# ORWELL ASTRONOMICAL SOCIETY, IPSWICH.

# SOCIETY NEWS

1. Open Weekend
   The annual public open weekend will be between Sept.25th to 28th. The observatory will be open from 8.00 - 10.30p.m. on Friday and Monday and 7.30 - 10.30 p.m. on Saturday and Sunday. As much help as possible will be required.
2. Draw Tickets
   Draw tickets will be distributed to all members for sale. Please endeavour to sell as many as possible, and return monies together with ticket counterfoils and unused tickets to David Barnard.
3. Committee Meeting
   The next meeting will be on Saturday 15th August from 7.30 p.m. in the club room. Open to all members to attend. The open weekend will be the principal discussion matter.
4. 21st Anniversary Convention Meeting
   This meeting will take place on Saturday 9th July, 1988, and will probably include the following:-
   a. Lectures.
   b. Films and slide shows.
   c. Trade stands.
   d. Refreshments.
   e. All the usual games and exhibits that long-standing members will remember from former open days.
5. 1987 Observatory Repair Programme
   This takes place on every Wednesday evening.
   LOTS OF WORK TO BE DONE.
   Please come along and lend a hand.
6. F.A.S. Herstmonceux Convention
   This convention takes place on Saturday 3rd October at the Royal Greenwich Observatory at Herstmonceux.
   Interested members please contact Roy Gooding.

# NIGHT SKY

(all times G.M.T.)

Sun Rises approximately between 04.20 - 05.10
Sets approximately between 20.00 - 19.00

Moon ◐ 2nd ○ 9th ◑ 16th ● 24th

Mercury Visible in morning sky at beginning of the month. Difficult to see. Superior conjunction on the 20th.

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| Venus | At superior conjunction on the 23rd. Difficult to find. |
| Mars | Conjunction on the 25th. Very difficult to observe this month. |
| Jupiter | Rises at 21.00 in mid month. Mag. -2.6. |
| Saturn | Sets at 23.20 in mid month. Mag. 0.4. |
| Uranus | Sets at 23.40 in mid month. Mag. 5.8. |
| Neptune | Sets at 00.40 in mid month. Mag. 7.7. |

R. Gooding.

## Construction of Orwell Park Observatory

The text to accompany the diagramme included in June's Newsletter will be serialized.

The article was published in 'Engineering' on October 2nd 1874.

PART I

As the observations required in the practical pursuit of astronomy are more delicate and accurate than any other, so is it necessary to use extraordinary care, not only in the construction of the instruments but also with regard to the foundations and construction of the observatory which contains them. In the following remarks the writer will refer briefly to the considerations which should be kept in view in the design and construction of a private observatory of high class, and will illustrate his remarks by reference to the observatory recently constructed from his designs and under his direction for Mr. George Tomline, at Orwell Park, hear Ipswich.

The first consideration is the situation of the observatory. The most favourable position is on the top of a low hill or rise of ground, so as to command the horizon all round without the necessity of raising the observatory. For ordinary observations a clear view of the horizon is not extremely important, as the observations are much affected by refraction, but for extraordinary observations, such, for example, as the observation of a comet when near the sun, it is of great importance; and it must be borne in mind that the chief use as well as enjoyment of a private observatory consists in the careful examination of extraordinary objects. Again, if the observatory be near a river, an elevation of 100 ft. or 150 ft. is often necessary in order to keep above the river fogs; these fogs commonly occur on cold nights in winter when the sky is beautifully clear, and unless the observatory were above the fog the night would be lost. The writer has frequently seen a dense fog extending as high as 100 ft. above the Thames at Greenwich while at the Royal Observatory, 150 ft. above the river, the air was perfectly clear and the stars brilliant. In the case of the Orwell Park Observatory it was desired that the observatory should be attached to the mansion (which itself stands on a lofty bank overlooking the River Orwell), and since of necessity the observatory had to be raised so as to clear the house and surrounding trees, the conditions as to elevation were amply secured. But, as might be expected, much expense and difficulty in construction were caused by the great height of the observatory, which will be referred to immediately. As a subsidiary matter of some importance, it may be mentioned that it requires some skill to secure a good architectural effect in an observatory attached to a mansion in the manner referred to; in the present instance, however, this matter received the most skilful attention from the architect, Mr. J. Macvicar Anderson, of Stratton Street.

For the proper support of an astronomical instrument it is essential that a column or columns should be carried up from the ground without contact of any sort with the walls, floors, or other parts of the building. If this were not carefully attended to, such is the delicacy of the instrument that the effect of a person walking about any parts of the building adjacent would be rendered immediately perceptable at the instrument by a tremor very annoying to an observer. This condition is sometimes inconvenient, as in the case of the Orwell Park Observatory, for it was there necessary to run up a column 60 ft. high to carry the instrument. The column was 10 ft. in diameter at the bottom tapering to 6 ft. diameter at top; the materials were brickwork in mortar; mortar is better than cement, as it is less subject to expansion, but the work needs to be carried up slowly to let the mortar set in so thick a mass of brickwork. The only disadvantage of brickwork is its high degree of elasticity, which gives some trouble in the case of a tall column while the work is fresh; probably, except for the expense, stonework would be better. For the foundation of such a column, unless it was upon the natural rock, piling would seem best, as more effectually separating the column from shakes transmitted through the foundations. But in the case of the Orwell Park Observatory, piling was out of the question by reason of the many buildings closely adjacent, and it was necessary to set the columns on a large bed of concrete, which carried also the walls of the observatory. The foundation ground was sand, with much water.

# A Night With Sagittarius

## David Payne

The early part of July was one of those rare periods of good fine weather with sunshine during the days and clear skies at night. One particularly clear evening was Friday 3rd July, by eleven thirty BST the sky had darkened sufficiently for the Milky Way to be seen from Cygnus down towards Sagittarius. Sagittarius is not a constellation I am particularly familiar with, being so low down in the south during the summer months with skies that rarely give adequate viewing conditions. However this evening was one of those rare events - stars could be seen, without aid, down to about 5 degrees from the horizon!

I had planned to search out some of the deep sky objects in Cygnus and adjacent constellations that are now high in the sky but the clear southerly sky was an opportunity not to be missed and the telescope was duly pointed south. I started scanning the skies using 10x80 binoculars and quickly found M16 in Serpens, this is the open cluster embedded in a gaseous nebula that was described in last months journal. It was an easy object in the binoculars and could also be easily found in my 7x45 finder telescope. In the 10" reflector about fifty or sixty stars could be seen although no real sign of the surrrouding nebulosity was found. This was probably due to the sky background glow which was clearly evident in the low power (80x) field of the 10". I then moved about 2 degrees south crossing the border into Saggitarius to the beautiful, bright diffuse "Swan" or "Omega" nebula M17. I much prefer the "Swan" name for this nebula for that is indeed a good description of it's shape when seen visually through the telescope. It is a very bright nebula easily seen in the finder as an elongated fuzzy patch. I found that the "Swan" shape was just discernable in the 10x80 binoculars and was a truly beautiful sight in the 10" telescope. The distance to M17 is estimated to be 5700 light years. The next object I observed was the small open cluster M18 lying about 1 degree south of M17. It must be admitted that after the glory of M17,M18 is a little dull. It appears as a faint smudge in the finder and binoculars, resolving into a pach containing 30 or so faint stars in the 10". In fact most of the stars visible are background stars as it is only the dozen or so brighter ones that are actual members of the cluster. The cluster is estimated to lie at a distance of about 4900 light years.

Moving approximately south for another degree reveals M24 or the "Small Sagittarius Star Cloud". This cloud can be visible to the naked eye although I could not see it with out the binoculars or finder telescope (conditions were good but not that good!). In the ten inch this appears as an extremely rich star field with streamers of star crossing the region. It is not a star cluster as such but a brighter condensation of the Milky Way star field. It is a large object about 2 degrees by 1 degree and roughly rectangular in shape. This large size means low power wide angle eyepieces for observing in the telescope, otherwise it is a good object for binoculars.

Scanning this area of sky with binoculars I could see a bright open cluster to the left (east) in which a few star could be resolved and a fainter misty patch to the right (west). I went for the brighter object first. this was M25 a bright loose cluster containing 70 to 90 stars in the 10" telescope. It lies about 2000 light years away. The fainter patch to the west was M23 a more attractive object in the 10" than M25 with 70 or so fainter stars in a nice compact group. M23 lies at about the same distance as M25 (2000 light years).

I continued to move south and atempted M20 the "Trifed" Nebula, unfortunately I had left it too late! I have a problem when observing objects low down in the south the telescope aperture begins to go below the wall of the observatory, something I have been going to rectify for some time but have never got around to. By now it was well after one oclock saturday morning and the Trifid Nebula was past the meridian and heading further south this meant that about half the aperture of the 10" telescope was being lost by the wall of the dome.

The "Trifid" nebula is a large gaseous nebula surrounding a loose open cluster. The embedded star cluster was visible as a large loose scattering of stars. The Nebulosity was barely visible with only the bright region around the triple star being easily discernable. In fact the triple star loooked like a double with the 10.5 mag third member being only just visible! The small, more condensed, open cluster M21 was visible to the north west in the same low power field.

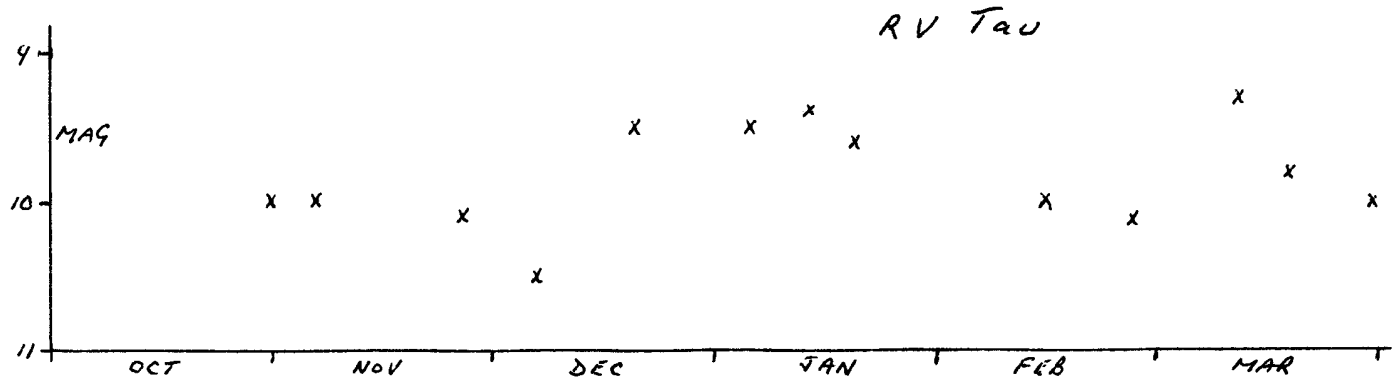
Although I was loosing aperture from the edge of the dome the "lagoon" nebula M8 was so easily visibly as a bright nebulous region in both the binoculars and the finder, about 1.5 degrees south west of the trifid nebula, that the telescope was pointed further south still. In the 10" the bright nebulosity was clearly visible with a dark region dividing it into two parts. Also easily seen was the small open cluster NGC 6530 which lies in the eastern side of the nebula. While this far south, and to round the night off, I decided to look at the two nearby globular clusters M22 and M28. The brightest of these is M22 and it was easily seen in both the finder and the binoculars. In the 10" it was a beautiful sight with stars resolved against the glowing background, right to the centre of the nebula. M28 however was much fainter, it was not visible in the finder and was faint in the 10x80 binoculars. In the 10" it appeared as a condensed glowing smudge with no resolution into stars. While observing I had assumed the lack of resolution was due to the low southerly aspect and the >50% loss of aperture due to the observatory wall. However on consulting 'Burnhams' the following morning I found that the stars in this nebula are 14 to 15th magnitude or fainter and so is out of the range of a 10" for any reaL resolution.

By now it was the early hours of the morning and I decided to call it a night but with ten deep south Messier objects observed it was a night to remember.

# VARIABLE STAR OBSERVATIONS

by Mike Nicholls

The light curve below shows RV Tauri from October last year to March this year. It is the prototype of the class which is characterised by having alternate deep and shallow minima. This phenomenon is not very clear on the light curve shown, although looking at previous data it is often not easy to see in this star. A rough period of 79 days has been calculated but this is only approximate. RV Tau is a pulsating super-giant star, but the precise cause of the pulsations is still unknown. The system is even more complex because the pulsations described above are superimposed on a longer period of about 1300 days or $3\frac{1}{2}$ years.
Observations were made using an 8" reflector.




## PROGRAMME FOR

MONDAYS from 8pm
3 10 17 24

DOUBLE STAR & PLANETS SECTION
Mr N Taylor, Farmlands, Trimley. Tel: Fel.
Mr T Gillan, Bardwell, Bury St. Edmunds. Tel:
Miss M Edwards, Felixstowe. Tel: Fel.

TUESDAYS from 8pm
4 11 18 25

GENERAL OBSERVATIONS SECTION
Mr N Sage, Trimley. Tel: Fel,
Mr R Newman, Felixstowe. Tel: Fel.
Mr J King, Felixstowe. Tel: Fel.

WEDNESDAYS from 8pm
5 12 19 26

NEBULEE & FAINT OBJECTS SECTION
Mr M Cook, Ipswich. Tel: Ips.
Mr D Payne, Wickham Market. Tel:W.Mkt

FRIDAYS from 8pm
7 21

GENERAL OBSERVATIONS SECTION
Mr R Lobbett, Felixstowe. Tel: Fel,
Mr J Hood, Ipswich. Tel: Ips.
Mr M Harlow, Felixstowe. Tel: Fel,

On nights other than Wednesdays please contact directors to confirm dates

## 1987 COMMITTEE

| | | | |
|---|---|---|---|
| CHAIRMAN | D Payne | Wickham Market, IP13 0SD | Work: Home: |
| VICE CHAIRMAN/ P.R.O. | D Barnard | Ipswich. IP4 5PP | Work: Home: |
| SECRETARY | R Gooding | Ipswich. IP1 6AE | Home: |
| TREASURER | M Nicholls | Capel St. Mary, Ipswich, IP9 2EX | Work: Home: |
| MAINTENANCE | M Cook | Ipswich. IP4 5PZ | Work: Home: |
| JOURNAL CO-ORD. | E Sims | Ipswich. IP1 4HA | Home: |
| LIBRARIAN | R Lobbett | Felixstowe. | Work: Home: |
| EQUIP. CURATOR | M Harlow | Felixstowe. | Home: |
| SOCIETY EVENTS | P Richards c/o | Rushmere. | Home: |