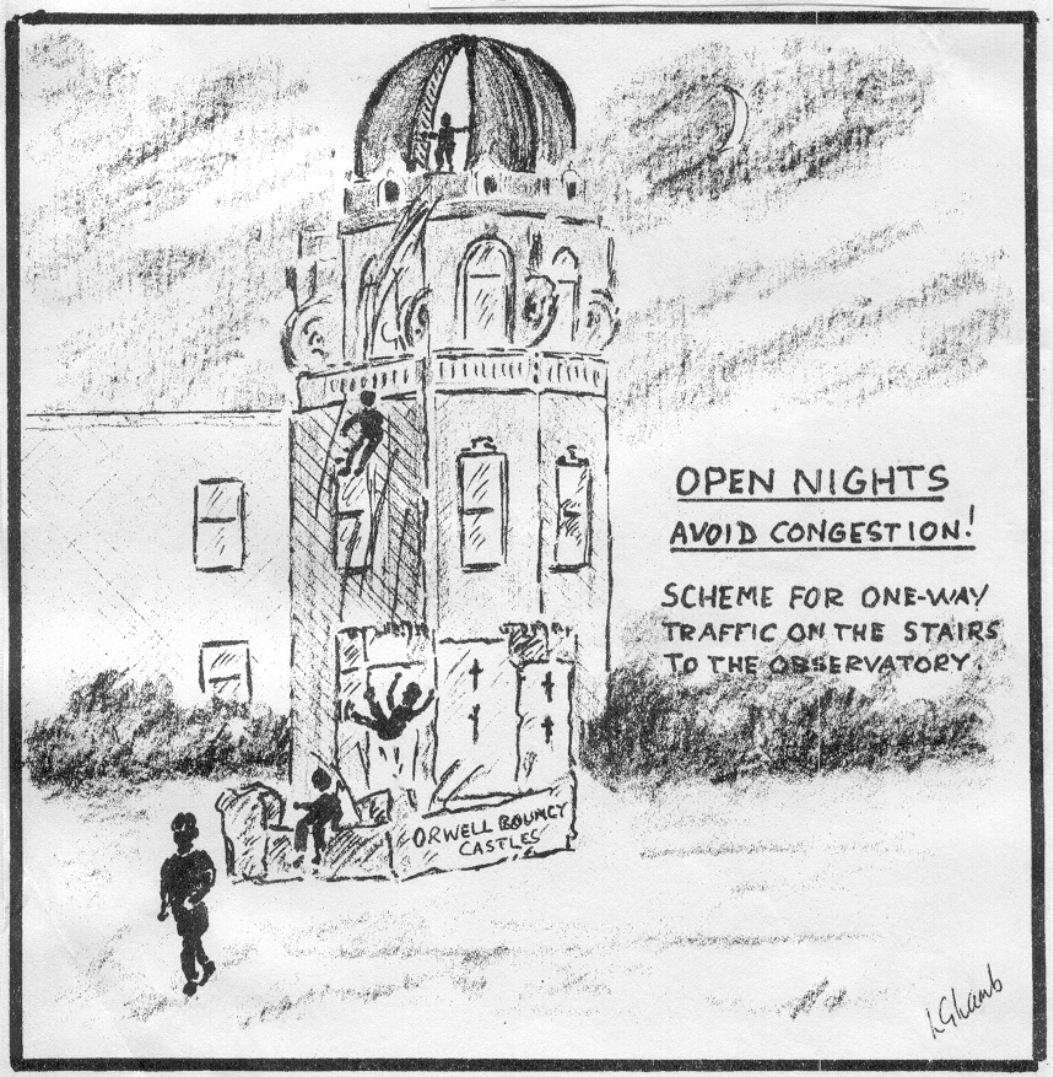
ORWELL ASTRONOMICAL SOCIETY IPSWICH

Charity No 271313

NOVEMBER 1999



Society News

1 Next Committee Meeting

The next committee meeting will be held on Saturday 27th November from 19:30 in the clubroom. As usual this is an open meeting and any one who is interested is invited to attend.

Events for 1999

Event	Details	Date
Christmas Meal	The Christmas meal has been booked at the Wilford Bridge Public House in Melton. I have booked 24 places. Please let me know if you would like to attend. The price will be about £15	8th December

Night Sky

All times GMT

Sun

The sun will be rising approximately between 07:00 to 07:50
The sun will be setting approximately between 16:40 to 16:00

Moon

New Moon	1st Quarter	Full Moon	3rd Quarter
8th	16th	23rd	29th

Mercury Mercury will be at inferior conjunction on the 15th. It will reappear in the morning sky, rising about 2 hours before the sun at the end of the month.

Venus Venus remains visible in the morning sky. It will be rising about 4 hours before the sun at he end of the month. Magnitude, -4.3

Mars Mars will be again be setting at about 20:00 through out the month. Magnitude 0.8

Jupiter Jupiter will be well placed for observing all this month. Magnitude –2.8

Saturn Saturn will also e well placed for observing this month. Magnitude 0.0

Uranus Uranus will be setting at about 21:00 at he end of the month. Magnitude 5.8

Neptune Neptune will be setting at about 20:00 at the end of the month. Magnitude 7.8

Meteor Showers

Shower	Maximum	Limits	ZHR
Taurids	November 3th	October 20th to November 30th	10
Leonids	October 21st	November 15th to 20th	Storm ?

Meteor source is the BAA Handbook

Roy Gooding

Open Weekend

For once the weather was on our side, with clear skies on both evenings and on Sunday afternoon. Ken Goward has compiled the following attendance statistics.

Day	Time	Adult	Child / OAP	Combined
Saturday 16th	20:00 to 22:00	93	41	
Sunday 17th	14:00 to 17:30	30	24	
	17:30 to 18:00	13	5	
	18:00 to 20:00	43	22	
	20:00 to 21:00	27	10	
	21:00 to 22:00	4	0	
Total		210	102	312

The total cumulative total was not taken, as many visitors on the Sunday afternoon had attended on the previous evening.

The total funds raised over the weekend was £330.95

Visit by Orwell Park School Students

Pupils from Orwell Park School also visited the Observatory on two occasions recently. Society members Ted Sampson, Roy Tremlett, Les Lamb, and Garry Coleman introduced them to basic observational astronomy.
Future visits are planned for 1st & 3rd Wednesday evenings each month, 7 to 8pm, immediately before the club evening starts. Any member interested in helping out at these sessions please contact Garry Coleman on [redacted]

WILL THE LEONIDS 'STORM' ?

What can we expect from the Leonid meteor shower? Perhaps 'expect the unexpected' would be a good motto if last year's display is anything to go by. In 1998 the peak of activity occurred a day early and the meteors seen, though not reaching storm rates, were unusually bright and the display unexpectedly long-lived (running through most of the night).

The Leonids, like all regular meteor showers, are seen when the Earth passes through the trail of debris left in the wake of a comet. The particles (referred to as meteoroids) heat up and produce the effect we call a meteor; commonly referred to as a "shooting star". These shower particles are typically the size of a grain of sand and completely burn up in the atmosphere.

*The term **meteorite** is used to describe a larger piece of space debris which does not completely burn up and at least part of the meteoroid hits the ground. The objects that form meteorites are not associated with meteor showers and many are thought to be fragments resulting from collisions between asteroids in the asteroid belt between Mars and Jupiter.*

In the case of the Leonids, the Comet responsible (the **parent** comet) is Temple-Tuttle which orbits the Sun with a period of 33 years. Whenever Temple-Tuttle is close to the Sun (ie. at "perihelion") it passes inside the Earth's orbit. When the Earth passes through the comets' track around this time it runs in to large numbers of particles newly ejected from the comet and the numbers of meteors are much greater than at other times. (Incidentally, the fact that so much of the debris is close to the comet indicates that the Comet hasn't been orbiting close to the Sun for very long - an older comet would have debris more evenly spread around its orbit and the rates would be fairly constant year after year.) In 1799, 1833 and 1866 spectacular storms were seen. In 1899 and 1933 high hopes were confounded by disappointingly low rates were observed. In 1966, however, fortunate observers in North America saw one of the most spectacular meteor storms ever. It is important to be aware that storms do not last all night and the main burst of activity in the 1966 Leonid storm lasted about 40 minutes. Storms generally last for less than an hour. The term 'storm' is used when 1000's of meteors per hour are seen – a spectacular sight for anyone is fortunate to see one.

It seems that the 1998 peak occurred when the Earth passed through an older stream of debris depleted of smaller particles and with a large number of bigger particles and missed the main stream. The bright meteors caught the attention of people coming out

of night-spots in central London, and some people saw fireballs from the shower during the day. At night, in the countryside the fireballs lit up the landscape and reportedly spooked sent the pheasants into a loud squawking flap. I was with a party in the West Country in Exmoor under thick cloud - a portent of our eclipse experience this year! British Astronomical Association president Martin Mobberley (who lives in Suffolk) along with a party of meteor shower chasers with Explorers Tours found themselves in a similar situation under the tail end of a monsoon in Darjeeling, India. Meanwhile back in Suffolk clear skies abounded allowing OASI members Mike Harlow, Sue Brown and Nigel Evans to see the best of the activity.

A bright Leonid is typically the size of a baked bean with the consistency of a coffee granule travelling a hundred times faster than Concord. Temple-tuttle is in retrograde orbit (ie. it orbits the Sun in the opposite direction to the Planets and most of the other solar system objects) and so the debris, which of course follows this retrograde path hit the Earth head on and are in the right position so they enter the Earth's atmosphere aht a greater speed than any other major shower. The Leonids are therefore bright and often leave trains of glowing ionised gas, some of which is from the air and some from the disintegrated meteoroid. Meteors sometimes break up and sometimes end with the meteoroid exploding in a 'terminal flash'. The flashes sometimes have distinct colouration and particularly large ones can occasionally produce a sonic boom for large particles. Where the meteor is very bright the term fireball or bolide is used.

Two terms I should describe if you're not familiar with meteor observation are **ZHR** and the **radiant**. The radiant is the point in the sky from which the meteors appear to come if you trace back their track. It's only an effect of perspective and the meteors are essentially travelling on parallel paths. Meteor showers are usually named after the constellation in which their radiant lies. The Leonids' radiant is in the sickle part of Leo. I've used the term rate in this article to mean the number of meteors seen in a given time. The standard measurement of the rate at which meteors appear is the ZHR or Zenithal Hourly Rate. ZHR is defined as the number of meteors per hour, in any part of the sky, where the observer can see meteors down to magnitude 6 (magnitude 6 stars are the faintest you could expect to see with the unaided eye under good observing conditions) and when the radiant is directly overhead (ie. at the zenith). ZHR represents, therefore, the rate of meteors anywhere in the sky, in the best place on the planet, under perfect conditions. Although in practice an observer will see less than the ZHR it is a useful standard measure.

This year's Leonid shower

When should you start looking? Well, although you can start as soon as it gets dark, you are unlikely to see many meteors until the radiant reaches a decent altitude at

around 11pm. I plan to look out every so often after dusk just in case the activity picks up earlier but I'll start a watch at around 10 or 11pm. The best time to see meteors of any shower is generally in the early hours of the morning and up to morning twilight. This is because in the morning we are on the side of the Earth which is facing forward with respect to its orbit round the front and running into the meteors in the same way as you encounter rain drops on your face when you run through rain. Meteors can approach from behind but they will be slower moving.

The 1999 Leonids are considered by many people to be the most likely to produce a storm, since the time since the passage the Comet Temple-Tuttle is similar to that of 1966. However, some experts are predicting that, although 1999 and 2000 will see enhanced activity, storms are more likely to be seen in 2001 and 2002. This suggests that the Leonids will be providing some interest for several years.

The peak of activity for 1999 is predicted to be on the night of 17th/18th November - Wednesday night/Thursday morning - with the main peak in the early hours of the 18th. It's also worth watching the night before and night after just in case they spring a surprise.

Serious meteor observers – including one or two OASI members - record the brightness and track of each meteor seen and submit their observations to the BAA or one of the other organisations. So far I have been content just to watch. If a storm occurs virtually every observer will drop their pencil and just watch: not only because of the sheer impossibility of logging every meteor, but also because of the sheer spectacle.

HISTORICAL FOOTNOTE

Two of Suffolk's most prominent amateur astronomers of the past included meteor observing amongst their specialities. Alice Grace Cook and, later, J P M (Manning) Prentice held the post of Director of the Meteor Section of the British Astronomical Association and thus headed a team of some of the best meteor observers in world. Miss Cook was inpired by and worked with the doyen of meteor astronomy, the Bristol Amateur, W F Denning. Miss Cook was one of a handful of leading meteor observers at the beginning of the 20th Century. Manning Prentice learnt his observing from Miss Cook. In the late 1940s Manning Prentice conducted co-ordinated observing sessions with his observations made from Stowmarket correlated with George Alcock's observations from Peterborough to determine the height of meteors by triangulation.

Manning Prentice's meteor work inspired Bernard Lovell to start observing meteors by radio reflections at Jodrell Bank in Cheshire and thereby Prentice had a part in founding professional Radio Astronomy in the UK. Prentice travelled up to Jodrell Bank for several years to provide visual observations to correlate with the radio observations and provided expert advice on meteors thereby supporting the fledgling professional radio astronomy in the UK.

The impact and importance of Prentice's meteor astronomy work is recognised worldwide.

One of the co-founders of the Orwell Astronomical Society (Ipswich) -Edward Collinson - was also an active meteor observer, working with Manning Prentice at one time. Collinson experimented with pioneering photograph techniques for meteor work in the 1930s. The experiments involved using a gramophone record motor to control the taking of pictures (with a camera fitted with a wide-angle lens) at regular intervals throughout the night.

The current BAA meteor section collates amateurs' meteor observations as it did in A G Cook and JPM Prentice's day. The International Meteor Organisation (IMO) co-ordinates the observations of amateurs throughout the world and the nature of meteors mean that the work of amateurs is highly valued by professionals and contributes greatly to the science.

Pete Richards

Thornham Walks talk and star party.

The Orwell Astronomical Society (Ipswich) has been asked to provide a speaker for a talk on the Night Sky at Thornham Walks near Eye, Suffolk. The talk is on 20th November. Last year a similar talk was orginised which was given by a member of the Norwich Astronomical Society. After the talk several NAS members were there with a portable telescope to show people the real thing and by all accounts the event was a big success. Currently we have only two standby speakers and neither can guarantee being able to make the event. Volunteers for either the speaker(s) or telescope operators are needed. Please contact Pete Richards (e-mail address [redacted] – other contact details on the back page) or Dave Payne (contact details on the back page).

OCCULTATIONS DURING NOVEMBER 1999

The table lists stellar occultation disappearance events which occur during the month under favourable circumstances. The data relates to Orwell Park Observatory, but will be similar at nearby locations.

D or R	Date & Time (UT)	Lunar Phase	Sun Alt (d)	Star Alt (d)	Min Dist (rad)	Star	Mag
D	13 Nov 16:52	.25+	-7	16	.22S	ZC 2851	6.1
D	13 Nov 17:33	.25+	-13	14	.79N	Hip 96021	7.3
D	15 Nov 20:15	.44+	-38	12	.43S	31 Cap	7.1
D	16 Nov 17:54	.53+	-17	23	.88N	Hip 108958	7.4
D	16 Nov 19:23	.54+	-30	22	.42S	ZC 3240	6.7
D	18 Nov 18:43	.74+	-25	30	.52S	ZC 3506	6.1
D	20 Nov 00:22	.85+	-57	22	.10S	ZC 106	6.6
D	21 Nov 17:34	.96+	-15	18	.28N	ksi 2 Cet	4.3
D	22 Nov 02:21	.97+	-45	28	.08S	mu Cet	4.3

James Appleton

Group Visit to the Observatory

15 members of Mid Suffolk Junior County Rangers accompanied by 3 supervisors visited the Observatory on the evening of 7th October. After cloud and heavy rain during the day, the skies cleared at 8pm just as the girls and boys arrived. After a short introductory talk from host Roy Gooding, the children were able to view Jupiter, and then Saturn, through the 10" refractor. Comments ranged from "Aaaaaah!" to "Wow!" Host James Appleton then told the children a bit about the two planets, and answered their questions.
There is an ongoing programme of visits from outside groups, and any member interested in acting as a host on these occasions, please contact Garry Coleman on [redacted]

[redacted]
Colchester
Essex CO3 4EL

23 October 1999

Dear Mr Gooding

TELESCOPE FOR SALE

Model V15,10 inch (254mm) f4.3 reflector made by Astrosystems in Luton in 1988. Vixen Super Polaris tripod equatorial mount. As new, little used and with original instruction brochure.

Accesories include:

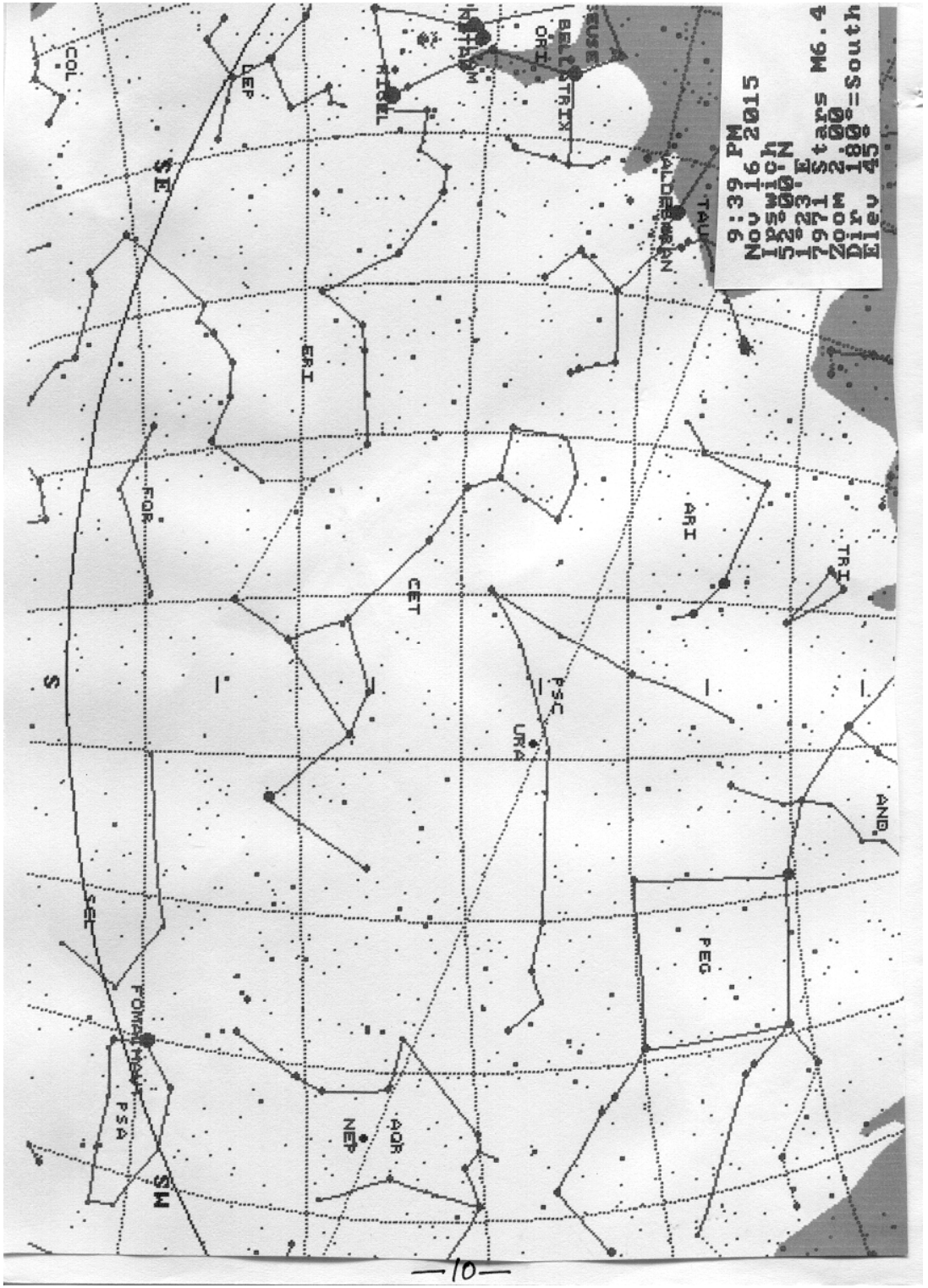
- 4 inch relector guide telescope
- 1 inch refractor guide telescope
- dual axis drive driven by batteries or from a remote power supply (cable and connector supplied but not the batteries or power supply)
- 2x deluxe barlow lens
- 5.0 mm ortho lens
- 7.5 mm plossle lens
- 18 mm ortho lens
- 26 mm plossle lens
- Tectron collimating tool set
- sodium light filter

PRICE £550 ono

Telephone [redacted]

yours sincerely

John Causton



For Sale

Meade LX 200 10 inch Super wedge plus 6400 programme
Including Super Plossi 26mm eye piece
12mm illuminated reticle eye piece
Lumicon giant easy guider F 6.3
flexible dew shield
piggy back bracket
JBI wheels
fitted hard case
Open to sensible offers around £3.000
Telephone Peter

WANTED

6" or greater, reflector telescope with objectives that is ready to go. Prepared to pay approximately £100.
Phone Kessack,
email:

1999 COMMITTEE

		Home Phone	Work Phone
CHAIRMAN	D Payne		
SECRETARY & WORK PARTY ORGANISER	R Gooding		
TREASURER	M Harlow		
MECHANICS	M Cook		
NEWSLETTER CO-ORDINATOR	E Sims		
BEGINNERS MEETING CO-ORD	T Sampson		
DARK SKIES & VISIT CO-ORD	G Coleman		
EQUIPMENT CURATOR	J Walsh		
LIBRARIAN	J Appleton		
CO-OPTED MEMBER			
LECTURE CO-ORDINATOR	P Richards		

JOURNAL ARTICLES TO — E Sims, Ipswich Suffolk IP1 4HA

CORRESPONDENCE ADDRESS — R Gooding OASI Secretary, Ipswich Suffolk IP1 6AE

MEMBERSHIP — M. Cook, Ipswich IP4 5PZ

Observing Programme For November

Dates	Observing Director	Activities
Mondays from 7.30pm	T Sampson	General Observation
Tuesdays from 7.30pm	G Coleman	Group Visits
Wednesdays from 8.00pm	M Cook D Payne	Nebular & Faint Objects
Thursdays from 7.30pm	G Coleman	Group Visits
Fridays from 7.30pm		Double Stars

All members are welcome on any night, but on nights other than Wednesday please check with the appropriate director that the observatory will be open.

Special Events

1. Committee Meeting
The next committee meeting is going to be held on Saturday 27th November in the club room at the observatory at 7.30pm. All members are welcome to attend.

2. Workshop
Wednesday November 10th 7.30pm. Observing project follow up - Star hopping techniques.

3. Christmas Meal
Melton Wilford Bridge December 8th.

4. Workshop
Wednesday January 12th 7.30pm Telescope making - an introduction; Neither difficult nor expensive!

Society Contact Details

		Home Phone	Work Phone
Chairman	D Payne		
Secretary	R Gooding		

Contact details for the full committee are on the inside back page.

e-mail queries: oasienq@btbcs.bt.co.uk
WWW address: http://www.ast.cam.ac.uk:80/~ipswich/