations such as Cygnus and Sagittarius in the Milky Way soon used them up.

It was then that a system came into use which continued from and could also include the previous one. After QY, QZ came V235, V236 etc. This system has no limits of course, and the capital letter system could be superseded by it. E.g. R CrB = V1 CrB; W Cyg = V6 Cyg; SS Cyg = V19 Cyg etc. This does not seem to have happened and the capital letters are still in normal use, the later system taking over at V235.

Some of the brighter variables had, of course, been given Greek letters by Beyer. These have not been changed nor included in Argelander's nor the later system. E.g. β (beta) Persei or Algol, α (alpha) Orionis or Betelgeuse and δ (delta) Cephei.

SOCIETY NEWS

£HOW MUCH DOES THE SOCIETY £OST TO RUN? by Mike Nicholls

This report describes the main areas of expenditure, this year, necessary to run the Society.

Firstly, the rent and insurance paid to Orwell Park School was £25. This includes insuring the telescope and public liability insurance to cover accidents to visitors.

Secondly, there are the membership subscriptions to other societies from which we receive magazines, circulars and journals. The subscriptions for this year were: B. A. A. £18.50, Sky & Telescope £14.90, The Astronomer £12, Junior Astronomical Society £3.25 and the Federation of Astronomical Societies £7.50. This comes to a total of £56.15.

Finally, and significant, is the monthly Journal. This year's costs for it will work out at around £180.

Thus the total running costs for this year will be approximately £260. Next year, assuming we still have the journal printed commercially, the estimated running costs will be of the order of £300. This is an optimistic figure and £330 to £350 might be more realistic.

Assuming an average membership of 60 this works out at £5 per member. Thus it seems, from examining these figures, that an increase in subscription will be necessary in the coming year.

DRAW TICKETS Further to the appeal on this Journal's cover, even more attention needs to be paid this year to selling tickets (or buying them oneself!) to aid funds as there is no Open Day to act as an additional seller of them this time. If you can try to sell some more, please ask David Barnard, , Ipswich, 'phone Ipswich , who is the Grand Draw Promoter. The Draw will be held at 8.00 p.m. on Saturday, 11th December, 1982, at the Orwell Park Observatory, Nacton. There are three main cash prizes this time - £25, £15 and £10. There are many other prizes including Wines, Chocolates and Book Tokens. Tickets sell at 5p each. A cheap price considering the size of the prizes and that the amount of tickets printed is not too ambitious. Thanks in advance for your efforts!

DECEMBER JOURNAL DEADLINE This is Monday, 15th November; all items for the Journal will be gratefully received and should be sent to: Mr. R. M. Cheesman, , WEST HANNINGFIELD, Chelmsford, Essex CM2 8LQ. May we take this opportunity to thank all members for the trouble they have taken in writing (with any accompanying drawings or pictures) articles and submitting them. This is YOUR Journal and exists to great extent for you to get work printed in on astronomical or related subjects. The Journal is sent to several people and organizations throughout the country, whom we can be assured, DO read it! So be with those who show what the O. A. S. I. can do and send us material - even if it is something of interest you have just read about somewhere else or in relation to other amateurs' work or equipment or maybe subjects for discussion, cartoons etc.

AN 'EARLY' MOUNTING OF MECCANO FOR A SMALL TELESCOPE (Part II) by Roy Adams

In the previous Journal I showed pictures of a Meccano telescope mounting which I made in 1956. As there was no room last month for a description as well, here it is in this edition.

I had a No. 10 Meccano and other smaller sets and spares available, and set out to design and make a really rigid structure for anything up to a 3-inch or slightly bigger lightweight telescope. The original intention was to add a Meccano clock inside the two-feet high box-girder 'pier', but practical working in the open of a pendulum, even if small, in the open afterwards promised to be somewhat difficult, so I never finished installing it.

The main thing was to provide a driveable equatorial mounting for a very modest instrument - an old, leather-bound, wooden-tubed 'ship's' telescope I had, with an aperture of only 40 mm. The drawtube was engraved, 'Cox., Plymouth Dock' so naturally contained an erecting eyepiece system, but whoever had made it did so very well, as there did not appear to be much loss through the extra lenses. The o.g. cell had to be watched, however, as when still at school, I had disrespectfully used the tube quite often to carry butterflies home in.

Another stipulation was that with that particular telescope I would also be able to point at any place in the sky - hence what I believe is called an astrographic design was chosen. I wanted to see how much rigidity could be got from a very small amount of metal and to have something quickly portable (and quickly settable-down)

ORWELL ASTRONOMICAL SOCIETY (IPSWICH)

PROGRAMME FOR 1982 NOVEMBER

at the Observatory, Orwell Park School, Nacton, near Ipswich.

TUESDAYS from 8 pm General Observations Section
Directors: Mr. N. Gage, , Felixstowe IP11 8ED Tel: Fel.
Mr. R. Hebbs, , Felixstowe IP11 7BL Tel: Fel.
2nd, 9th, 16th, 23rd and 30th

WEDNESDAYS from 8 pm Nebular and Faint Objects Section
Directors: Mr. D. Payne, , Wickham Market IP13 0SD Tel: Wickham Market
Mr. M. Cook, , Ipswich IP4 5QA Tel: Ips
3rd, 10th, 17th and 24th

FRIDAYS from 8 pm Variable Stars Section
Directors: Mr. M. Nicholls, , Capel St. Mary, Ipswich IP9 2EX Tel: Gt. Wenham
Mr. R. Gooding, , Ipswich IP1 6AE
12th and 26th* *Unless trip to Norwich postponed to this date.

SUNDAYS from 8 pm General Observations Section
Directors: Mr. M. Barriskill, , Ipswich IP1 2EZ
Mr. R. Adams, , Ipswich IP2 9ST Tel: Ips
7th and 21st

TRIP TO NORWICH ASTRONOMICAL SOCIETY. As mentioned previously, this is planned for the 19th November, but if weather is bad, could be postponed to the 26th. Details from Mr. D. Payne or Mr. R. Gooding.

to take piecemeal from house to garden. This avoided having to separate the telescope from the mounting each time, though this was easily possible.

I made a small permanent foundation in the garden with three bolts sticking out of it, locknuts atop each so all I had to do was place the whole mount on it and slip on wing-nuts when I wanted to view.

Before making the mounting, I had considered making two concentric R. A. main gears, one to be 'permanently' rotating at sidereal rate, as clock and datum, and the other to indicate coarse setting. This would have allowed use without separate R, A. and time calculations, but made the assembly rather more awkward to make with two sets of 3/4-inch diameter flanged wheels, eight in each cage, and four main flanged rings 9.7/8-inches diameter. I also hadn't got that many wheels or rings! So I pursued the more compact course, just one R. A. bearing set.

The main R. A. gear ring was formed of eight rack strips - four x 6.1/2-inch and four x 3.1/2-inch long. The tooth interval is 1/12-inch, so in all, 480 teeth were in the main gear, which I pre-formed each rackstrip for carefully against a template together with joining-strips, before assembly and fitting to a series of 16 5.1/2-inch strips braced into a ring by four 12.1/2-inch x 2.1/2-inch plates also precurved. The top and bottom of this drum each had 16 radial bracings held by 6-inch diameter heavy plates. This drum was attached in 3-point fashion to the top of the 'pier'.

The Dec. bearings were made from built-up girders, in a frame based on the upper 9.7/8-inch flanged ring of the R. A. unit. Three 1/2-inch diameter brass pulleys 'pinned' to the Dec. support frame at each end, located two further 6-inch diameter plates, one at each end of another 'drum' made of flexible plates serving as the hollow Dec 'axle'.

(Part III in December issue)