

ORWELL ASTRONOMICAL SOCIETY IPSWICH.....

NEW YEAR ISSUE



NIGHT SKY

(all times G.M.T.)

SUN Rises approximately between 08.10 - 07.50
Sets approximately between 16.00 - 16.30

MOON



4th



11th



18th



26th

MERCURY

Mercury is an evening object at the beginning of the month. It will be at inferior conjunction on the 9th, and will be rising about $\frac{1}{2}$ hour before the sun at the end of the month.

VENUS

Venus is still an evening sky object. It will be at inferior conjunction on the 18th. Venus will then be a morning sky object until the end of October.

MARS

Mars will be rising at about 2 hours before the sun.
Mag. 1.5

JUPITER

Jupiter setting about 2 hours before sunrise. Mag. -2.7.

SATURN

Saturn will be at conjunction on the 6th. It will not be easily observed this month.

URANUS

Uranus will be not be easily observable this month.

NEPTUNE

Neptune will be at conjunction on the 2nd and will not be observable this month.

1 ANNUAL GENERAL MEETING SATURDAY 13TH JANUARY

The Annual General Meeting will be held on Saturday 13th January 1990. All members are invited to attend. The meeting will start at 8.00 pm in the School. At the time of writing the meeting venue in the School had not been finalised. Please could all members report to the club room a little before 8.00 where the meeting room will be displayed.

2 1990 SUBSCRIPTIONS

The 1990 subscription is due on 1st January 1990. The subscription rate for this year remains the same as for 1989, except that all newsletters will now be postal. This requires that extra £2.00 will be added to all subscriptions. Members who are already on the postal list will incur no extra cost.

The rates for 1990 are :-

Child and OAP or those in full time education	£4.50 + £2.00
Adult	£7.00 + £2.00
Family	£8.00 + £2.00

Cheques & P.O.'s should be made payable to Orwell Astronomical Society (Ipswich) and be sent to Mr.D.Barnard

Ipswich
IP4 5PP

Pluto was discovered by Clyde Tombugh on March 30th 1930. After it was found that Uranus was still not keeping to it's orbital path, even after Neptune had been discovered!! This small planet was discovered after long days, and even longer nights of systematic photography over the area of space the new planet was thought to be. The photographs were compared and one of the "Stars" had moved, this was monitored over a few days and still it was moving. Pluto had been discovered.

This tiny dark world is the smallest of the known planets in the Solar System, with an Equatorial Diameter of just 1,600 Miles (2,700 KM) and is so far from the Sun (Mean Distance 3,666,300,000 Miles (5,900,100,000 KM)) that it takes nearly 250 Years to orbit it. Since we've known about Pluto (only 59 Years) it has only covered about a quarter of it's orbital path around the Sun. At the moment Pluto is about as close that it will ever get to Earth which is approximately 2,671,000,000 Miles (4,297,639,000 KM) taking it inside the orbit of Neptune where it will remain for the next 11 Years, when it will take it's place again as the outermost planet in the Solar System. There is never any danger of Pluto ever colliding with Neptune as their respective orbital inclinations are such, as, the two planets never go anywhere near each other. Pluto's Rotation Period (or Day) is quite long, in fact only Mercury and Venus's are longer. Pluto's Rotation Period is 6 Days 9 Hours 17 Minutes (Earth time).

As there have been no probes sent to Pluto we can only guess at what the surface conditions may be. As stated earlier, Pluto is as close to us as it can get for another 248 Years. So we won't get another chance to look at it in as much detail. Spectroscopic Observations seem to indicate that Pluto's tenuous atmosphere is made of Methane, so the surface is probably made of Methane ice. Pluto is going through a sort of summer now, so as the planet get's warmer some of the frozen Methane

evaporates and the Atmosphere get's thicker. The mean surface temperature can only be estimated. About -230°C (43K).

In 1978 it was discovered that Pluto has a satellite that has since been named Charon. It's diameter is

approximately 530 Miles (850 KM) across it's Equator and is locked in a synchronous orbit at about 12,000 Miles (20,000 KM) distance from Pluto. Like Pluto, Charon's surface is made up of frozen Methane gas which evaporates to form a tenuous atmosphere during the summer period.

So why is it that Pluto has such an eccentric orbit around the Sun? Both the Orbital and Ecliptical Inclination of this strange dark world are the greatest of any of the planets in the Solar System. There are several theories to this. One theory is that Pluto may have once been a satellite of Neptune and that Triton may have passed very close to Pluto, which resulted in Pluto reaching escape velocity out of the Neptunian system to become a planet in it's own right. This could be one of the reasons why Triton has a retrograde orbit for a satellite so big. But where would Charon fit into all this? My own pet theory is that Pluto could be the first of a belt of Terrestrial type planets beyond Neptune made up of frozen gas. But until a probe is sent to Pluto and beyond, we can only guess at the puzzle at the edge of the Solar System.

Continuation Of Choosing A Telescope.

Many 60mm refractors are of indifferent quality, and most are rather poorly mounted. In their favour, they are portable, and easily stowed away. Most fit neatly into a box which will fit under a bed, for example.

Almost all 50 and 60mm imported refractors include dark 'sun filters' which screw into the eyepiece. Many people warn against using these, however, as there is always the danger that one might crack in the heat from the Sun, and shatter without warning, resulting in permanent damage to the eye. The only safe way to observe the Sun is to project its image onto a piece of white card held some distance from the eyepiece. Some instruments provide solar projection screens which clamp onto the telescope.

Larger refractors, of 75mm (3-inch) aperture and greater, will show increasing amounts of detail on the Moon and planets. Indeed, they are well suited to this task - they give very sharp, high magnification views unequalled by reflecting telescopes of the same aperture. A 150mm (6-inch) refractor is usually well over two metres long, and must be mounted quite high, so that you can observe without lying down on the ground! Few amateurs can afford a refractor quite as large as this, however.

Reflecting Telescopes Reflectors offer more aperture than refractors, for a given amount of money, so they tend to take over for the larger aperture range. However, reflectors give slightly poorer performance, aperture for aperture. So a 75mm reflector has similar performance to a 60mm refractor.

A 100 or 110mm (4- or 4½-inch) reflector is a useful instrument which will allow a fairly large range of objects to be seen. Powers of up to 220x can be used, often the limit set by the Earth's unsteady atmosphere anyway. A wide range of nebulae can be seen, too, the limit often being set by the darkness of your skies.

The 150mm (6-inch) reflector is a standard amateur size, the minimum with which, it is said, serious observing can begin. With such a telescope you can begin to see the outer planets as discs rather than points of light. As you go to the larger sizes - 20cm (8-inch), 25cm (10-inch) and 30cm (12½-inch), progressively better views of distant galaxies and nebulae are seen. What appears as a misty blob in a 150mm reflector is transformed into a glorious mass of stars, or a galaxy with some definite shape.

The smaller sizes of reflector are often imported, or of indifferent or poor quality. From 100mm upwards, British made instruments are available which offer higher optical and mechanical quality than the cheaper Japanese telescopes, though they usually have a less glamorous appearance.

There is also a unique American design, the Astroscan, which has a universal ball joint type mounting and a short tube enclosed by a glass window. The short tube (short focal length) means that it is excellent for low power, wide field views of stars and nebulae, but is not suited to magnifications of over about 100x.

Larger instruments, of 150mm upwards, are generally British made, and should prove good value for money. While a larger reflector (larger than 30cm, 12-inches, say) will show faint nebulae and stars, penetrating deep into space, its usefulness is very restricted if it is used from an urban area with bad light pollution from street lights.

Catadioptric Telescopes These are of the Schmidt-Cassegrain or Maksutov designs. Aperture for aperture, they show as much as a conventional reflector, though with a definite loss of contrast - the dark shadow of Saturn's rings is not so black, for example. But this is not very serious, and the design has the advantage of being very compact. A 20cm (8-inch) catadioptric will easily fit into the boot of a family car, with all its associated gear for long-exposure photography. Although the portable mountings are not as steady as those of well-mounted conventional telescopes, they are quite adequate. But if you have a permanent site for your telescope, and want to take up serious observational work, a well-mounted Newtonian is probably better for you than a catadioptric instrument.

Making Your Own Telescope Amateur astronomers often make their own telescopes, usually the reflecting type. You can either buy the mirrors ready made and coated with reflective aluminium, or you can grind your own, and then get it aluminised. The optics for a 15cm (6-inch) telescope cost no more than a cheap imported 60mm refractor, if ready made, and could cost half that if you made your own. The mounting can be made from wood, particularly if you use the increasingly-popular Dobsonian design.

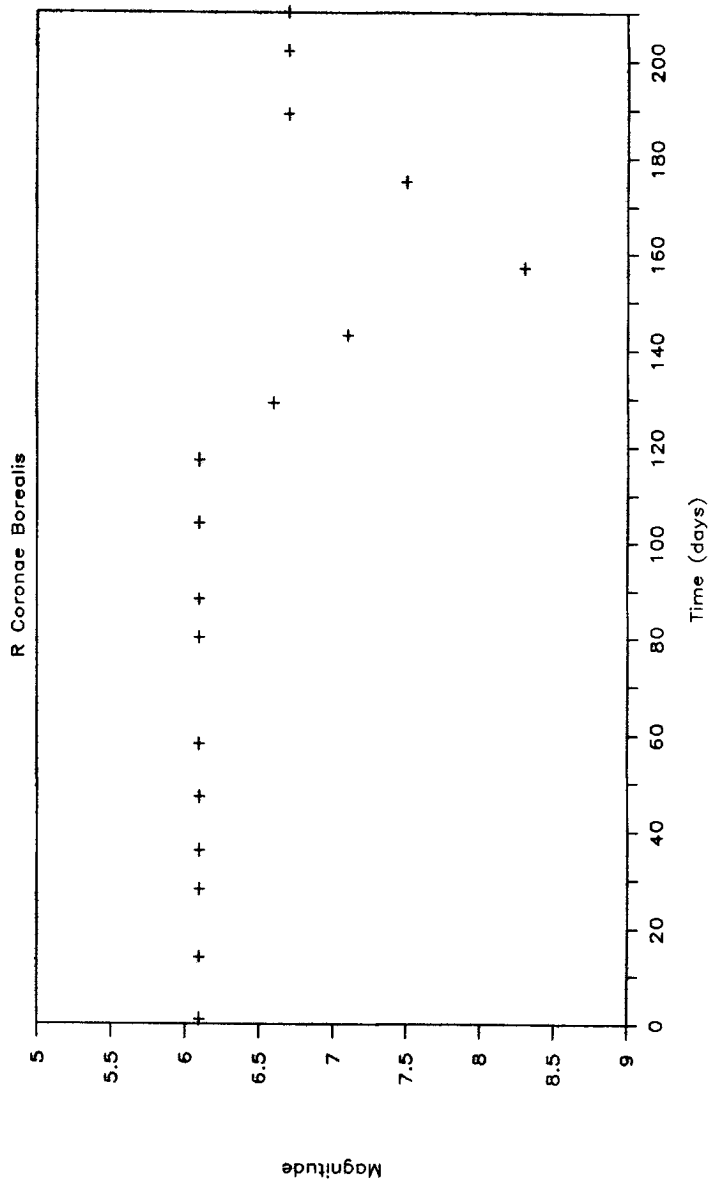
Recommendations There is no such thing as the 'best telescope' - your choice depends on your circumstances. The factor to investigate carefully is the second-hand value. Imported telescopes are notorious for losing their value, as they usually carry a large retailer's mark-up. Be sure what will happen if you want to sell the telescope or move on to a larger instrument. A good reflector often holds its value, and may be sold again for not much less than what you paid for it.

If you are buying something for a young person whose interest may not continue, seriously consider a good pair of binoculars. These are better value for money than the smaller telescopes, and are still useful if the interest in astronomy wanes.

Anyone seriously interested in astronomy is strongly advised to buy a British made reflector, rather than an imported refractor. Value for money and performance are generally far superior.

More Next Month If Space Is Available.

VARIABLE STAR OBSERVATIONS



This light curve shows R Coronae Borealis from April to November this year. Normally at a maximum of 6.1, this star shows erratic fades at irregular intervals.

Mike Nicholls

PROGRAMME FOR JANUARY

Mondays from 8pm		GENERAL OBSERVATION SECTION	& SCHOOL GROUP A
8-15	Mr R Newman	[Redacted]	Felixstowe, IP11 9DY. Tel. Fel. [Redacted]
22-29	Mr J King	[Redacted]	, Felixstowe, IP11 9LQ. Tel. Fel. [Redacted]
Tuesdays from 8pm		GENERAL OBSERVATION SECTION	& SCHOOL GROUP B
2-9-16	Mr R Newman	[Redacted]	Felixstowe, IP11 9DY Tel. Fel. [Redacted]
23-30	Mr J King	[Redacted]	, Felixstowe, IP11 9LQ Tel. Fel. [Redacted]
Wednesdays from 8pm		NEBULA AND FAINT OBJECTS SECTION	
3-10-17	Mr M Cook	[Redacted]	, Ipswich, IP4 5PZ Tel. [Redacted]
24-31	Mr D Payne	[Redacted]	, Wickham Market, Tel. W [Redacted] IP13 OSD.
Fridays from 8pm		GENERAL OBSERVATION SECTION	
5-12	Mr P R Richards	[Redacted]	, Ipswich, IP4 1QB. Tel. [Redacted]
19-26	Mr M Harlow	[Redacted]	, Trimley IP10 0XB. Tel. [Redacted]
	Mr R A Lobbett	[Redacted]	, Felixstowe IP11 8UJ. Tel. [Redacted]

All nights are open to all members, but, on nights other than Wednesday ring directors to confirm dates. [Directors will also be able to inform you of whether a group visit is taking place that evening.] All numbers, Ipswich (0473) unless otherwise indicated.

1989 COMMITTEE

CHAIRMAN	D Payne	(Address above)	Home: [Redacted] Work: [Redacted]
VICE CHAIRMAN	D Barnard	[Redacted], Ipswich, IP4 5PP	Home: [Redacted] Work: [Redacted]
SECRETARY	R Gooding	[Redacted], Ipswich, IP1 6AE.	Home: [Redacted]
TREASURER	M Nicholls	[Redacted], Capel St Mary, Ipswich, IP9 2EX.	Home: [Redacted] Work: [Redacted]
MAINTENANCE	M Cook	(Address above)	Home: [Redacted] Work: [Redacted]
JOURNAL CO-ORD	E Sims	[Redacted], Ipswich IP1 4HA	Home: [Redacted]
LIBRARIAN	P Richards	(Address above)	Home: [Redacted] Work: [Redacted]
EQUIPMENT CURATOR	J King	(Address above)	Home: [Redacted]
SPECIAL EVENTS CO-ORD	A Smith	[Redacted], Ipswich IP2 9ES	Home: [Redacted]