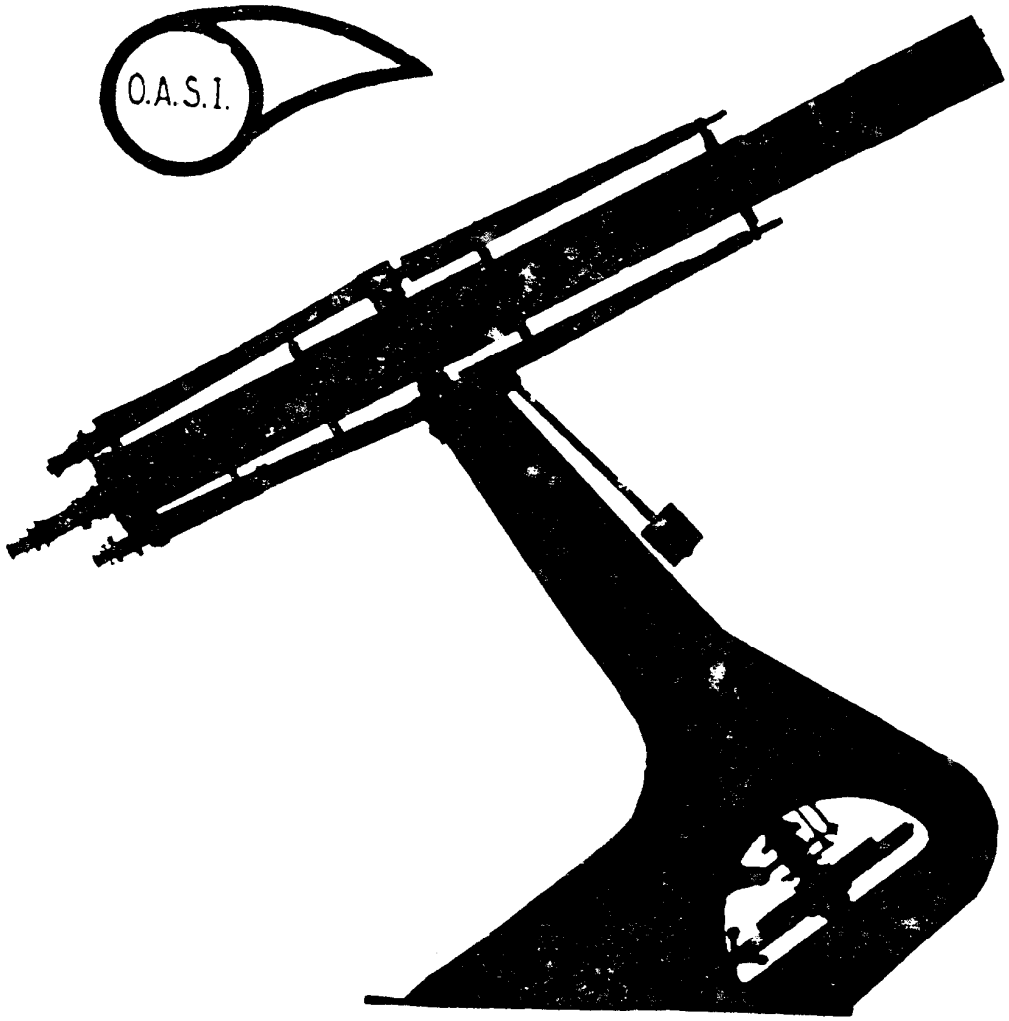
ORWELL ASTRONOMICAL SOCIETY (IPSWICH)

Crossley

AUGUST 1983



The Orwell Park Observatory 10 inch Astronomicl Telescope at Nacton near Ipswich

SOCIETY NEWS

There is a Committee Meeting on Saturday 20th August, 7:30pm at the observatory. All members are welcome.

Visits

August 9th and 10th at 8:30pm
Visit by Exploration Unlimited Group (who are staying at the school).

August 27th and 28th (Sat. and Sun. evenings)
Suffolk Caravan Club. Help is required for this event from about 8:00pm, please come along.

The F.A.S. are holding their annual meeting at Herstmonceux on Saturday 1st October. A trip will be arranged if sufficient members are interested. A limited number of tickets are available at £2.50, plus transport costs. If you are interested please contact R. Gooding or D. Payne as soon as possible.

NIGHT SKY

Constellations (all times B.S.T.)
The summer triangle of Vega, Deneb and Altair dominate the evening sky all month.

Sun Rises approx.05.20 to 06.10, sets approx.21.00 to 20.00

Moon ○ 8th ◗ 15th ● 23rd ◖ 31st

Occultations

4th	ZC 639	mag.	6.0	R	2	hrs.	4.7	mins.
6th	" 983	"	6.0	R	3	"	37.2	"
17th	" 2507	"	6.7	D	22	"	4.2	"
19th	" 2792	"	6.8	D	21	"	25.6	"
26th	" 3536	"	4.7	R	00	"	12.0	"
26th	" 5	"	4.7	R	2	"	37.1	"
31st	" 593	"	5.8	R	1	"	15.0	"

Mercury Greatest eastern elongation Aug.19th (27°)

Venus Inferior conjunction Aug.25th

Mars Visible before sunrise. Rises approx. 1 hr. 20 mins. before the sun at beginning of month, mag. 1.9

Jupiter Sets about 3 hrs. 40 mins. after sunset, mag.-1.8

Saturn Sets about 2 hrs. 40 mins. after sunset, mag. 0.9

Uranus Sets about 3 hrs. 40 mins. after sunset, mag. 5.8

Neptune Sets about 5 hrs. 20 mins. after sunset, mag. 7.7

Gooding.

A table was published in last months journal showing the principle showers active this month.
In addition to these showers is a little known shower the Upsilon Pegasids. There has been a request from the American author and meteor observer Mr Povenaire to photographically observe this shower between Aug. 5th and Aug. 12th. All that is required is a 35mm camera with a standard 50 mm lens and B exposure facility. The camera will require mounting on a tripod and pointing in the direction of Upsilon Pegasus (see Nortons star atlas) and exposures of 5 minute duration taken using HP5 or Tri-X film. Development of exposed films should be in standard strength solution but for three times the normal development time. Any members interseted in partaking in this experiment should contact Alan Smith on Ipswich [redacted] for details (he is also willing to carry out development of film if necessary).

NEWS

A bright typeI supernova is being observed by the IUE satellite. TypeI supernovae are the brightest and most mysterious of the supernova because they show no trace of the commonest element Hydrogen. This latest Supernova is in M83 and some early spectra were obtained about two weeks before maximum brightness! During the last week in July the IR satellite IRAS will look at this object (as well as radio observatories, so far no type I supernovae have been detected at radio wavelengths).

One discovery from the IUE's observations was the UV emission changing in a few hours, meaning rapidly moving gas clouds. The actual elements which cause the UV lines are a mystery at present. Some astronomers have suggested that these stars are exploding white dwarfs whose carbon and oxygen content reacts in a thermonuclear explosion to produce radio active cobolt + nickel. The decay of these nuclei to iron produces the light of the supernova.

This theory can now be examined now we can use UV through visible spectra taken before during and after maximum brightness.

New Scientist 21st July 1983 99 p.190

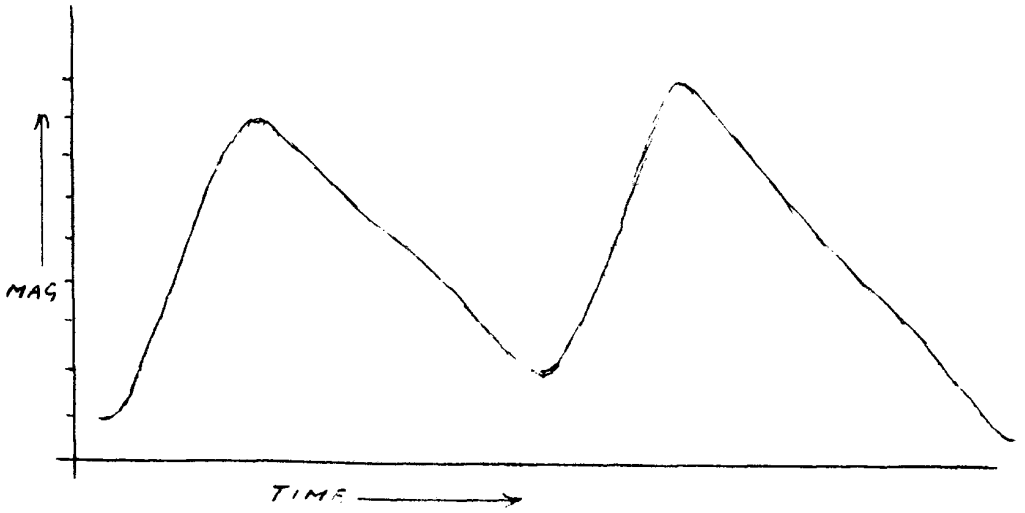
VARIABLE STARS

by Mike Nicholls

Many of the light curves shown in the journal in the past have been of long period variables. An alternative name for this class is Mira stars, after the best known member called Mira Ceti (omicron Ceti). A brief description of this type of variable seems appropriate.

They are called long period because the period is relatively long when compared to most other types of variable. The average period is around 300 days, but there are some with periods of less than 100 days, and others greater than 1000 days. The period is not absolutely regular from cycle to cycle and may vary by up to several days. The visual magnitude variations are also quite large, generally 5 or 6 magnitudes. Often they are as great as 9 magnitudes and Chi Cygni has a range of nearly 11 magnitudes. Like the period, the magnitude range, maximum and minimum values vary a little from cycle to cycle.

They are probably the best known type of variable star. Many are known, probably partly owing to their absolute magnitude which is quite bright, between -1 and -3 at maximum. An example of a light curve is shown below. In many cases there is a step in the rising portion.



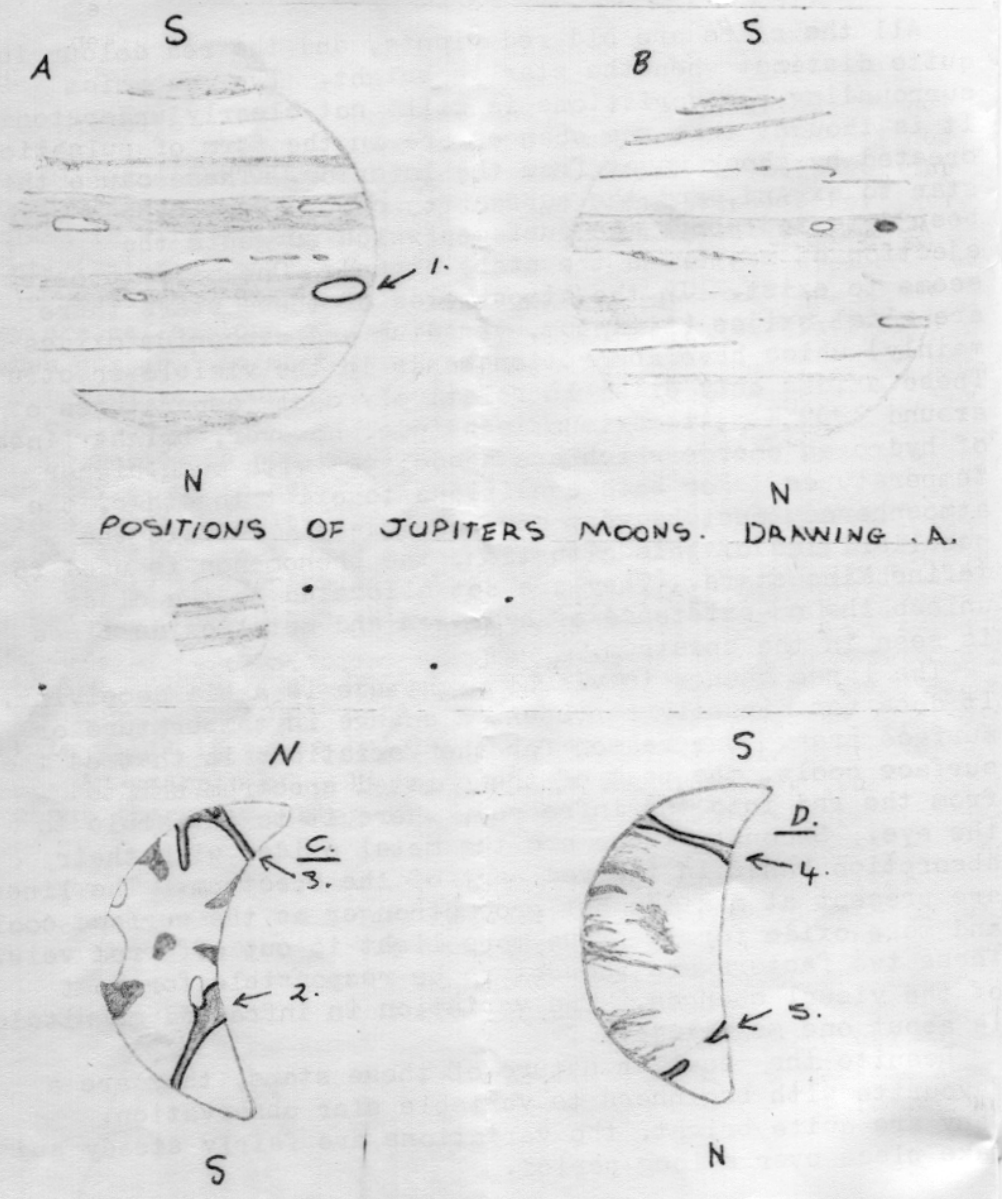
All the stars are old red giants, and the red colour is quite distinct when the star is bright. The mechanism surrounding the variations is still not clearly understood. It is thought that the changes are in the form of pulsations created by shock waves from the interior. These cause the star to expand, and the surface to cool. Dust clouds have been detected above the surfaces which suggests the ejection of matter as the stars expand. One major problem seems to exist. In the atmospheres of these stars there are metal oxides (titanium, vanadium and zirconium oxides mainly) which have absorption bands in the visible spectrum. These oxides only exist in relatively cool temperatures of around 3000°K. At maximum magnitude, however, bright lines of hydrogen emerge which are associated with much higher temperatures. For both conditions to exist together, the atmospheres must be very complex indeed. Despite the peculiarities of this situation, the phenomenon is used to define Mira stars. They are not allocated to the class unless the co-existence of hydrogen and metal oxide lines is seen in the spectrum.

The large change in visual magnitude is a bit deceiving. It does not directly represent a change in temperature or surface area. One reason for the variations is that as the surface cools, the peak of the emitted spectrum shifts from the red into the infra red, where it is invisible to the eye. Secondly there are the metal oxides with their absorption bands in the red part of the spectrum. The lines are present at maximum but grow stronger as the surface cools and more oxide forms. Thus more light is cut off from veiw. These two factors are thought to be responsible for most of the visual changes. The variation in infra red magnitude is about one magnitude.

Despite the peculiar nature of these stars, they are a favourite with beginners to variable star observation. Many are quite bright, the variations are fairly steady and take place over a long period.

OBSERVATIONS OF JUPITER AND VENUS

60mm Refractor C.J. Cornish



A. This observation of Jupiter was made under good conditions but slight unsteadiness caused by light wind made the telescope shake. 4/7/83. Time 9.30 - 10.00 p.m (1 - Red Spot)

B. This observation of Jupiter was made under hazy conditions with small amount

C. This observation of Venus was made under good conditions. 2 and 3 are cusp caps. The southern cusp cap 2 was very prominent. 4/7/83. Time 8.40 - 9.00 p.m. Light green filter used.

D. This observation of Venus was made under extremely good conditions. The southern cusp cap was very prominent and dark. 7/7/83. Time 9.08 - 9.16. No filter was used to make this observation. 4 - southern cusp cap
5 - northern cusp cap

A VISIT TO JODRELL BANK

The Nuffield Radio Astronomy Laboratories at Jodrell Bank should be well known to all members even if only because of the 250 ft. dish. The observatory is run by the University of Manchester. The radio telescopes at Jodrell Bank, together with dishes at 5 other locations in the West Midlands form an interferometer network known as MERLIN or the Multi-Telescope Radio-linked Interferometer (MTRLI). Objects studied include Pulsar Flare Stars, Interstellar molecules.

The area of Jodrell Bank that the public has access to consists of a planetarium and exhibition halls, restaurant and an arboretum of about 30 acres. It is possible to get within about 30 feet of the 250 ft. Radio Telescope, but it is behind a 10 ft. high fence.

The exhibition includes many models and pictures relating to the research conducted at Jodrell Bank. Satellite T.V. broadcasting was under demonstration, but at present only Moscow T. can be received.

A radio telescope for observing the sun is under the complete control of visitors. Adjusting the dish for the correct azimuth and altitude was no problem as an ephemerise for the day was on display. A pen recorder completed the equipment. The movement of the pen was quite noticeable, but unfortunately the ink had dried up.

A society trip to Jodrell Bank at a future date may be considered.

R. Gooding.

PROGRAMME FOR AUGUST

MONDAYS from 8pm	DOUBLE STAR & PLANETS SECTION		
1, 8, 15, 22, 29	Mr N Taylor	, Walton Felixstowe	Tel:Fel.
	Mr T Gillon	, Felixstowe	Tel:Fel.
TUESDAYS from 8pm	GENERAL OBSERVATION SECTION		
2, 9, 16, 23, 30	Mr N Gage,	, Trimley	Tel: Fel.
	Mr R Hebbs,	,	Tel: Fel.
WEDNESDAYS from 8pm	NEBULEA & FAINT OBJECTS SECTION		
3, 10, 17, 24, 31	Mr M Cook,	, Ipswich	Tel: Ips.
	Mr D Payne,	Wickham Market.	Tel:W.Mkt
FRIDAYS from 8pm	VARIABLE STAR SECTION		
5, 19,	Mr R Gooding,	, Ipswich	Tel: Ips.
	Mr M Nichols,	Capel St. Mary.	Tel: Ips.
SUNDAYS from 8pm	GENERAL OBSERVATION SECTION		
7, 21	Mr R Adams,	, Ipswich	Tel: Ips.
	Mr M Barriskill,	, Ipswich	

1983 COMMITTEE

CHAIRMAN	D Payne	Wickham Market, IP13 0SD	Work: Home:
VICE CHAIRMAN	R Cheesman	, Corringham, Lane, Essex SS17 9BU	Work: Extn
SECRETARY	R Gooding	, Ipswich	Work: Home:
TREASURER	M Nicholls	, Capel St. Mary, Ipswich, IP9 2EX	Work: Home:
MEMBERSHIP SEC.	M Barriskill	, Ipswich	
P.R.O.	D Barnard	, Ipswich, IP4 5PP	Home: Work:
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