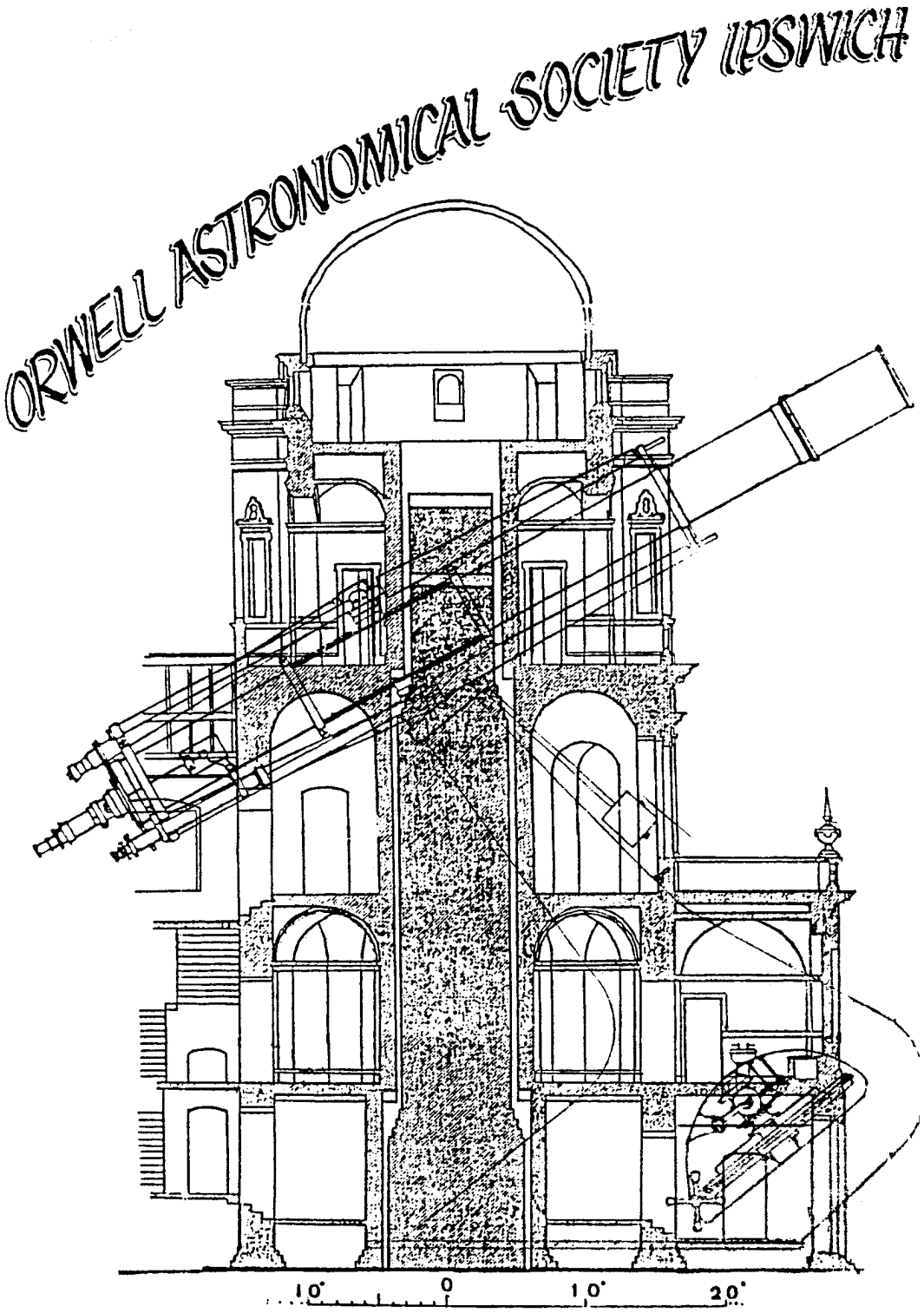



# SOCIETY NEWS

## 1 Events

Society Lecture Meetings

Friday February 28th Short talks by members

Friday March 27th Film Evening.

Both meetings will be held at the Friends Meeting House, Fonnereau Road. starting at 8.00 pm.

OPEN WEEKEND

The observatory will be opened to the public on 10,11,12th April. As usual as many memebers as possible will be required to help run these evenings.

## 2 1992 Subscriptions

Subscriptions are due on 1st January of each year.
Rates for 1992:-

| | | |
|---|---|---|
| JUNIOR & OAP | £7.50 | (under 18 or in full time education) |
| ADULT | £10.50 | |
| FAMILY | £12.00 | |

There has been an increase of 50p to take into account the increase in the postage rates for the society newsletter.

Cheques & P.O.'s made payable to the ORWELL ASTRONOMICAL SOCIETY (IPSWICH) together with this form to Membership Secretary:-

Mr. D.Barnard
See back for address

## 3 Committee Meeting

The next meeting will be held at the observatory on February 8th. The meeting starts at 7.30pm and is open to any members who wish to attend.

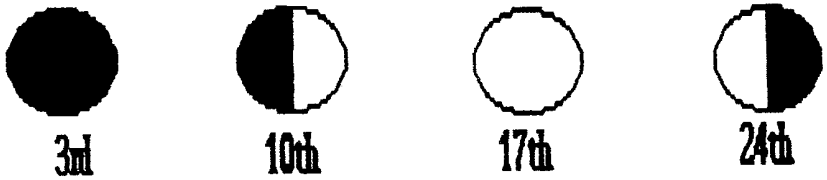
# NIGHT SKY

All times GMT

SUN

Rises approximately at 07.50 to 07.00
Sets approximately at 16.00 to 17.30

MOON




MERCURY Mercury is at superior conjunction on 12th. For the rest of the month it will be in the evening sky but very low down and difficult to see.

VENUS Venus remains very prominent in the morning sky. Mag.-3.8

MARS Mars will be visible low down in the dawn sky. Mag.1.3

JUPITER Jupiter will be at opposition on 29th. Mag.-2.4

SATURN Saturn rises at about one hour before the sun at the end of the month.

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

NEPTUNE Neptune will rising at a simular time to Uranus.

R.Gooding

## Interplanetary Billiards at the Edge of the Solar System.

By J.Walsh.

In the dim reaches of the outer Solar System orbit the planets Uranus, Neptune and Pluto and their moons. From their obital planes and paths tells us of a very violent history in this part of the Solar System.

We start with Uranus, the third largest planet in Solar System and like the gaseous giant planets we already know of in the Solar System, has a ring system and a large number of moons. The whole Uranian system is tilted over at a crazy angle of 98 degrees. this



suggests that Uranus was struck by something big and the force of this collision tilted the Uranian system over to it's present angle. The moons in this area of Solar System have a lot to tell us too. Some of the Uranian moons by their appearance look to have been broken several times. Each time the moons have coalesced to form new moons showing ridges and other varying surface features. Uranus's moons are not the only ones to show this type of surface. In fact some of Saturns moons have the same features in their makeup. Enceladus for instance.

From Uranus we pass on to Neptune. Neptune we know now has 8 satellites 5 of them are very small. The largest of them Triton orbits Neptune in a retrograde path. Which for a satellite so large does not conform to the other large satellite systems. In a 100 million years or so Triton may get to close to the gravatational fields of Neptune as it slows down, and be destroyed. This could form another ring around Neptune. Another one of Neptunes moons Neried behaves oddly. It has the most elliptical orbit of any moon around it's parent planet in the Solar System.

Pluto will always be a puzzle. Is it a planet, moon or asteriod, since the discovery of it's moon Charon in 1978 this has made "What Pluto is" all the more difficult. Firstly there is Pluto's elliptical orbit around the Sun, which is the most elliptical of all the planets in the Solar System, and for 20 of it's 248 year orbital cycle takes it into Neptunes orbital path. Then there is the orbital plane which also is the greatest in the Solar System, taking Earth as 0 deg. Pluto's orbital plane is 17.2 degs.

A lot of people now think that Pluto could have been one of the satellites of the Neptunian system, and something big disrupted these satellites throwing Pluto and Charon out into an orbit of their own and the same time elongating Nerieds orbit around Neptune and retrograding Tritons orbital path.

Was the Uranian system also altered at this time? or was this just a planetary billiards match, as the Solar System formed, each planet fighting for it's orbital path in it's own tiny part of space. Prehaps one day we will find out about this turbulent time in the Solar Systems history.

THE GRAZE OF ZC1771

On the morning of 27th Dec 1991, the star ZC1771 was "grazed" by the moon.

Having obtained detailed information of the graze from the BAA some months ago, and some incredibly detailed maps (one even showed the position of a sundial in a garden !), the society formed a number of observing parties to record the event. As usual, the response from most of the society meant that only a limited number of sites ( 1 ) could be chosen to set up telescopes.

This time the track passed close to YOXFORD

At 2000hrs on the 27th Dec, the participants telephoned my home to decide whether it was worth attempting to observe. The sky was completely clouded, but by chance one of my relatives lives near the chosen site and he had said that the sky was completely clear apart from some light mist. It was decided to carry on with the 20 mile trip to the chosen site nearer to the graze time (0447hrs).

At 0245 hrs the participating members again called my home and as the sky was completely clear it was decided that everything was go.

On arrival at the site, part way along a little used road, the sky was totally obscured ! Even the moon was not visible.

However this was a somewhat historic event for the society; this was the fifth graze of the year (normally there are only one or two events located in East Anglia), Mike Harlow was attending his first graze (with a telescope made from some 8" glass blanks originally purchased by myself in 1975), and I was using my recently purchased 3" refractor (itself a subject of a previous article). Mike set up the 8 inch dobsonion in hopeful anticipation, but the only use made of it was to fire pulses of light generated by a flash gun located at the Newtonian focus into the night sky. VERY spectacular !

The MSF Rugby clock ( this is a radio driven clock that is accurate to some thousandths of a second) gave its alarm call (set to go off 2 minutes before the graze), the lap top computer, giving a "bleep" every minute, gave its graze warning but the sky was still completely clouded.

At 0450hrs the observers packed up and returned home. Yet another wash out !

The observers were: M.Cook, G.Gooding, M.Harlow and myself.

There are NO grazes in East Anglia this year apart from a possible track near to London.

A.J.Smith



# Galactic Clusters Near Sirius

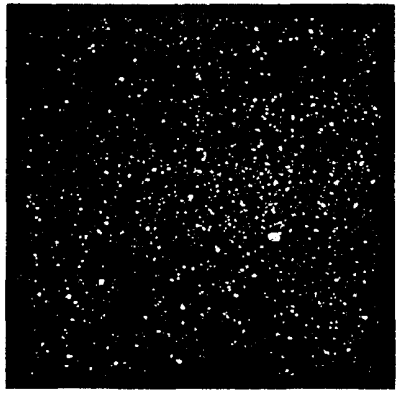
## David Payne

Their are many galactic clusters in the milky way region close to Sirius. Five of the more conspicuous are listed in the Messier catalogue: M41 in Canis Major, M46, M47 and M93 in Puppis and M50 in Monoceros. These objects, all of which lie below the celestial equator, are in the south during the evenings of February making this a convenient time to search them out for observing. M93 and M41 are the most southerly at declinations -24° and -21° respectively and will require dark clear skies with unobstructed views to the south.

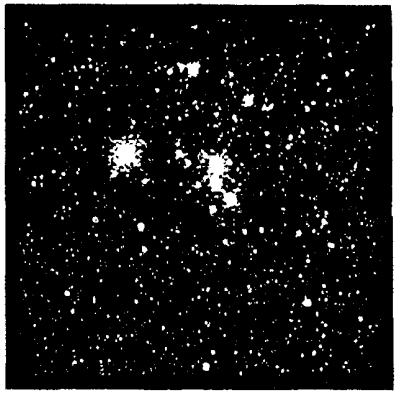
Lying 4° almost due south of Sirius is the fine bright cluster M41. About ½° in diameter with an integrated magnitude of 5.2 M41 is easily found with binoculars and is a fine object in small telescopes using low powers. It contains about 25 bright stars with a total of around 100 in the magnitude range 7 to 13, that are recognised as being true cluster members. From more southerly latitudes or on nights of exceptional clarity it is sufficiently bright to be visible without optical aid. Indeed it might well be the faintest object recorded by the ancient Greeks; it was mentioned by Aristotle around 350 BC as a mysterious cloudy spot in the sky. As is often found in galactic clusters there is a bright red star near the centre of the cluster. This star is a red giant star about 700 times the luminosity of the Sun. The cluster lies about 2400 light years away and has a diameter about 20 light years.

**M41**

About 14° away almost due east of Sirius are the lovely clusters M46 and M47. They lie about 1½° apart with M46 being the most easterly of the pair. This cluster is the fainter but I think the more impressive particularly in larger telescopes . In small telescopes the cluster exhibits a fine display of faint stars almost circular with



M46



M47

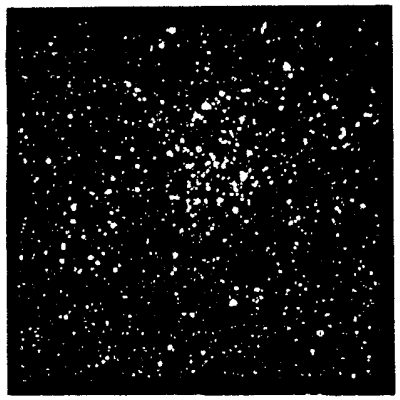
an apparent diameter nearly ½° across. The cluster contains about 150 identifiable members in the magnitude range 10 to 13. It is estimated to be about 5400 light years away with a diameter as great as 30 light years.

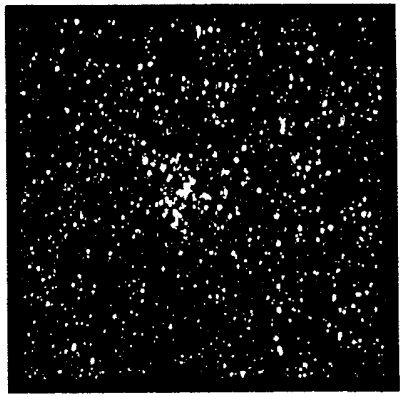
A unique feature of M46 is the presence of a small planetary nebula NGC2438. It lies approximately 7'north of the centre apparently lying well inside the borders of the cluster. However it is almost certainly a foreground object and not a true cluster member. The distance is estimated to be about 3300 light years and about 1 light year in diameter giving an apparent diameter of 65". This object can be seen in small telescopes but is at its best against the cluster background in telescopes of 8 inches or greater.

The cluster M47 lies 1½° to the west of M46. It contains fewer stars but is brighter than M47 and is a splendid object in small telescopes. On good dark nights the cluster can be seen without optical aid and is a good object for binoculars. About 45 stars have been identified as true cluster members, the brightest star, a blue giant, is magnitude 5.7 and near the centre is an easy double star with components almost equal in magnitude (7.8 and 7.9) and separation 7.5". The cluster is much closer than M46 with a distance of about 1600 light years and a diameter of about 12 light years, the apparent diameter being about 25'.

The bright and compact cluster M93 lies 9° south of M46. The cluster is triangular or wedge shaped with an angular extent of







M50

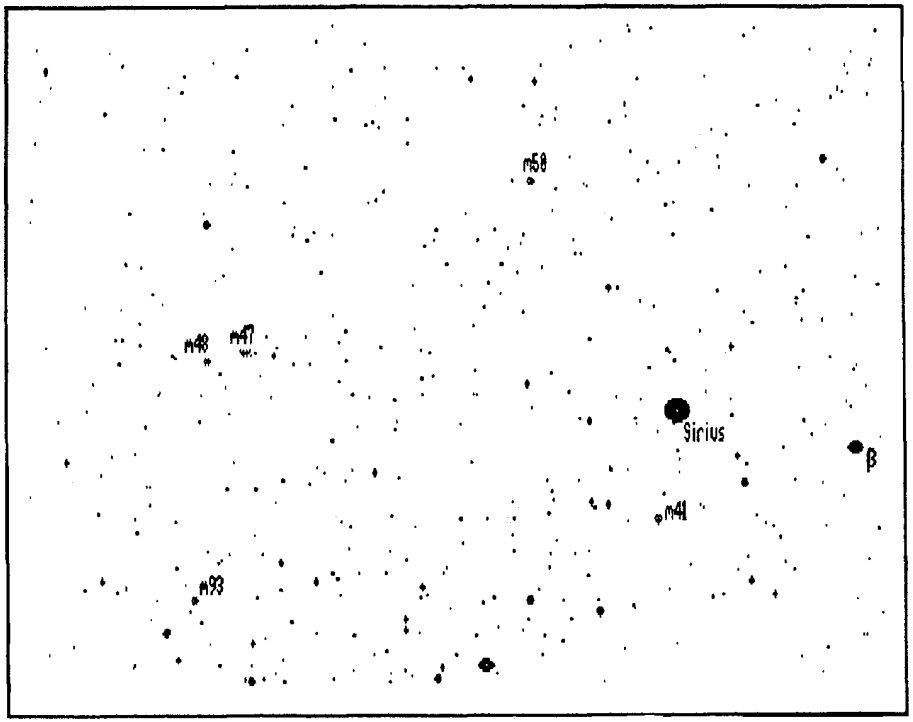
about 20'. It contains about 60 stars in the magnitude range 8 to 13. Under good clear conditions it is a fine object for small telescopes. The distance is estimated to be about 3400 light years with a true diameter of about 20 light years

Moving north and west into Monoceros M50 can be found. It lies about a third of the way along the line from Sirius to Procyon. The cluster is fairly rich and compressed with about 200 or so stars, magnitude 9 to 14, in an oval 20' x 15' with a main core of about 100 stars in a diameter of about 10'. The brighter members of the cluster can be resolved in small telescopes while larger apertures show a multitude of fainter stars. The distance is estimated to be about 3000 light years with a diameter around 15 to 20 light years.

The clusters described above are all well worth searching out especially if you have a good southerly aspect from your observing sight. However dark clear skies are needed for them to be seen at their best.

# ORION

Orion is a magnificent constellation in the equatorial region of the sky, representing a hunter or warrior with his




shield held ahead of him and his club raised against the snorting charge of Taurus the Bull.

In Greek mythology the boastful Orion was stung to death by a scorpion and is now placed in the sky so that as he sets in the west his slayer represented by the constellation of Scorpius, rises in the east.

Orion has seven main bright stars, one of the brightest being $\alpha$ (Betelgeuse) a redish-yellow giant with a diameter about 400 times that of the Sun. The right foot of Orion is represented by $\beta$ (Rigel) whose luminosity is about 15.000 times that of our Sun.

P.T.O.



M42 and M43 together form one of the most celebrated objects in entire sky, the Orion Nebula, a cloud of gas and dust $1^{o}$ across in which stars are being born. The Nebula is visible to the naked eye as a misty haze making up the sword of Orion. It is slightly better in binoculars but through a telescope using low magnification which reveals indescribably complex twists and swirls of gas the view is breathtaking.

The Horsehead Nebula is a dark nebula shaped like the black knight in a chess game, this is caused by a dark cloud of dust that overlays the tenuous nebulosity that stretches

## Double Stars

| Pos. | 1 m 2 | D | d" | P A | No. |
|---|---|---|---|---|---|
| 045703 | 6.9-6.6 | f | 21.0 | 260 | E627 |
| 050508 | 5.9-6.6 | b | 1.0 | 81 | 14 |
| 1002 | 4.6-8.6 | f | 7.0 | 63 | $\rho$ |
| 1208 | 0.3-7.3 | f | 9.2 | 206 | $\beta$ |
| 2003 | 4.9-7.0 | f | 32.0 | 28 | 23 |
| 2202 | 3.7-5.1 | b | 1.5 | 83 | $\eta$ |
| 2403 | 4.6-10. | f | 2.6 | 327 | $\psi$ |
| 2803 | 5.9-6.9 | f | 1.9 | 25 | 33 |
| 2900 | 2.4-6.8 | c | 52.8 | 0 | $\delta$ |
| 3209 | 3.6-5.5 | f | 4.4 | 42 | $\lambda$ |

$\rho$ Yellow, blue.
$\beta$ RIGEL: B-w, companion faint.
23 Both white.
$\eta$ Difficult pair, both white.
$\psi$ Two yellow stars.
$\delta$ White, blue.
$\lambda$ Yellow, red.

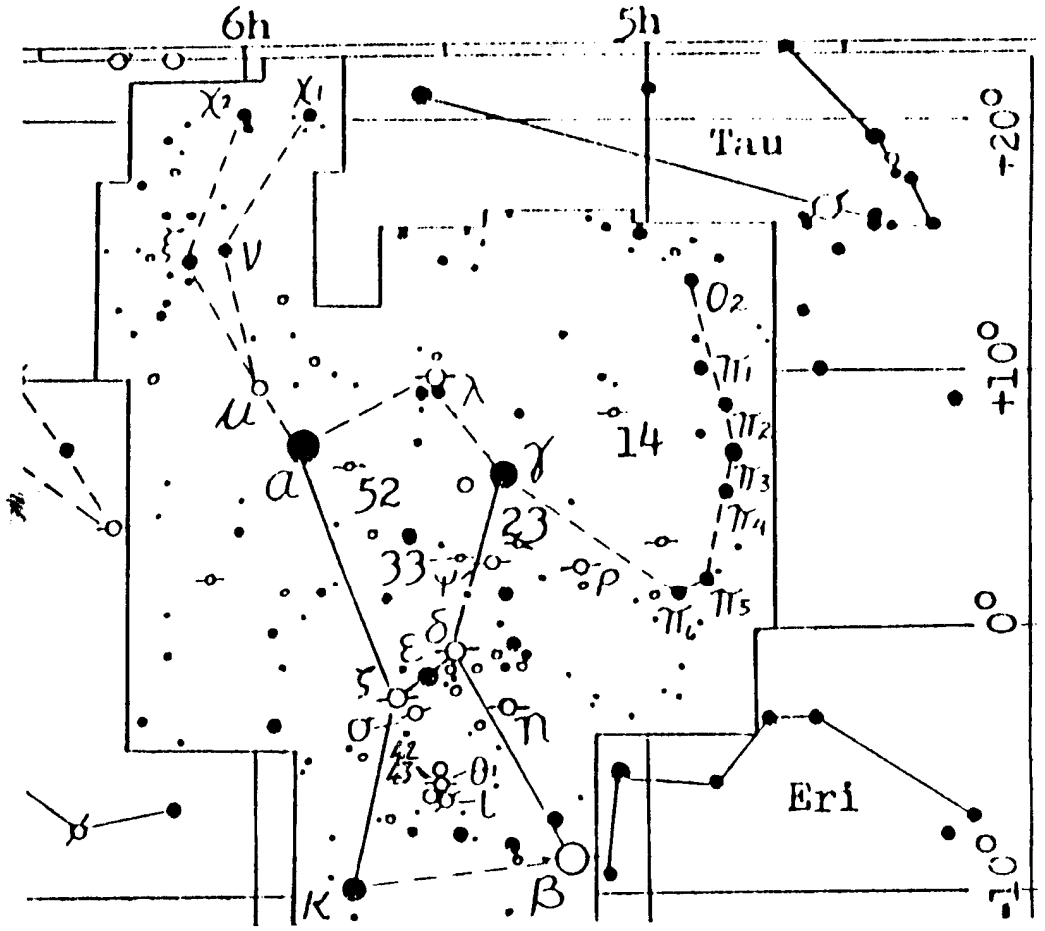
## Double Stars

| Pos. | 1 m 2 | D | d" | P A | No. |
|---|---|---|---|---|---|
| 053205 | 6.8-var | f | 8.8 | 32 | $\theta_1$ |
| | 6.8-5.3 | f | 13.6 | 240 | |
| | 6.8-6.8 | f | 21.6 | 96 | |
| 3305 | 2.8-7.4 | f | 11.4 | 142 | $\iota$ |
| 3602 | 3.9-5.9 | b | 0.2 | 205 | $\sigma$ |
| | 3.7-7.2 | c | 12.8 | 85 | |
| | 3.7-6.5 | c | 41.6 | 61 | |
| 3801 | 2.0-4.2 | b | 2.4 | 164 | $\zeta$ |
| 4506 | 6.1-6.2 | b | 1.5 | 210 | 52 |
| 060602 | 5.5-7.0 | c | 29.4 | 114 | E855 |

$\theta_1$ "THE TRAPEZIUM" shows four stars embedded in swirls of nebula. Look for $\theta_2$ a wide double in the same field.
$\sigma$ A fine multiple of up to 10 stars. A 3-inch shows four. Struve 761 is in same field.

southwards from ζ (Zeta). This nebula is visually elusive in even the largest amateur telescopes and the Horsehead itself is all but invisible, so observers must be content with views of this remarkable object provided by long-exposure photographs.

The Orionid meteors reach their peak around 21st October each year, when as many as 20 meteors an hour may be seen coming from a point near the border with Gemini.






# PROGRAMME FOR FEBRUAURY

| DAY/DATE | DIRECTORS | SECTION | PHONE |
|---|---|---|---|
| **Mondays from 8.00pm** | | **GENERAL OBSERVATION SECTION** | |
| 3-10 | Mr R Newman | [redacted], Felixstowe, IP11 9DY. | Tel. Fel. [redacted] |
| 17-24 | Mr J King | [redacted], Felixstowe, IP11 9LQ. | Tel. Fel. |
| **Tuesdays from 8.00pm** | | **GENERAL OBSERVATION SECTION** | |
| 4-11 | Mr R Newman | [ Address above. ] | Tel. Fel. [redacted] |
| 18-25 | Mr J King | [Address above. ] | Tel. Fel. |
| **Wednesdays from 8.00pm** | | **NEBULA AND FAINT OBJECTS SECTION** | |
| 5-12 | Mr M Cook | [redacted], Ipswich, IP4 5PZ. | Tel. Ips. [redacted] |
| 19-26 | Mr D Payne | [redacted], Wickham Market, IP13 0SD. | Tel.W.M |
| **Fridays from 8.00pm** | | **PLANETARY AND LUNAR SECTION** | |
| 7-14 | Mr P Richards | [redacted], Nacton, Ipswich, IP10 0HS. | Tel. Ips. [redacted] |
| 21-28 | Mr R A Lobbett | [redacted], Felixstowe, IP11 8UJ. | Tel. Fel. |
| | Mr G Marriott | [redacted], Ipswich, IP4 4JB. | Tel. Ips. |

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 suggests popular subjects.

**Lectures and other events :** COMMITTEE MEETING

The next committee meeting will be on Saturday 8th February at the observatory starting at 19.30. As usual this will be an open meeting and any member may attend if they wish.

## 1992 COMMITTEE

| | | | |
|---|---|---|---|
| CHAIRMAN | D Payne | [ Address above. ] | Home: [redacted] Work: |
| VICE CHAIRMAN & MEMBERSHIP SECRETARY | D Barnard | [redacted], Ipswich, IP3 8RN. | Work: [redacted] |
| SECRETARY | R Gooding | [redacted], Ipswich, IP1 6AE. | Home: [redacted] Work: |
| TREASURER | M Nicholls | [redacted], Capel St Mary, Ipswich, IP9 2EX. | Home: [redacted] Work: |
| MAINTENANCE CO-ORD | M Cook | [ Address above. ] | Home: [redacted] Work: |
| JOURNAL CO-ORD | E Sims | [redacted], Ipswich, IP1 4HA. | Home: [redacted] |
| PUBLICITY & VISITS CO-ORD | P Richards | [ Address above. ] | Home: [redacted] Work: |
| EQUIPMENT CURATOR | J King | [ Address above. ] | Home: [redacted] |
| SPECIAL EVENTS CO-ORD | A Smith | [redacted], Ipswich, IP4 5RZ | Home: [redacted] |