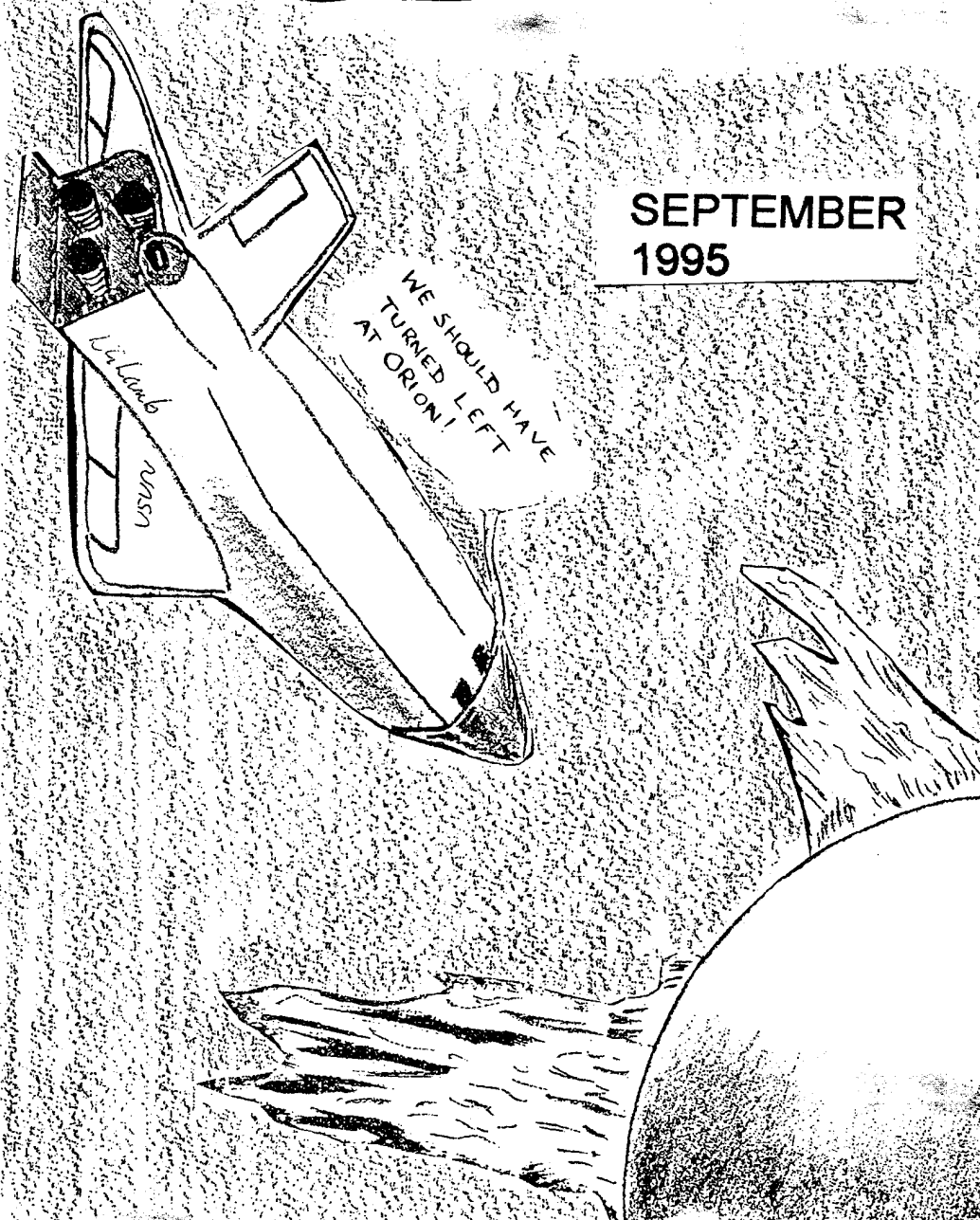


ORWELL ASTRONOMICAL

SOCIETY IPSWICH



SEPTEMBER
1995

NIGHT SKY

All times GMT

SUN

Rises approximately at 05.10 to 06.10
Sets approximately at 19.00 to 17.40

MOON 

2nd



9th



16th



24th

MERCURY Mercury will be in the evening sky all month, however it will be too close to the sun in the sky again this month to be observed.

VENUS Venus moves back into the evening sky this month. As with Mercury, it will be too close to the sun in the sky to be observed easily.

MARS Mars will be setting at about 19.40, in mid month. Mag. 1.4.

JUPITER Jupiter will be setting at about 20.00 by the end of the month. Mag. -2.0.

SATURN Saturn is presently in Aquarius, and will be at opposition on the 14th. Mag. 0.7.

URANUS Uranus will be setting at about 23.00 by the end of the month. Mag. 5.7

NEPTUNE Neptune will be setting at about the same time as Uranus. Mag. 7.9

SOCIETY NEWS

Christmas Meal Wednesday 13th December

Our first choice for a meal was at the Ostrich, Wherstead. This is not possible as the pub will be closed over the Christmas period for refurbishment. The alternative is at the Shepard & Dog at Nacton. Any one interested in attending, please contact Roy Gooding.

The Next Committee Meeting

The next committee meeting will be held on Saturday 9th September, at the observatory. Any member is welcome to attend. The starting time will be about 19.30

Second Open Weekend October 27th, 28th, & 29th.

The theme for this Open Weekend will be to see Saturn without its rings. The observatory will be open at the usual times, from 20.00 to 22.00. As normal as much help as possible will be required.

FAS Convention Cambridge 30th September.

Tickets will cost £4 before the day and £5 on the day. Any one interested in coming along please contact Roy Gooding.

The Next National Astronomy Week

The next National Astronomy Week will be staged between September 21 - 28th 1996. It will commemorate the 150 anniversary of the discovery of Neptune.

R. Gooding

OCCULTATIONS DURING SEPTEMBER 1995

The table lists disappearance times of stars of magnitude 7.5 or brighter which are occulted during the month. Only events taking place under favourable circumstances are listed. The data relates to Orwell Park Observatory, and timings, etc. will differ slightly for nearby locations.

| Date | Time (UT) | Mag | Lunar Phase | Sun Alt (°) | Star Alt (°) | Star |
|------------|-----------|-----|-------------|-------------|--------------|---------------|
| Sun 03 Sep | 22:08:33 | 7.5 | 0.67+ | -26 | 8 | ZC2611 |
| Wed 06 Sep | 20:06:40 | 7.1 | 0.93+ | -14 | 21 | ZC3070, 8 Aqr |
| Wed 06 Sep | 21:48:14 | 7.1 | 0.93+ | -26 | 26 | PPM238266 |
| Thu 07 Sep | 21:15:34 | 6.8 | 0.98+ | -23 | 26 | ZC3216 |

James Appleton

TELESCOPE MAKING SECTION

by Mike Harlow

There can be few more satisfying experiences in amateur astronomy than looking through a telescope that you have made yourself. In recent years events like the occultation of 28 Sag by Titan, the collision of S-L 9 with Jupiter, supernovae in M51 and M81, nova Cas 1993 and comet Swift-Tuttle have all been visible with amateur sized home-made instruments. What will be next? Only two of the events above could be predicted in advance so who knows what surprises are in store in the next few years?

The observatory now has two home-made telescopes for use by members and visitors, the 4 and 10 inch Newtonians, but more would be useful on particularly busy nights and for members to take on field trips for occultations. Although the telescope making section has been talked about for some time a dedicated room for mirror grinding has been a problem until recently. Now that we have the room at the bottom of the stairs to use (just inside the main door to the observatory) work can start on mirror making.

The choice of mirror size to start with has been influenced by a number of things. It must be of a size that would make a 'serious' telescope but not so big that it takes several people to move it and years to grind! It would also be an advantage to be able to aluminise it ourselves, the society has a vacuum coating rig (in my garage!) which has a 12 inch bell jar and is fully operational. When all things are taken into account an 8 inch mirror is the best size to start with and so this will be the first project--an 8 inch f/? (the focal length is still open to suggestions).

Interest in the TM section was revived recently in order to give members a practical project which everyone could contribute to. The mirror grinding and polishing will be open to everybody who wants a go. In fact 'grinding a mirror by committee' offers some advantages over a single maker. It is difficult for a single worker to completely eliminate systematic errors whereas if a number of people have a go each will have a slightly different technique and tend to randomise the grinding producing a smoother surface (in theory anyway!).

It is hoped to start work in August so come along and have a go!

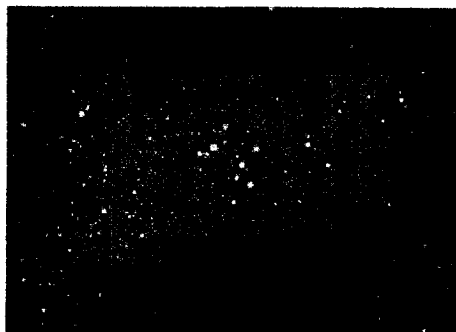
Some Messier objects for September

David Payne

This month I have chosen six Messier objects lying high in the sky well above the celestial equator. Two of the objects M29 and M39 are galactic clusters in Cygnus lying in a rich part of the Milky Way. Two others are globular clusters M56 in Lyra and M71 in Saggita. The final two objects are the well known planetary nebulae M27 the "Dumb-bell Nebula" in Vulpecula and M57 the "Ring Nebula" in Lyra.

All these objects are fine sights in small telescopes and are relatively easy to find. The only difficulty may be making certain that the two galactic clusters M29 and M39 are properly identified amongst the wealth of star fields, Milky Way condensations and the numerous NGC galactic clusters to be found in this region of the sky.

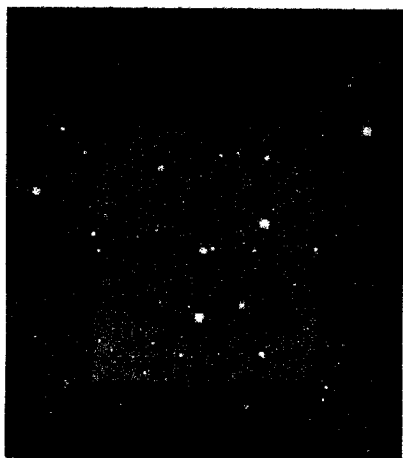
Starting with the two galactic clusters in Cygnus M29 is a small group of stars lying about 20 south and slightly to the east of the central star of the "Northern Cross", Gamma Cygni. The brighter ten or so stars are around 9th magnitude in an area 6' to 7' across. the distance of the cluster is about 7200 light years and has a diameter about 15 light years when including some of the outlying stars. M29 is lying in a very dusty region of



M29 - Cygnus

the Milky Way and estimates of interstellar absorption by this dust suggest that dimming by upto three magnitudes is occurring. If this dust were not present M29 would be quite a striking object clearly visible to the naked eye!

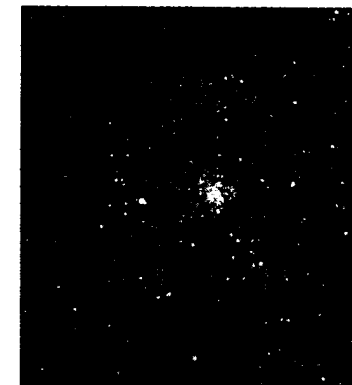
The other Messier galactic cluster in Cygnus is M39 a large sparse cluster lying about 90 east north east of Deneb. It is worth confirming the position of this object using a star map such as Norton's or Tirion's Sky Atlas 2000. This is not because it is difficult to see but because of the rich area of sky it is located within - it is in fact an easy binocular object and can even be seen by the unaided eye.



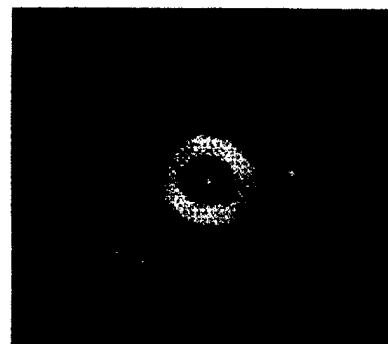
M39 - Cygnus

The cluster is a large equilateral triangle with about 30 true members brightest dozen or so making up the triangular area about 1/20 across. cluster is estimated to be about 800 light years with a diameter of about 7 light years.

Moving west from Cygnus to the constellation Lyra, unmistakable with the brilliant Vega, we can find M56 and M57. M56 is a globular cluster lying just less than mid-way between beta Cygni that beautiful coloured double at the bottom of the "Northern Cross" and Gamma Lyra south eastern star of the small parallelogram lying just below Vega. It is an eighth magnitude object about 5' in diameter. lying at a distance of around 46,000 light years. It is less dense at the core than typical globular clusters but is an impressive object even in small telescopes. A six inch telescope is required to really show any resolution of the outer edges although there is a hint of resolution even with a four inch.



M56 - Lyra



M57 - Lyra

The other Messier object in Lyra is the well known "Ring Nebula" M57. This famous planetary nebula is easily found lying nearly midway between and slightly below Beta and Gamma Lyrae. This is the most famous of all planetary nebula about 1' diameter and shining at magnitude 9. Easily visible in small telescopes this object is always worth searching out. It is slightly elliptical in shape and looks like a smoky ghostly halo in small telescopes, usually a six inch is required to clearly see the central region. In larger instruments the ring can be seen to darken at the edges

the longer axis. The ring is a shell, or possibly a ring, of gas that has been ejected by the exceedingly hot central star. The central star has a surface temperature of around 100,000 degrees and emits strongly in the ultraviolet. This UV radiation excites the gas and causes it to shine by fluorescence. The ring nebula is estimated to be about 1400 light years away and has a diameter of about 0.5 light years.

Another fine planetary nebule is M27 in Vulpecula also known as the "Dumb-bell Nebula" because of the double lobe shape seen in smaller telescopes. This nebula is about 8' x 4' with an integrated magnitude of 7.6. the surface brightness is much lower than M57 but is a splendid object on dark clear nights. M27 is estimated to be around 900 light years away although this is uncertain and estimates range from 490 light years to 980 with most estimates towards the larger distance. Assuming the 900 light year figure gives a diameter of about 2.5 light years for the nebula.



M27 - Vulpecula

The final object this month is M71 in Sagitta. This is a globular cluster of magnitude 9 easilt found midway between and slightly to the south of Delta and Gamma Sagittae. The true nature of the cluster has been in some doubt some observers regarding it as a very condensed galatic cluster rather than a globular. however the spectral distribution of the stars within the cluster more closely resemble a globular than a galactic cluster and this is now the usually accepted classification. The cluster consists of a large number of faint stars that require an 8 to 10 inch telescope to show any real resolution.



M71 - Sagitta

The diameter of the cluster is visually about 5' but suspected cluster members have been found out to a diameter of 24'. the distance is uncertai with estimates ranging from 8,500 to 18,000 light years.

PROGRAMME FOR SEPTEMBER

| | |
|--|---|
| <i>Mondays from 7.30pm</i> <i>No Directors available for this night</i> | GENERAL OBSERVATION SECTION |
| <i>Tuesdays from 7.30pm</i> <i>Mr D Barnard</i> | GENERAL OBSERVATION SECTION daytime only |
| <i>Wednesdays from 7.45pm</i> <i>Mr M Cook</i> | NEBULA & FAINT OBJECTS SECTION <i>Mr D Payne</i> |
| <i>Thursdays from 7.30pm</i> <i>Mr P Richards</i> | OBSERVATORY VISITS FROM OUTSIDE GROUPS |
| <i>Fridays from 7.30pm</i> <i>1st 15th 29th</i> <i>Mr J Hood</i> | DOUBLE STARS <i>Mr M Barritt</i> |

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:

Next Committee Meeting Saturday September 9th in the club room.

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

1995 COMMITTEE

| | Home Phone | Work Phone |
|---------------------------|------------|---|
| CHAIRMAN | D Payne | |
| SECRETARY | R Gooding | |
| TREASURER | M Nicholls | |
| MAINTENANCE CO-ORD | M Cook | |
| JOURNAL CO-ORDINATOR | E Sims | |
| PUBLICITY & VISIT CO-ORD | P Richards | |
| EQUIPMENT CURATOR | M Harlow | |
| SPECIAL EVENTS CO-ORD | M Andrews | |
| LIBRARIAN & COMP SOFTWARE | J Appleton | |
| JOURNAL ARTICLES TO | E Sims | Ipswich Suffolk IP1 4HA |
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