

# ORWELL ASTRONOMICAL SOCIETY IPSWICH

Charity No 271313

## APRIL 1999



## Society News

### 1 Next Committee Meeting

The next committee meeting will be held on Saturday 24<sup>th</sup> April 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
Visit to Norwich AS's observatory	Time of departure will be arranged on a Wednesday evening	16 <sup>th</sup> April
BAA Winchester Weekend		1 <sup>st</sup> April
Lecture Meeting	Frank Flynn Getting the measure of the Universe	23 <sup>rd</sup> April
Oxford Astronomy Weekend	Cost £132	9 <sup>th</sup> May
Summer Excursion	Will probable be to Greenwich	Date to be fixed
Summer Barbecue	To be arranged	Date to be fixed
BAA Exhibition Meeting	London Guildhall University Calcutta House	26 <sup>th</sup> June
Eclipse	Members to make own arrangements	11 <sup>th</sup> August
Astro Camp	Mid August	
FAS meeting Cambridge		2 <sup>nd</sup> October
Open Weekend	To be arranged	15 <sup>th</sup> , 16 <sup>th</sup> 17 <sup>th</sup> October
Christmas Meal	To be arranged	10 <sup>th</sup> December

Other events will be added to this list throughout the year

### Summary from the committee meeting held on Saturday 27<sup>th</sup> February

- 1 Now you see it, now you don't, Oh! There you are**  
Here follows the saga of the society Web pages. First a little background to familiarise members on how Web pages and the internet works. Web pages are stored on computers that are known as servers. PC's that have an application known as a Browser e.g. Netscape, installed can access these pages, if they have a suitable network connection. Servers are maintained by people known as administrators. Now that's enough of the technical stuff.
- i The society WEB pages were originally stored on one of the servers that the RGO at Cambridge owned. [ **Now you see it** ]
  - ii The RGO was closed down but not all of these computers were switched off
  - iii A long time later an administrator whose job was to switch this machine off. He found our account, and told us that the server was going to be switched and our account was to be terminated. No more WEB site [ **Now you don't** ]
  - iv **Panic!** Where could another WEB site be found as a new home for the society's Web pages. Several alternatives were considered.

- v Pete Richards started a search to find any link pages that referenced the society's pages. Low and behold a link to another server at Cambridge was found, containing all of the lost Web pages. [Oh there you are]
- vi An email to Cambridge cleared up the matter. The original administrator had only told half the storey. The original server had been replaced with a new one, onto which all the society's pages had been copied. The new administrator actively encourages amateur societies to display their web pages are on this new machine, which presently has about 8Gbits of free hard disk space. Thanks go to Mike Harlow and Pete Richard's in sorting out this problem.

- 2 **Large Telescope for the new century**  
Mike Harlow proposed building a large telescope for the new century. The size would be an 19" Dobsonian reflector. It will take a minimum of about 18 months to complete and Mike has said that he is willing to grind the mirror!
- 3 **A new observing evening**  
Ted Samson has decided to start a new monthly meeting on Mondays for use of the small telescopes only.
- 4 **Society logo sweatshirts**  
A suitable supplier has not yet been found.
- 5 **Society pens**  
A new batch of pens will be purchased.
- 6 **Redecorating the observatory**  
The observatory will be repainted this year.

## Night Sky

All times GMT

### Sun

The sun will be rising approximately between 05:40 to 04:40  
The sun will be setting approximately between 18:30 to 19:30

### Moon

3 <sup>rd</sup> Quarter	New Moon	1 <sup>st</sup> Quarter	Full Moon
9 <sup>th</sup>	16 <sup>th</sup>	22 <sup>nd</sup>	30 <sup>th</sup>

- Mercury** Mercury reaches greatest western elongation on the 16<sup>th</sup>, when it will be at 28°. It will be rising only half an hour before the sun and will not be observable.
- Venus** Venus remains very prominent in the evening sky. It will be setting at about 23:30 at the end of the month. Magnitude -3.9
- Mars** Mars will be at opposition on the 24<sup>th</sup>. Magnitude -1.5
- Jupiter** Jupiter will be in conjunction with the sun on the 1<sup>st</sup>. By the end of the month it may be seen low down in the pre-dawn sky.
- Saturn** Saturn will be very near the sun this month and will be conjunction with it on the 27<sup>th</sup>

**Uranus** Uranus will be rising in the early morning sky, at about 02:00 at the end of the month. Magnitude 5.7

**Neptune** Neptune will be rising about 30 minutes before Uranus in mid month. Magnitude 7.8

## Meteor Showers

Shower	Limits	Maximum	ZHR
Lyrids	April 19 <sup>th</sup> to 25 <sup>th</sup>	April 22 <sup>nd</sup> 20:00	10
η Aquarids	April 24 <sup>th</sup> to May 20 <sup>th</sup>	May 4 <sup>th</sup>	40
α Scorpiids	April 20 <sup>th</sup> to May 19 <sup>th</sup>	April 27 <sup>th</sup> May 12 <sup>th</sup>	5

Meteor source is the BAA Handbook

## OCCULTATIONS DURING APRIL 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.

Note in particular the occultation of the first magnitude star Regulus during the evening of Saturday 24<sup>th</sup> April.

D or R	Date & Time (UT)	Lunar Phase	Sun Alt (d)	Star Alt (d)	Min Dist (rad)	Star	Mag
D	18 Apr 20:53	.10+	-16	9	.85S	gamma Tau	3.7
D	21 Apr 22:14	.40+	-23	25	.85N	Hip 36000	7.5
D	21 Apr 22:52	.40+	-25	19	.77S	Hip 36122	7.3
D	22 Apr 23:06	.51+	-25	24	.10N	ZC 1260	7.1
D	22 Apr 23:38	.52+	-26	20	.17S	25 Cnc	6.1
D	23 Apr 20:52	.61+	-15	47	.24S	82 Cnc	5.4
R	24 Apr 21:24 22:10	.71+	-18 -21	46 41	.79N	Regulus	1.4
D	26 Apr 00:53	.81+	-23	23	.56N	Hip 54057	7.3
D	26 Apr 01:38	.81+	-21	16	.13N	chi Leo	4.6
D	26 Apr 02:19	.82+	-17	10	.20S	Hip 54274	7.3
D	29 Apr 00:54	.98+	-22	27	.19S	65 Vir	5.9
D	29 Apr 01:57	.98+	-18	21	.59S	66 Vir	5.8

James Appleton

**Observatory Maintenance Log since 1981 (part 1)**  
**By Roy Gooding**

The interiors of the observatory, clubroom and stairwell have not been painted for a number of years. The observatory is now starting to look somewhat run down, this will be rectified this year. As ever it is a small job for a number of willing volunteers and a hard one for a hand full of press-ganged volunteered members. I propose to make a start around Easter time. The clocks will have been put forward an hour and observing time will be reducing for the next few months.

As an incentive I will be starting a series of articles depicting the principle repair work and decorating undertaken during the last 18 years.

**1981**

1981 was a major repair and reconstruction year. The observatory was closed for several months, resembling a building site rather than a venue of science. The following is taken from reports that appeared in the Newsletters during the year. Tower scaffolding was in continuous use for weeks. The biggest single job was to sand down the observatory mahogany panelling and to re-varnish it. This was an arduous job and took many weeks, of sustained hard work. This was the first time it had probably been re-varnished since the observatory had been built.

Meanwhile, outside the observatory tower, suspended on a mountaineer's climbing harness. Colin Button was playing Spider Man while member's fed him with cement so that; he could re-point the observatory tower. Colin's endeavour made the front page of the East Anglian Daily Times.

The next attack front was the sealed up lift shaft door. The door had been sealed for many years for safety reasons. Behind it was the lift shaft floor which was completely dry rotted. Below it was a 60 foot drop to the basement. The door and its rotten frame were removed and a new door frame constructed. The door was re-shaped and re-hung and could be opened and locked with a key, instead of several 6" nails.

The full frontal attack on the observatory walls commenced. Any loose brickwork and plaster was removed. Large quantities of sand, cement, plaster and water were hauled laboriously up the 111 steps to the dome room, before reconstruction could begin.

Apart from repairing the inside of the observatory, a major engineering effort was required to re-construct the base of the dome shutter. The bolts holding the bottom shutter track to the support brackets had been scraping the lead from the roofing when the dome was rotated. The support brackets of the shutter track had to be raised before the lead could be repaired. While attempting this task that disaster struck. The shutter track is (or was) supported by three cast iron brackets. One of these had been removed for repositioning the

track, and strain on the two remaining brackets was too great and both fractured. This left the shutter completely inoperable. Two new steel support brackets were fabricated.

After the reconstruction work everything, including the transit room was painted out. The floor was sanded down and varnished and the telescope given another coat of battle ship grey. The telescope was enhanced, with the addition of a stepper motor to drive the RA axis

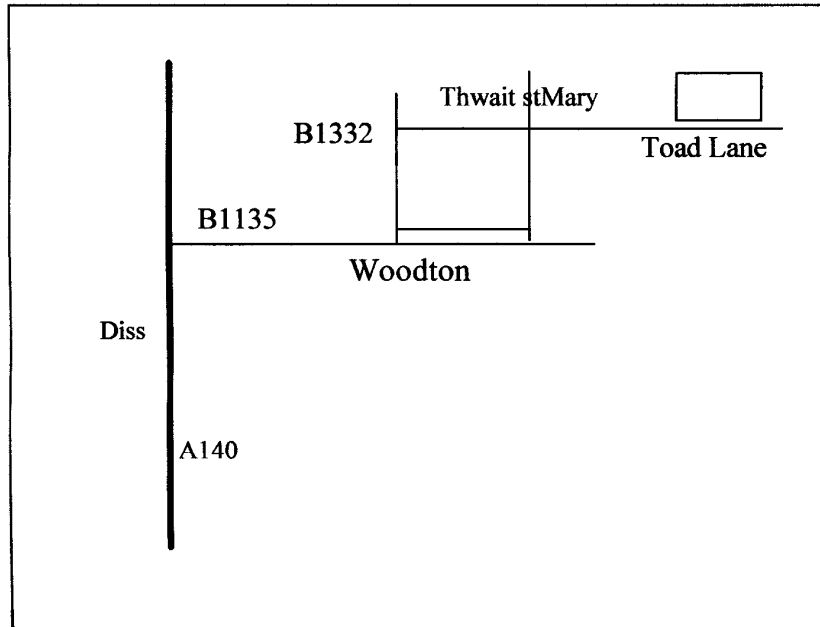
**This was taken from the observatory log book for 1981**

Date	Description	Date	Description
17-April	Work on drive:- Dave Payne	30-July	Measured shutter for repairing broken wood at the base
29 June	Dome wall repairs	01-Aug	Varnished inside of dome
01-July	Continuing with repairs		Decorating at dome all day
04-July	Sanding dome with scaffolding.	03-Aug	shutter repairs continuing
	Preparing new door frame.		2nd coat of varnish on inside of dome
	Painted outside of dome windows	05-Aug	Base of dome shutter support broken
	First varnish on part of shutter		Painted clubroom windows
05-July	Painted undercoat of lift door frame	07-Aug	Jacked up shutter to measure for new support brackets
	Continuing sanding shutter	09-Aug	shutter repairs continuing
06-July	Started cementing around lift door frame	12-Aug	Finished shutter repairs ( shutter can now be opened again )
12-July	Dome sanding	22-Aug	Took down scaffolding
13-July	More work on lift shaft door frame	23-Aug	Finished undercoating dome walls
	More dome sanding	02-Sep	Painting dome walls
25-July	Finished sanding dome	03-Sep	Painting balcony doors
	Filled in 'bird'holes in shutter ( Starlings had nested in it )	25-Sep	Sanded dome floor
	Oiled shutter top runner	27-Sep	Varnished dome floor
	Red oxidised top shutter track	28-Sep	2nd coat of varnish to dome floor
26-July	Cleaned out dome track & wheel boxes of rust	30-Sep	3rd coat of varnish to dome floor
27-July	Tarred transit roof	04-Oct	4th coat of varnish to dome floor
29-July	Completed sanding shutter	07-Oct	Painted transit telescope mount
	Completed clearing out track and wheel boxes	08-Oct	New wheels on dome observing chair
	Varnished small section of dome as trial	09-Oct	Periscopes back on telescope
	Completed shutter repairs		

**Visit to Norwich Astronomical Society's Observatory**  
 This visit has been arranged for Friday 16<sup>th</sup> April

Their observatory is located on part of the old Seething air field at Thwait St Mary. It is a little tricky to find especially at night. I include a written and a schematic map and wish you good luck in your navigation. If you do get lost and happen upon any locals ask for Toad lane

- 1 Head towards to Norwich on the A140
- 2 Turn right onto the B1135 ( About half way between Diss and Norwich)
- 3 Turn left in the village of Woodton onto the B1332
- 4 Take the second right turn after Woodton. This is little more than a cart track and can be easily missed.
- 5 At the crossroads go straight across. This should be Toad lane. Norwich AS observatory will be sign posted along this track on the left.



**VENUS - JUPITER CLOSE APPROACH, 23<sup>rd</sup> Feb 1999**

February 1999 saw the closest approach of Venus and Jupiter for many years. The weather was reasonably favourable around the date of closest approach, offering naked eye observers the opportunity to view this spectacle in the western sky shortly after sunset.

Monday 22<sup>nd</sup> Feb, the evening before closest approach, was cold and clear. I observed Venus and Jupiter around 18:30-19:00 UT. At this time, the sun had set below the horizon and the planets shone brightly against a darkening western sky, approximately 1° apart, at an altitude of about 10°. Venus (mag -4.0) was at a slightly lower altitude and noticeably brighter than Jupiter (mag -2.1). The planets also exhibited a marked colour contrast: Venus appeared pure white, whereas Jupiter appeared yellow-white

My 10x50 binoculars showed the two planets in the same field, and also revealed

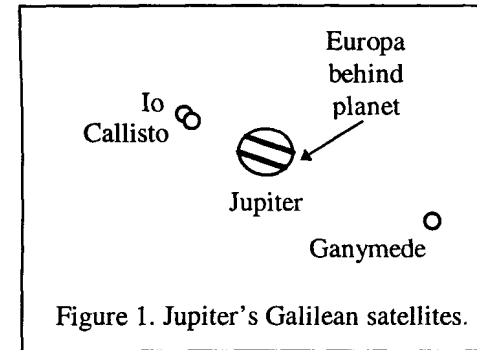


Figure 1. Jupiter's Galilean satellites.

Jupiter's Galilean satellites. Figure 1 illustrates the appearance of Jupiter and the Galileans. Io and Callisto appeared as a single point of light to the east of the planetary disk - the binoculars could not split them. Ganymede appeared to the west. The planetary disc occulted Europa.

Usually, one sets out to observe Jupiter when it is best placed, i.e. at greatest altitude and due south. Under these circumstances, the Jovian belts and plane of the moons run

horizontally, and this is the configuration that one comes to expect. However, on this particular occasion, with the Jovian system descending towards the western horizon, the parallactic angle was much increased giving the system the unusual appearance of being greatly "tilted" towards the horizon.

Tuesday 23<sup>rd</sup> Feb, the evening of closest approach, suffered from very hazy conditions affecting the whole sky. Only the moon, the planets and the brighter stars were visible. The haze created a very prominent halo surrounding the moon at a distance of some 10 lunar diameters.

Figure 2 shows the general orientation of the sky at 18:30 UT on 23<sup>rd</sup> Feb. Despite the poor observing conditions, Jupiter and Venus were visibly very close together, presenting an unusual spectacle as they sank towards the western horizon. At 18:30, the planets were at a separation of 514 arc-seconds (approximately one quarter of a

lunar diameter) decreasing to only 481 arc-seconds as the planets set on the western horizon.

Martin Cook, Gary Coleman and Mike Harlow observed the close approach from the Orwell Park Observatory using the 10" refractor with a wide-field eyepiece giving a magnification of approximately 50x. Both planets were visible in the field of view. Venus exhibited a slight phase, while the belts of Jupiter were very prominent.

Wednesday 24th, the evening after closest approach, presented the best viewing conditions. In the early evening, circa 18:30 UT, the sky was very transparent and presented a marvellous view along the path of the ecliptic. As on the previous day, Jupiter and Venus shone against a dark blue sky, this time with Venus at a higher altitude than Jupiter. Mercury was visible too, just above the rooftops while further East along the ecliptic Saturn and the Moon were also visible. The first magnitude star Aldebaran was visible close to the Moon (in fact, parts of China had witnessed a lunar occultation of Aldebaran in the preceding hours).

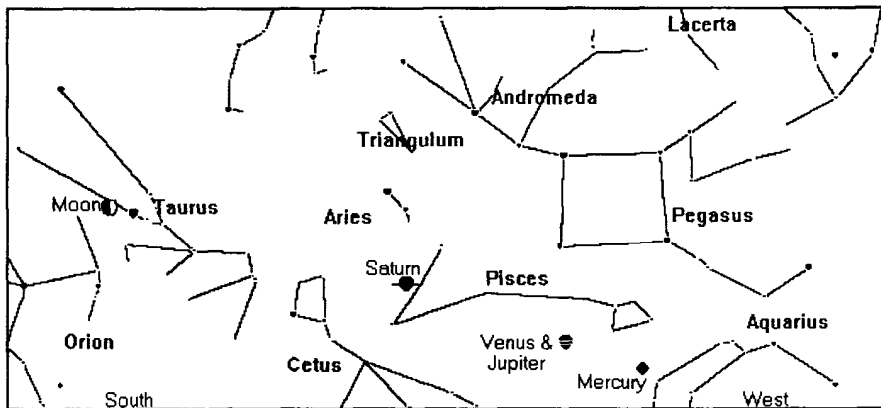


Figure 2. General orientation of sky, 18:30 UT on 23<sup>rd</sup> Feb.

Although a close approach of bright planets has little scientific value, it can present a beautiful spectacle. The next close approaches of Venus and Jupiter are in Aug 2014 and August 2016.

James Appleton

## NEW LIBRARY MAGAZINES & BOOKS

Many thanks are due to OASI member Les Maxim, who recently donated his collection of *Astronomy Now* magazines to the library. Les's collection stretched back to the very first issue, April-June 1987. Thanks to Les's donation, the library holds a collection of *Astronomy Now* which is complete from issue one to the present day.

I have recently purchased the following three books for the library:

*The Calendar*, by David Ewing Duncan, Fourth Estate Limited, 1998, £12.99. This book traces the development of the calendar from the ancient Greeks and Romans to the present day. The story is a fascinating mix of astronomy, science, politics and religion - a real gripping yarn.

*Deep-Sky Companions: The Messier Objects*, by Stephen James O'Meara, Sky Publishing Corporation and CUP, 1998, £22.50. This book is an excellent guide to observing Messier's famous list of 109 deep sky objects. The opening chapters describe Messier's compilation of his list, and provide tips for observing the objects themselves. Subsequently, the bulk of the book is devoted to a detailed description of each object in the list, accompanied by a description, historical notes, sketches, a finder chart and a photograph.

*The Hatfield Photographic Lunar Atlas*, by Jeremy Cook, Springer Verlag London Ltd, 1999, £28.00. This book is an updated version of Henry Hatfield's classic lunar atlas first published in 1968. It divides the lunar disk into 16 sections, and for each presents a detailed map of topographic features together with a selection of photographs taken under varying conditions of illumination, to illustrate the expected view in a typical amateur telescope. This book should prove extremely valuable both for skilled lunar observers and for beginners wishing to find their way around the lunar topology. Because this book is primarily an observing atlas members are not permitted to remove it from the observatory.

The library is housed in the Orwell Park Observatory. It holds a selection of astronomy books, videos and magazines. All members of OASI are welcome to use the library. Please contact me with requests for purchases of books, videos and software, or if you would like to donate any good-quality astronomy material to the library.

James Appleton

## Additional Workshop

As outlined in the March issue of the journal, an additional workshop on the subject of "Eclipse Photography Techniques" has now been arranged. It will take place on Wed May 12th at 7.30 pm, in the same room as the other workshops. Our member Nigel Evans will be the resident expert, and the session will be open to all members as usual. But come early to get a seat!

**Future workshops.** It has been agreed by the committee that the workshops, or something similar, should become a regular feature of the society's programme of activities. A new series will start in September. To enable those planning the series [the focus group] to keep in tune with members' requirements, and remembering that this was the first time for a while that such a thing has been attempted, we would like some feedback from members on the series so far, and ideas and comments for the next series. The focus group will be meeting before the end of March: will you please therefore speak, write, phone, or e-mail either Ted or Ken as below.

**Ted Sampson.** [redacted], Offton, Ipswich. IP8 4RH. Tel. [redacted].  
e-mail [tsampson@globalnet.co.uk](mailto:tsampson@globalnet.co.uk)

**Ken Goward.** [redacted], Mistley, Manningtree. CO11 1LH  
Tel [redacted].

## Opening on an extra night.

Following discussions in the club room, and at the recent workshops, it has been agreed that the society will open its doors on an extra night to the existing Wednesday, for the purpose of giving members the opportunity to gain "hands on" experience with our other telescopes ie: the 10" Dobsonian, the 4" reflector, and soon the 6" reflector. We will start with monthly sessions on the third Monday in each month, beginning on Monday April 19th. from 7.30pm. The sessions will include use of charts, atlases, textbooks etc, to enable us to plan and find objects to observe, and how to know if we have found what we were looking for. On cloudy nights attention can turn to telescope matters ie: how to calculate magnification, field of view, f ratios etc. In other words, it will be a night devoted to the practice

and a bit of theory of practical observing. The members taking responsibility for the Monday nights are as follows: Ted Sampson, Ken Goward, and Garry Coleman, who will be pleased to be contacted for further information. The viewing will take place from the balcony in the lower dome room. Bring your membership card incased challenged by school staff - and to remind you of the security lock number if the latch is down. Arrows will be on the walls once inside the school to save anyone getting lost.

All change at the edge of the Solar System.

By J. Walsh.

While most people this year are thinking of the impending eclipse in August and at the end of the year, the start of the new millennium. Another event took place at the edge of the Solar System on the 11th of February 1999 at 14:20 when Pluto crossed the plane of Neptunes orbit to reassume its position of outermost planet in the Solar System after a break of 20 years. It will be another 228 years in 2227, when Pluto next comes within the orbit of Neptune.

Pluto was discovered in 1930 by Clyde Tombugh after looking at photographic plates taken during January and February of that year. And the discovery was announced on 13th March 1930. The planet was within 5° of the predicted position given by Percival Lowell several years earlier.

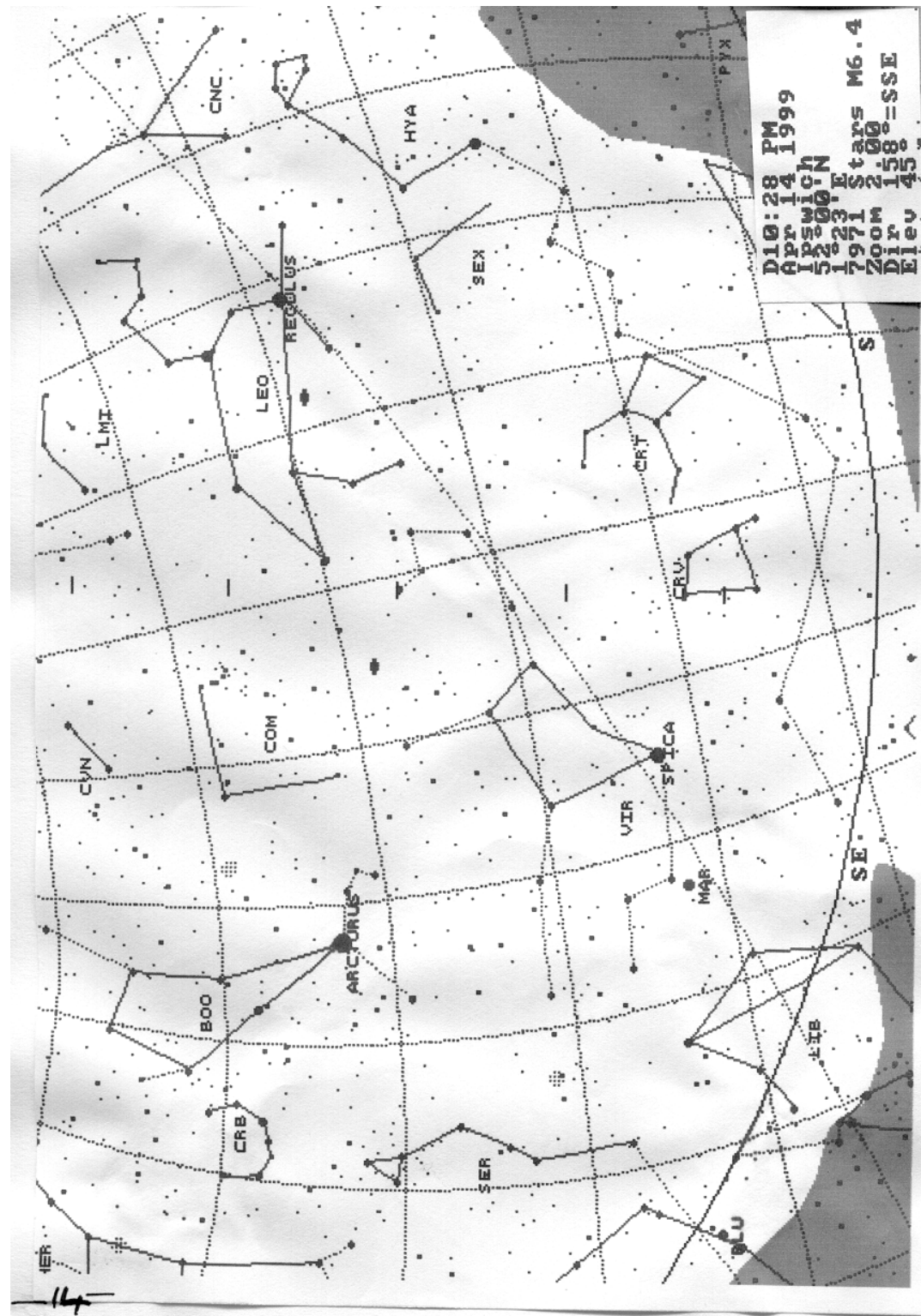
Pluto is the smallest of the planets in our Solar System, with an equatorial diameter of 1444 miles (2,324 KM). Due to its much smaller size than the rest of the planets, a lot of people think that Pluto should be relegated to the status of an asteroid or planetesimal. Pluto takes 248 years to revolve once around the Sun in a very eccentric orbit. Its nearest distance to the

of the two planets (a ratio of 3:2) so they never come close to each other. Plutos sidereal rotation period or day is over six times longer than Earths at 6 days, 9 hours and 17 minutes. The Plutonian atmosphere of mainly Methane is very thin due to the escape velocity of only 0.7 miles (1.18 KM) per second. The atmosphere does thicken during Plutos summer months, as some of the surface ice evaporates into Methane gas. Plutos mass (0.0022 Earth = 1) compared to it's size suggests that it's surface is rocky and covered with a surface layer of Methane ice. The surface temperature is about  $-225^{\circ}\text{C}$ .

Pluto like the Earth, is not alone in space, in 1978 a satellite was found by James Christie of the U.S. Naval Observatory. It was named Charon after the boatman who ferried the dead across the river Styx to Hades. Charons diameter is about 790 miles (1,270 KM). This makes Charon the largest satellite in relation to it's primary in the Solar System. Unlike any other of the planetary satellites, Charon has a synchronous orbit with a period (6.4 days) matching the rotation period of it's primary.

It will be another 228 years before Pluto and Neptune swap places again, then it will be time for another change at the edge of the Solar System.

Sun (Perihelion) is 2,750,200,000 miles (4,425,100,000 KM). It's farthest distance from the Sun (Aphelion) is 4,583,650,000 miles (7,375,100,000 KM). The orbital eccentricity is 0.248 based on the equation  $e = c/a$ . This makes Plutos orbital eccentricity the greatest of all the planets in the Solar System. As mentioned before it is due to the orbital eccentricity which takes Pluto within the orbit of Neptune, but there is no fear of a collision, this is due to Plutos  $17^{\circ}$  inclination to the ecliptic. Also there is a resonance between the orbits



	Home Phone	Work Phone
<b>1999 COMMITTEE</b>		
<b>CHAIRMAN</b>	D Payne	
<b>SECRETARY &amp; WORK PARTY ORGANISER</b>	R Gooding	
<b>TREASURER</b>	M Harlow	
<b>MECHANICS</b>	M Cook	
<b>NEWSLETTER CO-ORDINATOR</b>	E Sims	
<b>BEGINNERS MEETING CO-ORD</b>	T Sampson	
<b>DARK SKIES</b>	G Coleman	
<b>EQUIPMENT CURATOR</b>	J Walsh	
<b>LIBRARIAN</b>	J Appleton	
<b>CO-OPTED MEMBER</b>	P Richards	
<b>LECTURE CO-ORDINATOR</b>	E Sims	Ipswich Suffolk IP1 4HA
<b>JOURNAL ARTICLES TO</b>	R Gooding	OASI Secretary Ipswich Suffolk IP1 6AE
<b>CORRESPONDENCE ADDRESS</b>	M. Cook	Ipswich IP4 5PZ
<b>MEMBERSHIP</b>		

## Observing Programme For April

Dates	Observing Director	Activities
Mondays from 7.30pm	N Gage	General Observation
Tuesdays from 7.30pm	P Richards	Group Visits
Wednesdays from 8.00pm	M Cook D Payne	Nebular & Faint Objects
Thursdays from 7.30pm	P Richards	Group Visits
Fridays from 7.30pm	J Hood	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. Lecture Meeting

Frank Flynn (University of East Anglia & University of Cambridge)  
"Getting the Measure of the Universe" at the Friends Meeting House,  
Fonnereau Road, on Friday 23rd April 1999 at 8.00pm. Admission free.

### 2. Committee Meeting

The next committee meeting is to be held on Saturday 24th April in the club room at the observatory at 7.30pm. All members are welcome to attend.

### 3. Beginners Night (Small telescopes)

The next beginners night is to be held in the club room at the observatory at Orwell park School on Monday the 19th of April.

## 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: oasieng@btbcs.bt.co.uk  
WWW address: http://www.ast.cam.ac.uk:80/~ipswich/