

ORWELL ASTRONOMICAL SOCIETY IPSWICH.....

NEW YEAR ISSUE



SOCIETY NEWS

1991 ANNUAL GENERAL MEETING

* THE 1991 ANNUAL GENERAL MEETING WILL BE HELD *
* ON SATURDAY 12th JANUARY *
* STARTING AT 8.00pm *
* The venue will be in a room of Orwell Park school. *
* The meeting location will be displayed either in *
* the club room or on the door to the observatory *
* stair well. All members are invited to attend. *

2 1991 Subscriptions

Membership subscriptions are due on 1st January of the new year. Please either send monies directly to David Barnard or pay at the on 12th January. AGM

Rates for 1991 are:-

Child & OAP	£ 7.00
Adult	£10.00
Family	£11.50

NIGHT SKY

All times GMT

SUN Rises approximately between 08.10 to 07.50
Sets approximately between 15.50 to 16.40

MERCURY Mercury is a morning sky object this month. Greatest western elongation is on the 14th (24°). Magnitude of Mercury will be 0.0

VENUS Venus will remain visible in the evening sky until August. By the end of the month it will be setting about 2 hours after sunset. Magnitude -3.9

MARS Mars remains a prominent evening object, in the constellation of Taurus. During the month its magnitude will decrease from -1.0 to 0.0

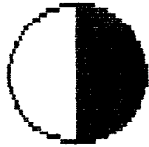
JUPITER Jupiter will be at opposition on the 29th. Mag. -2.6.

SATURN Saturn will be in conjunction with the sun on the 18th, and will not be visible this month.

URANUS Uranus will be rising about 2 hours before the sun at the end of the month. Mag. 6.0

NEPTUNE Neptune will be in conjunction with the sun on the 5th and will not be visible this month.

MOON



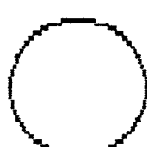
7th



16th



23rd



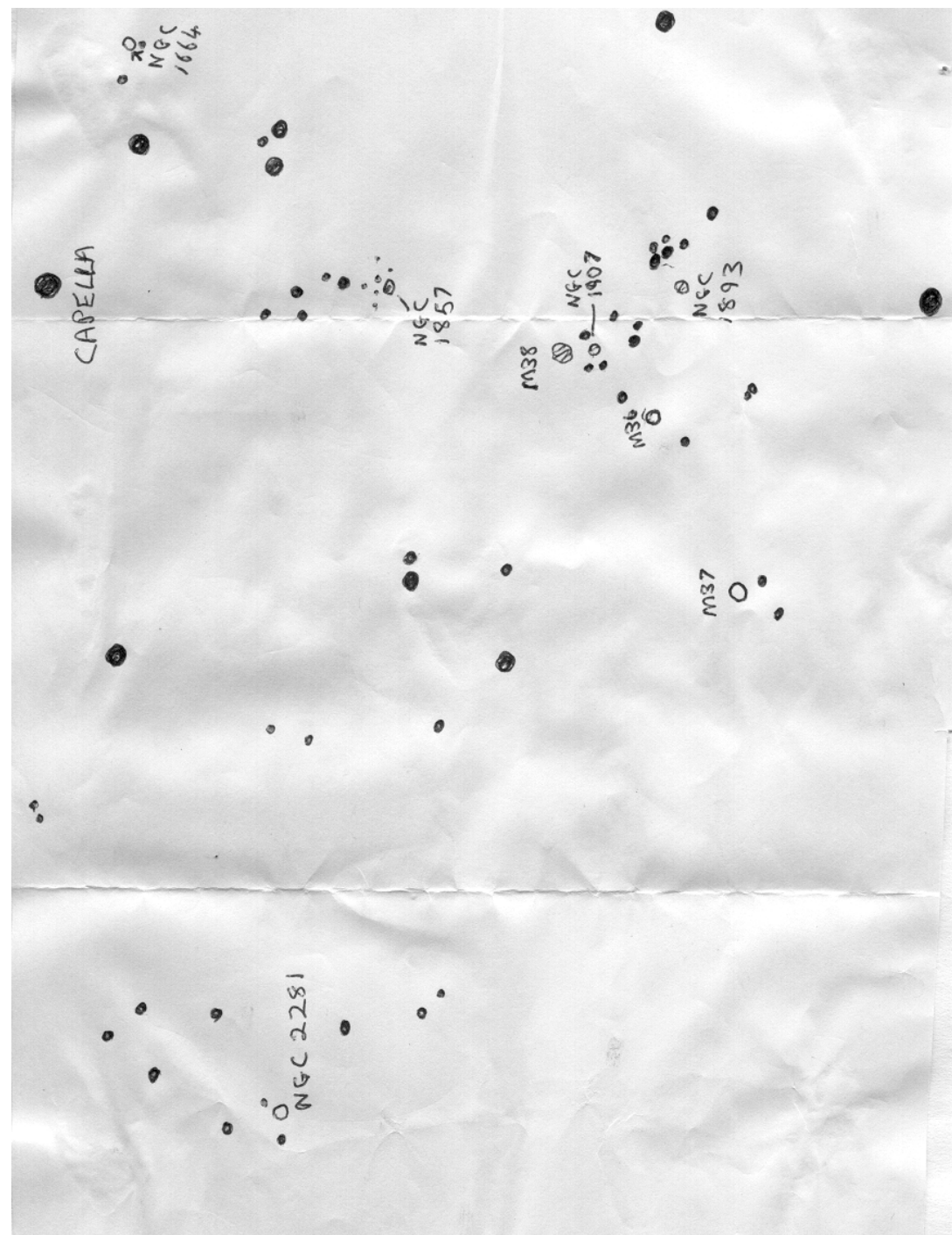
30th

Some Deep Sky Objects in Auriga

David Payne

During January evenings the constellation Auriga is in the zenith placing it in a prime position for observing deep sky objects (at least for observers using Newtonian reflectors)! Auriga is well endowed with galactic clusters the three most prominent and well known being M36, M37 and M38. The clusters NGC1664, NGC1857, NGC1907, NGC1893 and NGC2281 are also worth searching out with moderate telescopes.

The Messier object M36 is a fine object in telescopes around 6 inch aperture using low powers. It contains about 60 stars in the magnitude range 9 to 14 in a diameter of 12 minutes. The cluster contains no red giant stars the brighter members all being B type giants indicating younger than average age. The distance of the cluster is around 4100 light years with a corresponding diameter of about 14 light years.



M37 is the finest of the three Messier clusters in Auriga and was first observed by Messier in 1764. The cluster contains about 150 stars in the magnitude range 9 to 12.5 and is therefore a fine sight for small telescopes and a truly splendid object in larger instruments. The cluster contains more than 500 stars in total including about a dozen red giant the brightest of which is magnitude 9.5 and lies near the centre of the cluster. Lying at a distance of around 4600 light years with a diameter of 25 light years it is visually 20' across.

Another bright cluster M38 contains about 100 stars inside a diameter of about 20'. Lying at a distance of 4200 light years it has a diameter of around 25 light years comparable to M37. The brighter members of the cluster are blue and yellow giant stars the brightest being a yellow giant of magnitude 7.9.

All three Messier objects can be easily located with binoculars but require a telescope of three inches or greater to be seen well resolved. The NGC objects mentioned above will require a telescope to find. All are much smaller than the Messier objects and are visually not so impressive. However they are worth searching out and can all be seen in a three inch telescope and are all shown on the Sky Atlas 2000. The table below lists the basic data:

NGC No.	Size	No. Stars	Mags.
1664	15'	40	11 +
1857	9'	45	8 +
1907	5'	40	10 +
1893	12'	20	9 to 12
2281	15'	30	7 +

All the clusters are fairly loose but readily identifiable against the back ground star fields when using low powers

INTRODUCTION

Venus is our nearest planetary neighbour, and the most conspicuous of the planets known since classical times. It is the second in order out from the Sun and, being inside the orbit of the Earth, passes through a cycle of phases like the Moon. But the phase is just about the only feature visible through the telescope. All Venus ever shows is a bright, slightly yellowish surface which is the upper deck of a thick layer of cloud beneath which the solid globe of the planet rotates unseen by the optical astronomer.

Confounded by a brilliance that "dazzles the sight and exaggerates every imperfection of the telescope" (Sir John Herschel), it is not unknown for the would-be observer to give up in sheer frustration and turn to a more amenable object. And yet under favourable conditions when its brilliance is tempered by haze or a man-made filter, Venus is a different subject and the practised eye is quick to spot a pattern of shadings, less distinct than those of Mercury or Mars but as certain. With experience still more will be seen for then the observer will be observing rather than looking. Scrutinising the image, noting every nuance of shade and irregularity, accurately recording that which is affirmed, indicating that which is elusive, it is a gradual process. Patience, care, determination and a methodical approach are the elements which in time will unite into a knowledge of the subject that transcends the books.

WHEN IS VENUS BEST SEEN?

By definition, an inferior planet can never be seen all night long (the maximum angular separation of Venus from the Sun can never exceed 47 degrees) but when well placed, e.g. when greatest elongation occurs near the vernal equinox, the planet may be visible for more than 4 hours after sunset for observers resident at northern temperate latitudes. At this time the ecliptic presents a steep gradient to the western horizon. A similarly favourable presentation in the morning sky occurs when Venus comes to greatest elongation west near the autumnal equinox. Conversely, when greatest elongation east occurs near the autumnal equinox the

ecliptic makes a shallow gradient to the horizon and Venus is poorly seen in the evening sky, as would be the case for the morning sky if greatest elongation west occurs near the vernal equinox. However, the latter set of circumstances find Venus at its best for observers resident in the southern hemisphere.

AT WHAT TIME OF DAY SHOULD I OBSERVE?

The period between superior conjunction and greatest elongation is about 31 weeks, that between greatest elongation and inferior conjunction about 10 weeks. The apparent diameter of the disk ranges from approximately 10 arcseconds at superior conjunction to over 60 arcseconds at inferior conjunction but it should be remembered that increasing disk diameter means a decreasing phase. Venus reflects 76% of the incident sunlight which explains the brilliant spectacle it makes in the twilight sky. The planet reaches magnitude -4.5 at greatest brilliancy, 35 days after eastern elongation and 35 days before western elongation. The brilliancy of the disk means that telescopic observation of the planet in a twilight or dark sky is hampered by glare which subdues subtle detail. For this reason, Venus is best seen against a bright sky foreground; at sunset or sunrise is an ideal time. During the winter months Venus may be usefully observed at any time during the daylight hours but this is not practical during the summer when the seeing is often poor while the Sun is above the horizon.

HOW DO I FIND VENUS AGAINST A BRIGHT SKY?

An equatorial mount fitted with setting circles will be an advantage in this respect. There are various methods by which Venus, when an evening object, may be found using setting circles but perhaps the easiest way is simply to sweep in the planet's declination, the planet coming into view in the telescope's finder. When a morning object, Venus may be found with the naked eye and followed through the telescope as dawn gets under way. However, whatever method is used extreme care should be taken when Venus is in proximity to the Sun.

OBSERVABLE FEATURES

1. Phase Anomaly

The observed phase may differ slightly from the predicted value, this being known as the Schroter effect. Dichotomy is seen to occur a few days early at eastern elongation and likewise late at western elongation. There are three ways in which the observed phase may be determined and these are:

- A. Direct measurement with an eyepiece micrometer
- B. Comparison of the observed disk with a sequence of pre-drawn disks showing different phase values. (see diagram 1)
- C. Measurement of a disk drawing, the diameter of which would be 50mm. at full phase.

Care should be taken when attempting to determine the phase from a photograph as the outline of the planet varies with the exposure at the telescope and at the processing stage.

MORE NEXT MONTH

PROGRAMME FOR JANUARY

DAY	DIRECTORS	SECTION	PHONE No.s
Mondays from 8.00pm			
7-14	Mr R Newman	[redacted], Felixstowe, IP11 9DY.	Tel. Fel. [redacted]
21-28	Mr J King	[redacted], Felixstowe, IP11 9LQ.	Tel. Fel. [redacted]
Tuesdays from 8.00pm			
1-8-15	Mr R Newman	[Address above.]	Tel. Fel. [redacted]
22-29	Mr J King	[Address above.]	Tel. Fel. [redacted]
Wednesdays from 8.00pm			
2-9-16	Mr M Cook	[redacted], Ipswich, IP4 5PZ.	Tel. Ips. [redacted]
23-30	Mr D Payne	[redacted], Wickham Market, IP13 0SD.	Tel. W.M. [redacted]
Fridays from 8.00pm			
4-11	Mr P Richards	[redacted], Ipswich, IP4 1QB.	Tel. Ips. [redacted]
18-25	Mr R A Lobbett	[redacted], Felixstowe, IP11 8UJ.	Tel. Fel. [redacted]
	Mr G Marriott	[redacted], Ipswich, IP4 4JB. [Assistant Director]	Tel. Ips. [redacted]

All nights are open to all members, but, on nights other than Wednesdays, ring directors to confirm. Directors will also be able to tell you if a group visit is taking place. All sections observe anything of interest, but the title indicates the main specialism.

Lectures and other events: ANNUAL GENERAL MEETING.

The 1991 Annual General Meeting will be held on Saturday 12th January in a room in the new classroom block of Orwell Park School. The start will be at 8.00pm. As usual all members are welcome to attend if they wish.

1990 COMMITTEE

CHAIRMAN	D Payne	[Address above.]	Home: [redacted] Work: [redacted]
VICE CHAIRMAN /VISITS CO-ORD	D Barnard	[redacted], Ipswich, IP4 5PP.	Home: [redacted] Work: [redacted]
SECRETARY	R Gooding	[redacted], Ipswich, IP1 6AE.	Home: [redacted] Work: [redacted]
TREASURER	M Nicholls	[redacted], Capel St Mary, Ipswich, IP9 2EX.	Home: [redacted] Work: [redacted]
MAINTENANCE CO-ORD	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, IP4 5RZ.	Home: [redacted] Work: [redacted]