ORWELL ASTRONOMICAL SOCIETY, IPSWICH.

O.A.S.I.

SOCIETY NEWS

1 1992 AGM

The 1992 AGM is to be held on saturday 11th January 1992. All mwmbers are welcome. The venue is at Orwell Park School, with a start at 8.00pm. The room chosen will probably, be the one in which the 1991 AGM was held, at the rear of the school library.

2 CHRISTMAS MEAL

There are still several places available

The Christmas meal will be at the Marlborough Hotel Felixstowe, On Wednesday 11th December. There will only be a limited number of places available, so it will be first come first served. The price will be £13.95. The function will be in the Landguard room, which has been booked for the whole evening. Interested members please contact Roy Gooding as soon as possible.

3 EVENTS FOR 1992 (Some of these are still provisionl)

a) January 11th AGM
b) February 14/15th London Astronomical Conference
c) Society lecture meeting,(to be arranged)
d) March 6th London Planetarium Show. This is to be a special evening meeting for Astronomical Society's.
e) March 7th Oxford University Astronomical Society convention.
f) Society lecture meeting, (to be arranged).
g) April 10,11,12 Open Evenings
h) Society Lecture meeting,(to be arranged).

For more information when it is available please contact any committee member.

4 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	£12.00.0	

There has been an increase of 50p to take into ascount 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:-

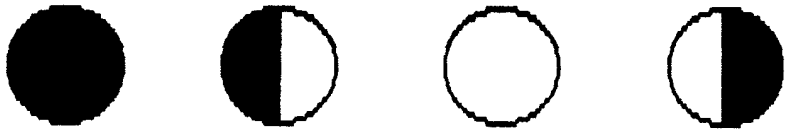
Mr. D.Barnard
See back for address

NIGHT SKY

All times GMT

SUN Rises approximately at 08.15
Sets approximately at 15.50

MOON



6th 14th 21st 28th

MERCURY Mercury is at inferior conjuction on the 8th. By the 25th it will be visible in the morning sky, rising about 2 hours before the sun. Greatest western elongation is on 27th (22°).

VENUS Venus is very prominent in the morning sky. It will be rising about 3 hours before the sunat the end of the month. Greatest western elongation occurs on 2nd (47°). Mag.-4.1

MARS Mars will be very low down in the mporning twilight this month, and will be very difficult to see this month.

JUPITER Jupiter will be rising at about 22.00 in mid month.Mag. -2.2

SATURN Saturn will be very low down in the west this month. It will be setting at about 17.00 in mid month.

URANUS Uranus is in Sagittarius, setting at about 1 hour before Saturn. Mag. 5.7

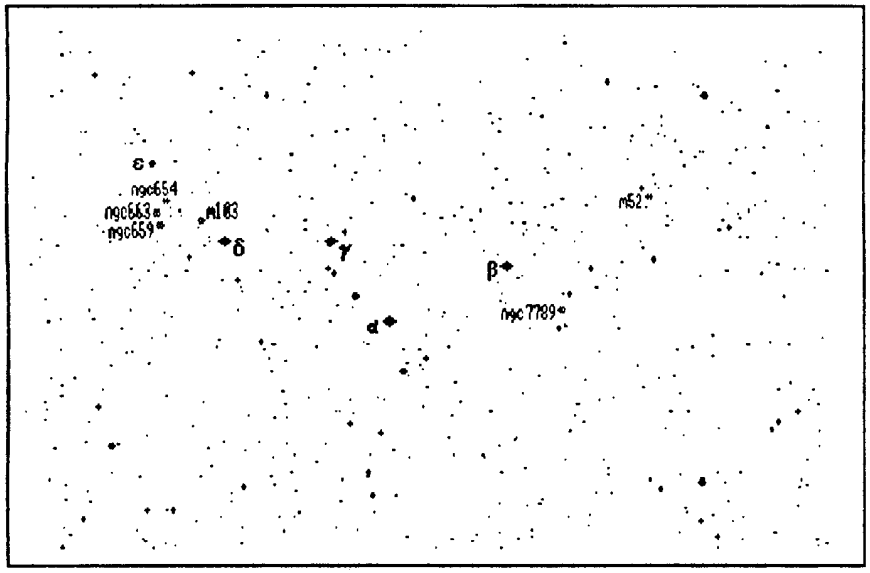
NEPTUNE Neptune is also in Sagittarius, setting shortly after sunset.

R.Gooding

A Selection of Galactic Clusters in Cassiopeia

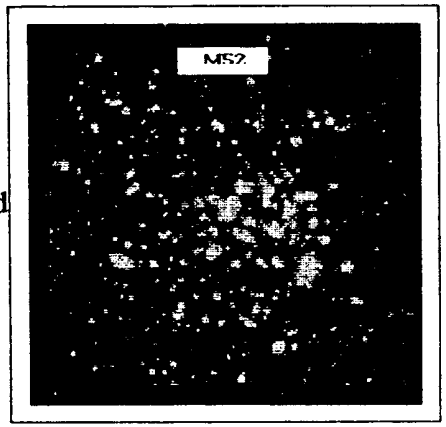
David Payne

With Cassiopeia high in the early evening sky near the zenith it is a good opportunity to search out some of the many deep sky objects residing in the boundaries of the constellation. Lying in the Milky Way Cassiopeia is particularly rich in Galactic clusters although only two are listed in the Messier catalogue (M52 and M103). For this article I have selected six objects; the two previously mentioned Messier objects plus NGC7789, a particularly rich cluster that is a fine sight in moderate telescopes, and a grouping of three NGC objects (NGC654, NGC663 and NGC 659) which are not particularly spectacular but can be easily located after M103 has been found (See map below).



M52 is a fine fairly rich cluster containing around 200 stars in a diameter of 12' with magnitudes in the range 9 to 15. The cluster can be found about five degrees west of β Cass. approximately 1 degree south of the

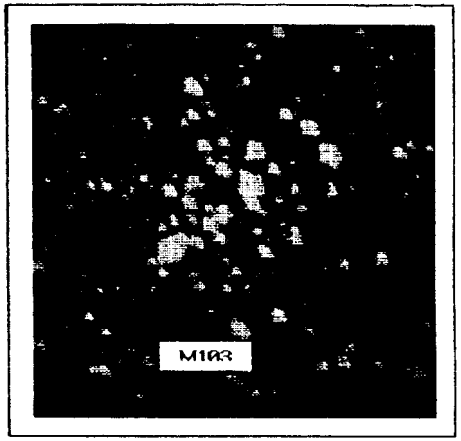
star 4 Cass. It is a fine object for small telescopes, a three inch will easily resolve the many brighter members and larger instruments will bring out the fainter background stars. M52 is one of the more condensed galactic clusters and appears to be among the younger star clusters. The distance is uncertain with estimates ranging from 3000 light years to 7000 light years, the cluster diameter is therefore around 10 to 20 light years.



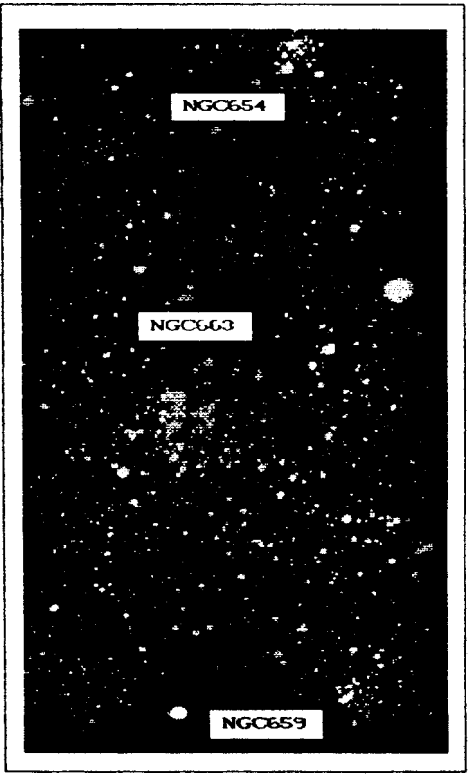
Lying about 2.5 degrees SSW of β Cass. is NGC7789. This is a very rich cluster containing as many as 1000 stars from magnitude 11 upwards. It is visible in binoculars as a faint misty patch with no stars resolved. A three inch telescope will show a sprinkling of stellar points against the misty background with every increase in aperture revealing more stars. In a 10 inch on a clear dark night it is a truly splendid sight. This cluster has been considered as being an intermediate stage between true galactic clusters and globular clusters. It is much older than typical galactic clusters with the brightest members being orange giant stars rather than the more usual blue giants of typical galactic clusters. The age of the cluster is estimated to be between 1 billion and 1.5 billion years, older than most galactic clusters but much younger than globular clusters which are 10 billion or more years old.

Moving east M103 can be found lying about 1 degree north east of δ Cass. This is the last object in the original Messier catalogue although modern lists have added objects through to M110 (one of the satellite galaxies of

the Andromeda galaxy) which was added as late as 1967! This cluster forms a fan shape about 6' in diameter and is a fine object for smaller telescopes with about forty stars in the magnitude range 8 to 12. Like many galactic clusters M103 contains a single red giant star with a magnitude of 10.8. The distance is estimated to be around 8000 light years with a diameter about 15 light years.



Lying about 1.5 degrees to the east of M103 in a north south arc are the three clusters NGC654, NGC663 and NGC659. Of these clusters NGC663 is by far the most conspicuous with about 80 stars from magnitude 9 contained in an angular size of 11'. The distance is estimated to be 2600 light years giving an actual diameter around 9 light years. NGC 654 is the next most easily visible of the trio. This cluster is about 5' in diameter and contains about 50 stars in the magnitude range 11 to 14. It is estimated to be about 8000 light years and would therefore have a true diameter around 12 light years. The final cluster is rather faint and small with about 30 stars from magnitude 12 in a diameter less than 4'. The distance is estimated to be about 6000 light years with a true diameter of 7 light years.



NGC663 can be found easily on dark

clear nights with a three inch telescope but the other two cluster require at least a six inch to clearly distinguish them from the general background of Milky Way stars.

In general all these objects require good dark skies. If the Milky Way is not visible with the unaided eye due to mist or sky glow then they will not be seen well in the telescope due to reduced contrast and light loss. However on good clear nights they are well worth searching out.

THE AURORAE DISPLAY OF FRIDAY 8TH NOVEMBER

A major Aurorae display that is visible from as far south as Ipswich, is a rare event. Such an event occurred on November 8th. Bob Newman was the person who had to be thanked for being the first member to observe the event. Bob said that he actually saw the Aurorae "switch on", shortly before 10.00, the northern sky started to glow, with a greenish light. Several years ago it was decided to make a list of members who would be interested to be contacted when ever an aurorae was visible. These lists had all been filed away in one of those safe places, by every one. Bob first contacted Martin Cook, who in turn phoned Dave Payne. Several known members who would be interested, were contacted. I was contacted a little after 10.00.

Quickly finding some warm clothing I went out to the garden. The northern sky was as light as it would be in the summer about half an hour before sun rise. The following aurorae features were seen between about 10.30 and mid night.

1) A greenish glow along the northern horizon.
2) Reddish patches that persisted for several minutes before fading. These patches would appear any where from Taurus in the east to Cygnus in the west.
3) Rays appeared in conjunction with the red patches.
4) The high of the display was before 11.00, when it reached over head in Cassiopeia. At this time the display consisted of rays and a band of white light stretching from the east to the west, which passed to the south of the zenith.
5) Several members saw a very bright boiled before 11.00. The object passed through Cygnus. I missed this but saw a bright meteor in the same area of sky which may have been a fragment.

R.Gooding

An occultation occurs when a "nearby" object moves in front of, or occults, a more distant object. This frequently occurs when the moon moves in front of stars. However, sometimes the position of the moon means that instead of completely covering the star a "near miss" occurs. The star will be seen to dodge behind the mountains on the edge of the moon only to reappear in the valleys. This is called a grazing occultation.

Unfortunately this particular type of event can only be observed along a very narrow track traced out across the earth. Inevitably this track is going to be located at some distance from "home base". If you wish to observe these spectacular phenomena it is necessary to use a reasonably sized telescope that can be easily transported to the required site.

The telescope that I had been using for this purpose was one that I had build for observing Comet Halley during 1986. This telescope had been specifically constructed to be portable (across the Australian deserts) but was not really adequate for viewing objects at high magnification.

During the last grazing occultation, one of the members present mentioned that he had been contacted by a member of the public who had a telescope for sale. The instrument concerned was a 3inch refractor and was at a very keen price.

The next day (fortunately a Sunday) I contacted the vendor and arranged to view the item. Anyone who has thought about purchasing a second hand astronomical telescope will know that you are caught in something of a quandary. Should you view the instrument in daylight, when you can get a good idea of the mechanical condition, or should it be on a clear night when you can test the optical quality ? In view of the distance I had to travel I decided that I would view this particular instrument immediately and use a daylight terrestrial test for the optics.

I arrived at the vendors house and was shown what appeared to be quite a good telescope. It was indeed a 3 inch (75 mm) objective and was "signed" by Charles Frank of Glasgow. However it was very apparent that it had been "well used" and that the objective, although virtually scratch free, had been out of its cell at some time in its life.

I set up the instrument and using a distant (lifeless) tree silhouetted against the horizon checked the optics as best I could. It was instantly obvious that there was something wrong with the optical train (I was using my own eyepiece). There seemed to be two possible problems: either a crudely fixed (and irremovable) star diagonal was defective or the OG was somewhat duff !

In view of the price, and the rest of the equipment on offer I decided to take a CHANCE !

By the time I had got the telescope home the sky was dark and clear. I set up the telescope and trained it on a star (I can't remember which one !). Disaster ! Yes the optics were in a sorry state. In fact the error was so pronounced that it was impossible to observe for more than a few seconds before my eyes were watering ! Within a few minutes I had reached the conclusion that the OG suffered from VERY BAD astigmatism, the error rotating when the OG was rotated.

I removed the OG from the telescope and checked for any obvious problems that I might be able to see with the unaided eye. The problem was so bad that I suspected that I might even be able to see "strains" in the glass. But nothing !

The OG was a cemented doublet and was fitted into a very lightweight cell. There was no chance that the glass was being distorted by external mechanical means but perhaps the doublet had been cemented under some sort of stress.

That was the limit of my thinking, and so on the next club night I turned to one of the club members who has had considerable experience in the grinding of mirrors to give some assistance. Unfortunately he had done no work on conventional refractors at all, and he was just as puzzled as I was by the defect. Mike Harlow (the expert concerned) decided that he would test the OG against another (known good) OG using a focault test.

The next week Mike gave me news ! He could not see how on earth anybody could have been using a lens with such an enormous defect. The test had given such bizarre results that he had to recheck several times that he was doing the right thing ! We came to the conclusion that there was nothing to lose by attempting to split the OG. This was something neither of us had done before. We didn't even know whether the OG had been cemented using traditional Canada balsam or some sort of more modern epoxy based resin.

We scoured the club library for information and came up with one fact. Canada balsam is likely to melt at about 80°C. But how to perform the operation without breaking the OG ? No likely methods were listed in any of the reference books we consulted so I decided that Mike should just "bung it the oven" on regulo 2 ! There was nothing to lose !

The next week Mike handed me, delicately wrapped, two halves of the OG. Clean and testing perfectly !

He had done just as we decided, and put the OG on aluminium foil in an ordinary domestic oven. Raising the temperature a little at a time, the two halves of the OG had slid apart on the foil with no problems. After cooling the OG, Mike cleaned up the glass with meths and retested with the two halves of the OG airspaced.

The results were so good there seems no point in attempting to re-cement the doublet and the telescope is now being readied for its first outing at the next graze on 28 December 1991.

EUROPEAN ASTROFEST 1992

European Astrofest 1992 is being held in Kensington Town Hall, London, on Friday and Saturday 14th-15th February 1992.

Astrofest is a new event, which is aimed at both professional and amateur astronomers. It consists of a series of lectures and a parallel exhibition. Lecturers include Arnold Wolfendale, Heather Couper, Patrick Moore, Malcolm Longair and other well known astronomers.

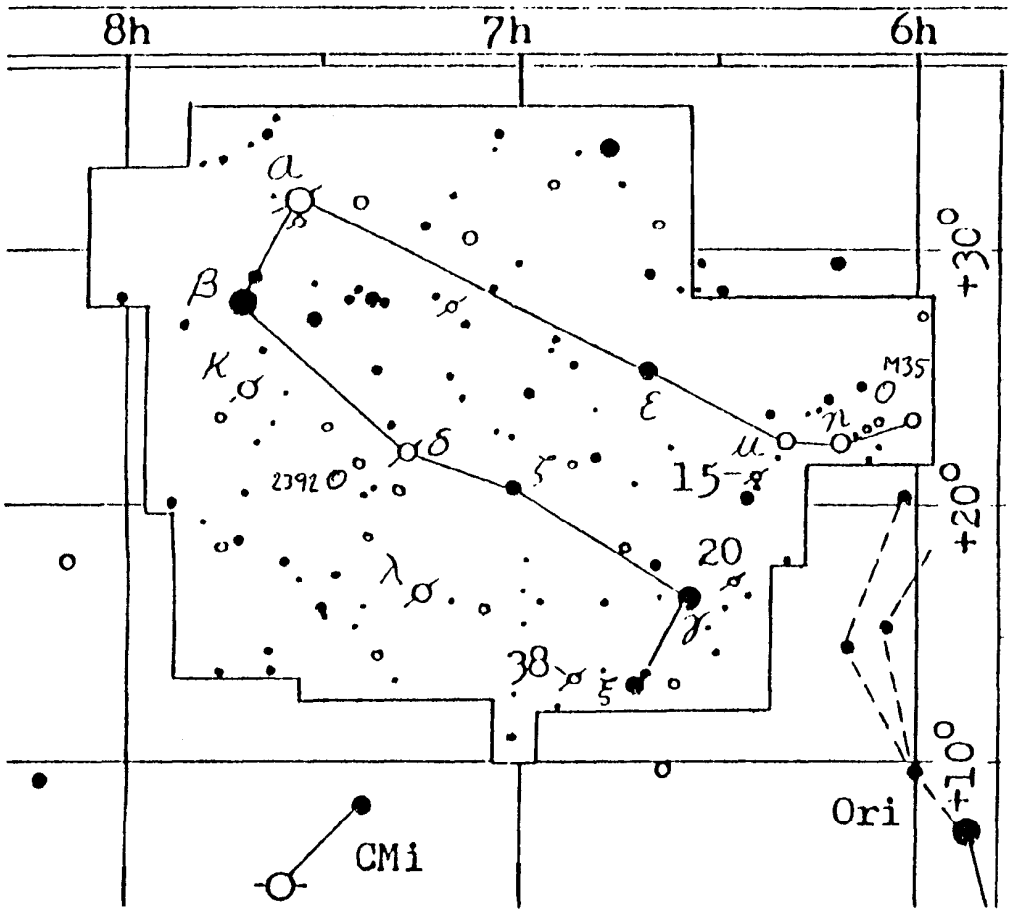
Lectures throughout the two days are organised as four sessions. Entrance fees are as follows:

1 session £11.75
2 sessions £19.95
4 sessions £39.95.

Programs and ticket application forms are available at the dome.

GEMINI

James Appleton



Gemini is one of the ancient constellations connected with Greek myth. Caster and Pollux, the sons of Zeus and Leda are "personified" in the two brightest stars α and β .Both are

among our nearest stars. Castor is mag 1.6 to the naked eye but telescopes of 60mm and more split it into two blue-white stars of 2nd & 3rd mag. Also visible is a wider 9th mag red dwarf. All three of these stars are spectroscopic binaries, so Castor actually consists of six stars.

M 35 is an outstanding cluster of over 100 stars visible as a misty patch through binoculars and as a curving chain of stars in a telescope.

The planetery nebula (NGC 2392) is 8th mag and seen through a small telescope appears as a disk about the size of Jupiter. If viewed through a large telescope you can understand how it got the popular name of The Eskimo or Clown Face.

The Geminid meteors one of the years most prominent showers radiate from near Castor about the 13th or 14th of December each year.At maximum up to 60 meteors an hour can be seen, some of them can be bright and explosive.

Double Stars

Pos.	1	m 2	D	d"	P A	No.
062420	6.5	-8.0 d		28.6	205	15
2917	6.7	-6.9 b		19.8	211	20
5113	4.7	-7.6 b		6.8	151	38
070927	7.2	-7.2 b		1.2	332	E1037
1516	3.6	-10. c		10.0	33	λ
1722	3.5	-8.1 o		6.8	211	δ
3132	1.9	-2.8 b		2.2	171	α
	1.5	-9.5 c		73.4	165	
3231	5.9	-6.3 b		0.5	326	OE175
4124	3.6	-9.5 b		6.8	236	K

15 White, blue.
38 Yellow, blue.
λ Greenish, blue.
δ Yellow, reddish-purple.
α CASTOR: Both blue-white.
K Orange and bluish.

PROGRAMME FOR DECEMBER

DAY/DATE	DIRECTORS	SECTION	PHONE
Mondays from 8.00pm		GENERAL OBSERVATION SECTION	
2-9-16 23-30	Mr R Newman	, Felixstowe, IP11 9DY.	Tel. Fel.
	Mr J King	, Felixstowe, IP11 9LQ.	Tel. Fel.
Tuesdays from 8.00pm		GENERAL OBSERVATION SECTION	
3-10-17. 24-31	Mr R Newman	[Address above.]	Tel. Fel.
	Mr J King	[Address above.]	Tel. Fel.
Wednesdays from 8.00pm		NEBULA AND FAINT OBJECTS SECTION	
4-18	Mr M Cook	, Ipswich, IP4 5PZ.	Tel. Ips.
	Mr D Payne	, Wickham Market, IP13 0SD.	Tel.W.M
Fridays from 8.00pm		PLANETARY AND LUNAR SECTION	
6-13 20-27	Mr P Richards	, Nacton, Ipswich, IP10 0HS.	Tel. Ips.
	Mr R A Lobbett	Felixstowe, IP11 8UJ.	Tel. Fel.
	Mr G Marriott	, 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 : A.G.M.

The AGM will be held on saturday 11th January at the observatory,room to be decided at a later date. The meeting will start at 19.30 and all members are invited to attend.

1991 COMMITTEE

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

APPLICATION FOR MEMBERSHIP FOR 1992

NAME _____

ADDRESS _____

_____

_____ POST CODE _____

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	

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Mr. D.Barnard

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NOMINATION FOR THE 1992 COMMITTEE

NAME OF NOMINEE .....

SECONDED BY .....

Any members who are nominated must have given their consent. All forms must be returned to the secretary by the 31st December. Any members who are elected on the 1990 committee will be expected to attend as many committee meetings through out the year as possible and to actively participate in the running of the society.