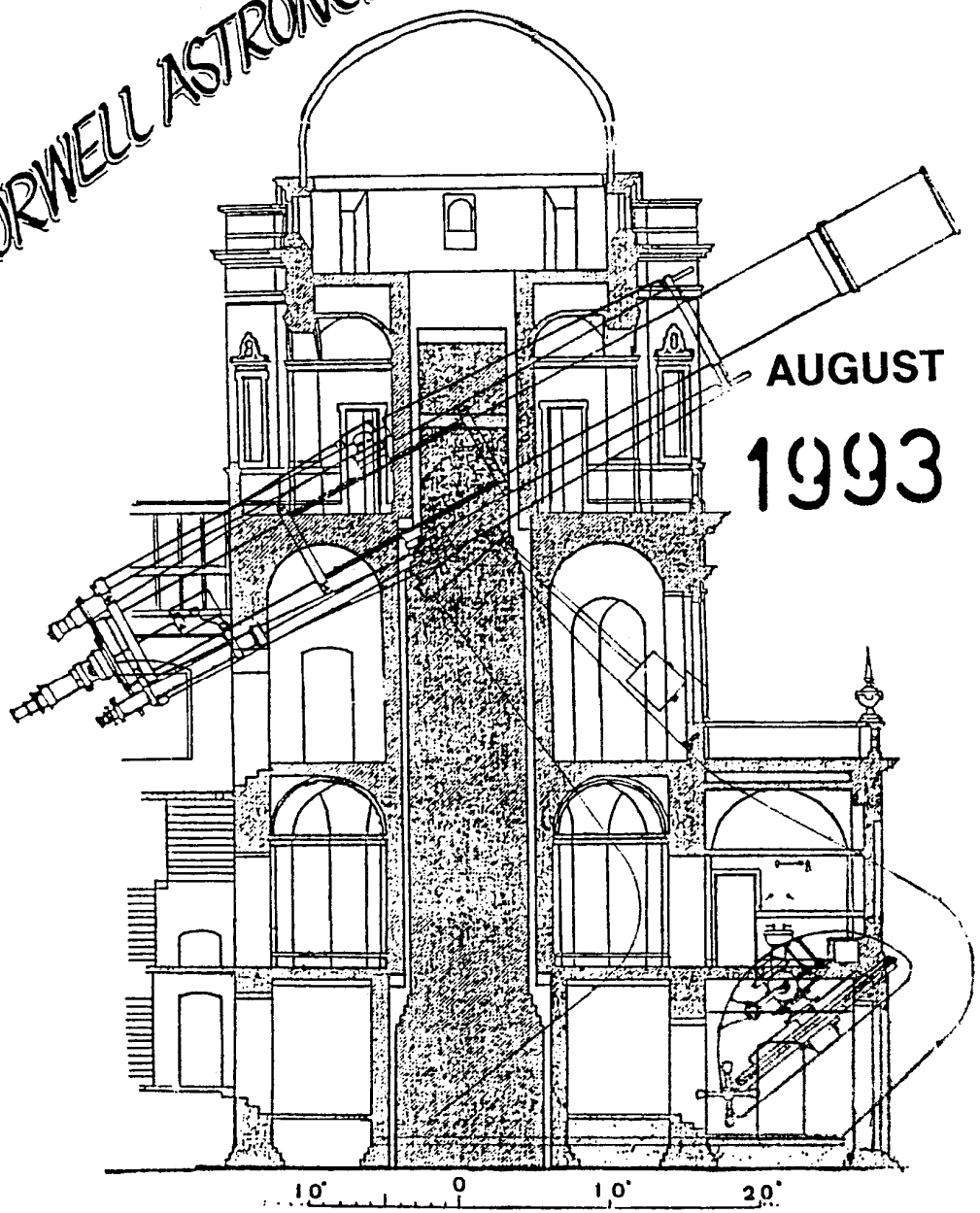
ORWELL ASTRONOMICAL SOCIETY IPSWICH



AUGUST

1993

FAS CONVENTION
SATURDAY 25th SEPTEMBER

The 1993 FAS Cambridge Convention is on Saturday 25th September.

Tickets cost £3.50 each, with an additional £4.00 if you require a Ploughman's lunch.

Please contact Roy Gooding if you are interested in going along.

Speakers should include :-

Professor Andrew Fabian
Dr. Carole Jordan
Dr. Bob Lambourne
Iain Nicholson
Dr. Ken Smith

NIGHT SKY

All times GMT

SUN Rises approximately between 04.20 to 05.10
Sets approximately between 20.00 to 19.00

MOON

2nd 10th 17th 24th

MERCURY Mercury will be at greatest western elongation (19°) on the 4th. It will be at superior conjunction on the 29th.

VENUS Venus will be rising about three hours before the sun during most of the month. Mag. -4.0

MARS Mars will be in the twilight sky. It will remain in this region of the sky for rest of the year. Mag. 1.6.

JUPITER Jupiter will be setting at about one hour after the sun by the end of the month. Mag.-2.0.

SATURN Saturn will be at opposition on the 19th. Mag. 0.3

URANUS & NEPTUNE Both planets are close to each other in the sky. They will be setting near midnight by the end of the month.

R.Gooding

The next committee meeting is to be held at the observatory on October the 2nd. All members are invited to attend as this is an open meeting.

Sweat Shirts

P.Richards has asked me to remind any body who has ordered sweat shirts or sweaters with the O.A.S.I. LOGO EMBROIDERED ON, to contact him as they are now available. P. Richards address and phone number are on the back page.

E.Sims

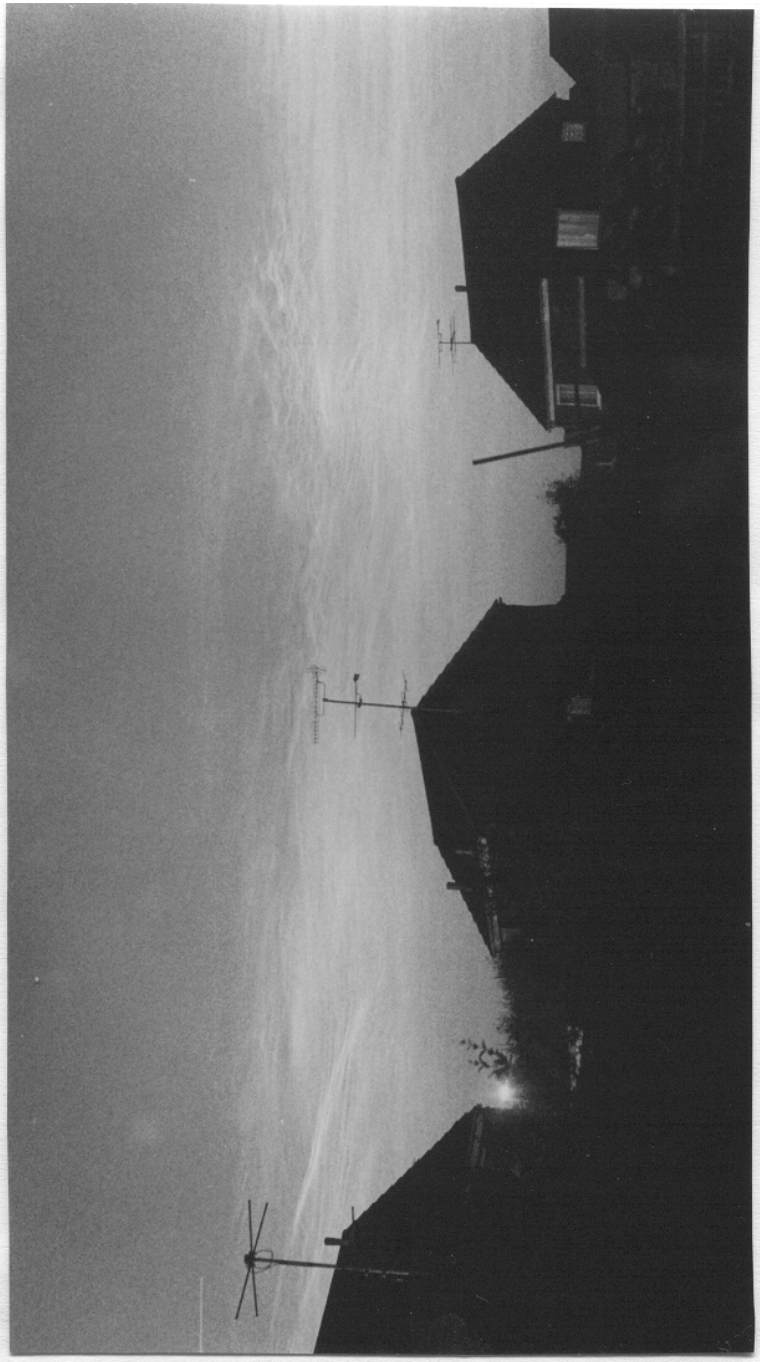
Noctilucent Clouds by Mike Harlow

Just by chance I walked outside on the 28th June a little before 11 p.m. and saw "Something wonderful" to quote Arthur C. Clarke's "2010". O.K., it wasn't Jupiter imploding, but rather a rare and beautiful atmospheric phenomenon---the Noctilucent Cloud. Initially I didn't know what I was looking at, as I had never seen it before, and my first thought was that it was an aurora. I soon realised however that the colour was all wrong, the aurora is usually green or pink but this glow in the sky was a pale silvery-blue; it was also quite low in the north west rather than extending high into the sky.

As usual in situations like this I just stood there watching it for ages before I realised that I had a camera and should be taking pictures!! I gave Dave Payne a call just to confirm that I wasn't seeing things and then took my camera on it's tripod outside. It was now about 11:10 p.m. and quite dark with stars easily visible and the Moon and Jupiter low in the south west. I had no idea what length of exposure to use so I took several shots between 5 and 30 seconds. The best shots, one of which is shown opposite, were 10 seconds with a 55mm lens at F/4 on 400ASA colour print film and printed by Boots! On seeing the prints I realised beyond doubt that this really was the Noctilucent Cloud, the wave-like structures visible in my photos were identical to those which I had seen printed elswhere[1,2]. So what is the Noctilucent Cloud and what is so special about it?

The only detailed article about the Noctilucent Cloud I have found so far was written in 1963 and appeared in Scientific American[3]. This was at a time when it was becoming possible to directly sample high altitude phenomena, like the Noctilucent Clouds, by firing rockets through them!

Scientific study of the phenomenon started as early as 1896 when simultaneous photographs taken with cameras 22 miles apart showed the clouds to be at an altitiude of 50 miles! Ordinary clouds associated with weather systems go up to only about 10 miles. Photos taken in more recent times have



Noctilucent Cloud seen at 11:15pm on 28th June 1993 from Trimley. This photo was taken with a 55mm lens at F/4 and a 10 second exposure on 400ASA Kodak Gold II film.

enabled the wind speed at these altitudes to be measured as being up to 400 miles per hour. The clouds are visible because at their high altitude they are still in direct sunlight even though locally it is quite dark. The geometry is such that they appear between 10° and 20° above the horizon in the direction of the sun which is between 6° and 16° below the horizon. This ties in exactly with what I saw; when I first saw them at 11 p.m. the sun's altitude was -6° and when the display finished about 40 minutes later the sun was over 12° below the horizon.

From the observational records the clouds only ever appear between latitudes 45° and 80° North or South, so that my sighting at only 52° North is towards the lower end of the range. It is interesting to note that the sighting at only 45° North was in 1908 following the Tunguska meteorite impact. The origin of the clouds is thought to be associated with the condensation of ice on meteoric dust in the atmosphere and the height of 50 miles is significant because there is a temperature minimum at this point of -110°C. Direct sampling by rockets has shown that when the clouds are visible there is between 100 and 1000 times more dust at this level than when they are absent. The particles themselves are between 0.05μm and 0.5μm across which again is evidence for meteoric origin; it isn't possible to raise particles this size into the atmosphere at 50 miles where the density is only 0.1% that at sea level.

I'm planning to have some enlargements made of the best photos and have them on display up at the observatory in the near future but it's always worth looking out at this time of year in the late twilight to try and glimpse this rare natural phenomenon.

References.

1) Astronomy Now, p.31 July 1991

2) Fred Schaaf, Sky & Telescope, 86(1) p.66 and 69 (1993).

3) Robert K. Soberman, Scientific American, June 1963.

A Chilly Morning with Saturn.

By J.Walsh.

It was one of those mornings in early May, the sky was clear, just turning dark blue to herald the start of another day. I had had one cup of coffee and was half way through another. The previous day I had got the telescope out of the cupboard for fear of waking up the household at this unearthly hour. Finishing my coffee I stepped outside, the early morning chill was still in the air.I could just see Saturn above the roof tops in the South Eastern sky. By now all but the brightest stars had faded, quickly I centred on to Saturn, the bright yellow of the planet contrasting well with the dark blue of the pre-dawn sky.

Saturn is a magnificent sight, rings open, but closing slowly now. They will be crossways on in 1995. Saturn is the second largest planet we know of in the Solar System at 74,560 miles (120,000 KM). It takes 29 years to orbit the Sun at a mean distance of 886,710,000 miles (1,427,000,000 KM), but only takes a little over 10½ hours to rotate once on it's axis. So far from the Sun Saturn is very cold, recent Voyager data put the temperature at Saturns cloudtops at -180°C, from these temperatures, Saturn, like Jupiter, must have an internal heat source of her own. Saturn isn't alone out there. She has the company of 23 satellites, almost a Solar System of her own. The largest, Titan is the only moon in the Solar System to have a thick atmosphere which is mainly made up of Nitrogen and other gasses similar to that of primitive Earth. Who knows! one day if the Saturnian system gets warmer there may be the beginings of life there.

With approaching daylight Saturn is getting much harder to see, already she is much paler in the telescope, almost white now, with nearly all of her yellow colour gone. I look at my watch, it is time to put the telescope away, sunrise can't be to far off now, already it is warmer. Prehaps I will get up early tomorrow to spend another chilly morning with Saturn.

PROGRAMME FOR AUGUST

DAYS &DATES	DIRECTORS	SECTION & ADDRESSES	PHONE INC. STD CODE
Mondays	from 7.30pm	GENERAL OBSERVATION SECTION	
2-9-16-23-30	Mr R Newman	, Felixstowe, IP11 9DY	
	Mr J King	, Felixstowe, IP11 9LQ	
Tuesdays	form 7.30pm	GENERAL OBSERVATION SECTION	
3-10-17-24-31	Mr R Newman	(Address above.)	(Number above)
	Mr J King	(Address above.)	(Number above)
Wednesdays	from 8.00pm	NEBULA & FAINT OBJECTS SECTION	
4-11-18-25	Mr M Cook	Ipswich, IP4 5PZ	
	Mr D Payne	, Wickham Market, IP13 0SD	
Thursdays	from 7.30pm	OBSERVATORY VISITS FROM OUTSIDE GROUPS	
5- 12-19-26	Mr P Richards	, Nacton, Ipswich, IP10 0HS	
	Mr G Marriott	, Ipswich, IP4 4JB	
Fridays	from 7.30pm (may be postponed to Saturday)	PLANETARY & LUNAR SECTION	
6-13-20-27	Mr P Richards	(Address above.)	(Number above)
	Mr R A Lobbett	, Felixstowe, IP11 8UJ	
	Mr G Marriott	(Address above.)	(Number above)

All members are welcome to come but, on nights other than Wednesdays please check with directors that the observatory will be open. Directors will also be able to tell you if a group visit is taking place. All of the sections observe anything of interest but the title of each section suggests a popular subject.

Lectures and other events:

1993 COMMITTEE

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