ORWELL ASTRONOMICAL SOCIETY IPSWICH

Charity No 271313.

OBSERVATORY
ORWELL SCHOOL.

JULY
1996

ORWELL

ASTRONOMICAL SOCIETY~IPSWICH

NIGHT SKY

All times GMT

SUN

Rises approximately at 03:50 to 04:10
Sets approximately at 21:10 to 20:00

MOON

1st 7th 15th 23rd 30th

MERCURY Mercury will be at superior conjunction on the 11th. It will be too low in the sky to see, when it moves back into the evening sky.

VENUS Venus has now moved into the early morning sky. It will be rising around 02:00 in mid month. Mag. -4.5

MARS Mars will also be visible in the morning sky. It will be rising a little before Venus. Mag. 1.5

JUPITER Jupiter will be at opposition on the 4th. Mag. -2.7

SATURN Saturn will rising by 22:00 by the end of the month. Mag. 0.7.

URANUS Uranus will be at opposition on the 25th. Mag. 5.7.

Neptune Neptune will be at opposition on the 18th. Mag. 7.9

OCCULTATIONS DURING JULY 1996

There are no good stellar occultations predicted for July.

However, an occultation of Venus occurs on July 12 (this is the only planetary occultation visible from the UK during 1996). The occultation occurs during morning sunlight, but Venus, at magnitude -4.5, should be visible telescopically. The lunar phase will be 10%, waning. Circumstances for Orwell Park Observatory are given in the table below. The event will be seen as a grazing occultation from Southern Shetland.

Date	Time UT	Sun Alt (°)	Venus Alt (°)	PA (°)
Thu 12 Jul	D- 07:50:26	34	51	45
	R- 08:57:20	44	55	299

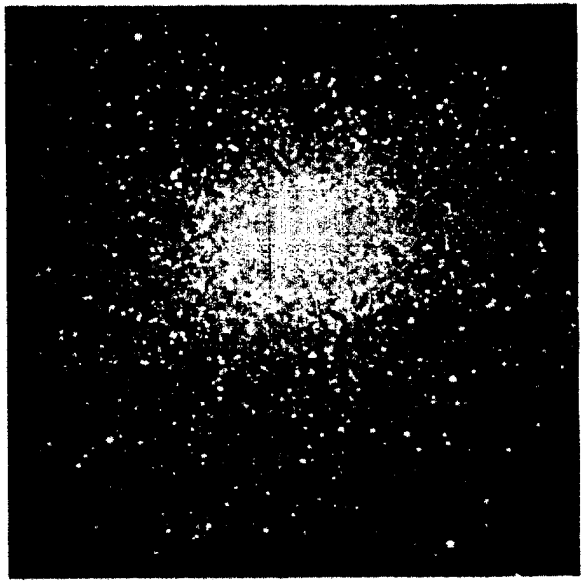
James Appleton

A Few Messier Objects for Late Evenings in July

David Payne

The nights are drawing in! But on these balmy July evenings with twilight still extending beyond 10:00pm, deep sky observers need to stay up late. This month I have moved to a group of objects closer to the Zenith so those using Newtonian reflectors have nice comfortable observing positions but binoculars and refractors used without star diagonals can be a little more awkward. The objects are three globular clusters M13, M56, and M92 and the famous "Ring Nebula" M57

The globular cluster M13 is the finest object of it`s type in the northern hemisphere. It is easily found south of Eta Herculis about a third of the distance along a line extended from Eta to Zeta Herculis and can be seen unmistakably in binoculars as a fuzzy 6th magnitude star (the integrated visual magnitude is 5.7) M13 can be seen with the unaided eye under clear conditions, with dark skies free from light pollution.



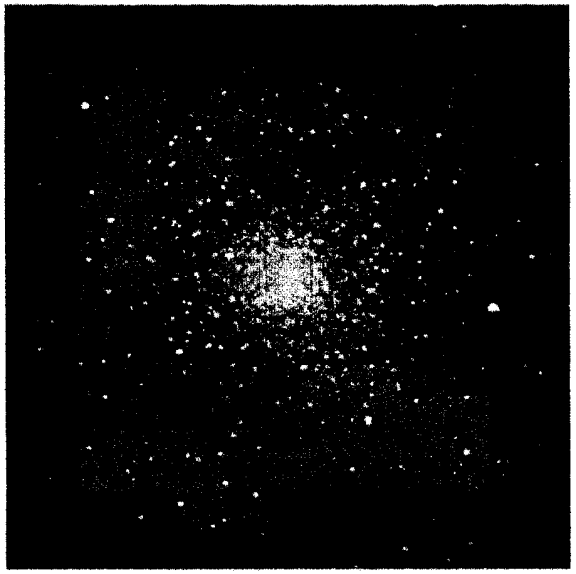
M13 Globular Cluster in Hercules

This globular cluster is a magnificent object for any size of telescope, a four inch will begin to resolve the brighter stars and for every increase in aperture the view becomes more spectacular. In a ten inch it is a superb sight showing some of the streamers of stars that seem to radiate out from the central condensation.

M13 is a large globular cluster probably containing over one million stars. It shines with the light of 300,000 Suns and has a total mass of half a million Suns. The distance of the cluster is estimated to be in the range 21,000 to 32,000 light years with a generally accepted figure around 25,000 light years. The apparent diameter of the cluster is estimated from photographic plates to be about 23 minutes of arc corresponding to an actual diameter of 160 light years. Visually however most of the brighter portions of the cluster lie in a region about 10' diameter.

M92 is another fine globular cluster in Hercules often over looked by the casual observer because of the nearby presence of the magnificent M13. Probably if it was in any other constellation it would have been considered a major object. It is a 6.5 magnitude object, very rich and easily found with binoculars It forms a triangle with Pi and Eta Herculis and lies about 6 degrees north of Pi Herculis.

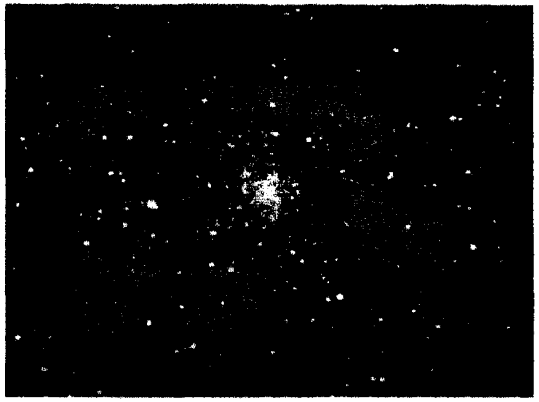
This is a magnificent cluster in it`s own right, some resolution at the edges can be seen in a four inch telescope and again it is spectacular in eight inch and larger apertures. The distance of the cluster is estimated to be in the range 28,000 light years to 35,000 light years with the lower figure more often quoted. The apparent diameter of the cluster is about 10' diameter corresponding to an actual diameter of about 80,000 light years. Again the visual appearance is some what less than this diameter with the greater part of the visible condensation lying in an area 6' to 7' diameter.



M92 Globular Cluster in Hercules

Moving across to the constellation Lyra the third globular for this month M56 can be found. It is located about a third of the way along a line from the lovely coloured double star Beta Cygni to Gamma Lyrae. It is an 8th magnitude object which can be found with binoculars but is probably more easily found using a telescope. M56 is a compact cluster about 5' in apparent diameter with

the brighter portion lying in a 4' diameter area. This brighter region can be seen to be slightly irregular in larger apertures but in smaller telescopes it appears uniformly bright without any marked central condensation visible. A 6 inch telescope is required to resolve the outer edges although some resolution is hinted at in a four inch.



M56 Globular Cluster in Lyra

M56 is estimated to be in the region of 40,000 to 50,000 light years away. Assuming a distance of 46,000 light years, the true diameter for the cluster would be about 65 light years. The total luminosity is about 90,000 suns.

The final object this month is the glorious planetary nebula the "Ring Nebula" M57 in Lyra. This object has an integrated magnitude of 9 and is fairly easy to find with a telescope using a low power of about 50 to 60x. It is visible in good binoculars but is indistinguishable from the faint background stars. a telescope with 50x magnification will reveal the disk shape and will also give a reasonable field of view for finding the object. Once found the surface brightness will allow quite high magnifications particularly with larger apertures. M57 lies about 7° SE from Vega and is situated almost mid way between the bottom two stars, Beta and Gamma Lyrae, of the parallelogram forming an easily recognisable part of the structure of the constellation. In small telescopes the nebula shines as a pale disk of light with the ring structure difficult to discern. A six inch will clearly show the ring structure and large aperture will show nebulosity inside the ring and structure in the ring itself including the fading at the edges of the major axis of the ring. A six inch will also clearly reveal the elliptical shape of the ring which has apparent dimensions of 80" x 60".
The central star is magnitude 15 and requires an aperture of about 18 inches or greater to reveal it visually.

Early observers thought that the ring consisted of unresolved stars indeed some early report even record resolution into stars under good conditions! It is now known that the ring shape is due to a shell of gas that has been expelled by the central star and is glowing by fluorescence produced from the intense UV radiation emitted from this very hot central star. The ring shape is observed simply because a greater amount of the glowing gas is seen when looking through the edge of the shell than when looking towards the centre of the nebula which is viewed looking through the walls of the shell. The temperature of the central star is estimated to be as much as 100,000^{o}K.

The distance of planetary nebula are always uncertain, they are too far to be measured by parallax methods and the intrinsic brightness can only be determined from theoretical calculations based on the physics of the fluorescence process. The estimated distance of the "Ring Nebula" is around 1500 light years which would give a true diameter of the nebula of about 0.5 light years.

M57 The "Ring Nebula" in Lyra

SOCIETY NEWS

1 Committee Meeting

The next committee meeting will be held on saturday 7th September at the observatory, from 1930. This will be an open meeting and any member is welcome to attend.

2 Events for 1996

This list of events was first presented at the AGM.

Astro Camp	11th	Aug.
Horncastle Weekend	6th	Sept.
National Astronomy Week	21 to 28	Sept
FAS Cambridge Convention	5th	Oct.

Christmas Meal

By popular request the Christmas meal this year will again be at the Shepherd & Dog, 11th December.

A £5 deposit will be required to be sure of a place. I have booked 20 places again this year.

3 Open Weekend

We will be holding another Open Weekend to coincide with National Astronomy Week, on September 20th, 21st, 22nd, 23rd

All the usual arrangements will apply.

Roy Gooding

COMET HALE BOPP

Last week I acquired a copy of Where It Is What It Is by Robert Stevens Bassett. This is a very handy, quick reference book about Comet Hale Bopp. It contains maps and predictions of positions to find the comet from now till September of next year.

If you are interested in getting a copy, the price at the moment is £2.99 post free. If you wait for it to come into the shops I have been told by the author then the price will be £3.50.

To get a copy contact Mr R Stevens, C.L.X. Publishing, Bagend Cottage, High Street, Pevensey, East Sussex, BN24 5LF. Phone 01323 764528.

E. Sims.

PROGRAMME FOR JULY

Mondays from 7.30pm *No Directors available for this night*	*GENERAL OBSERVATION SECTION*
Tuesdays from 7.30pm *Mr D Barnard*	GENERAL OBSERVATION SECTION *daytime only*
Wednesdays from 7.45pm *Mr M Cook*	NEBULA & FAINT OBJECTS SECTION *Mr D Payne*
Thursdays from 7.30pm *Mr P Richards*	OBSERVATORY VISITS FROM OUTSIDE GROUPS
Fridays from 7.30pm 5th - 19th *Mr J Hood*	DOUBLE STARS *Mr M Barritt*

All members are welcome to come but, on nights other than Wednesdays please check with the director of the night that the observatory will be open.

Lectures and other events:

COMMITTTTEE MEETING -------- On Saturday 7th September at 7.30pm in the club room at the observatory. All members are welcome to attend.

OPEN EVENINGS ---- SEPTEMBER 8 pm - 10 pm Each Day.
Friday 20th, Saturday 21st, Sunday 22nd, Monday 23rd.

e-mail enquires to oasienq@btbcs.bt.co.uk
WWW url http://www.ast.cam.ac.uk:80/~ipswich/

1996 COMMITTEE

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