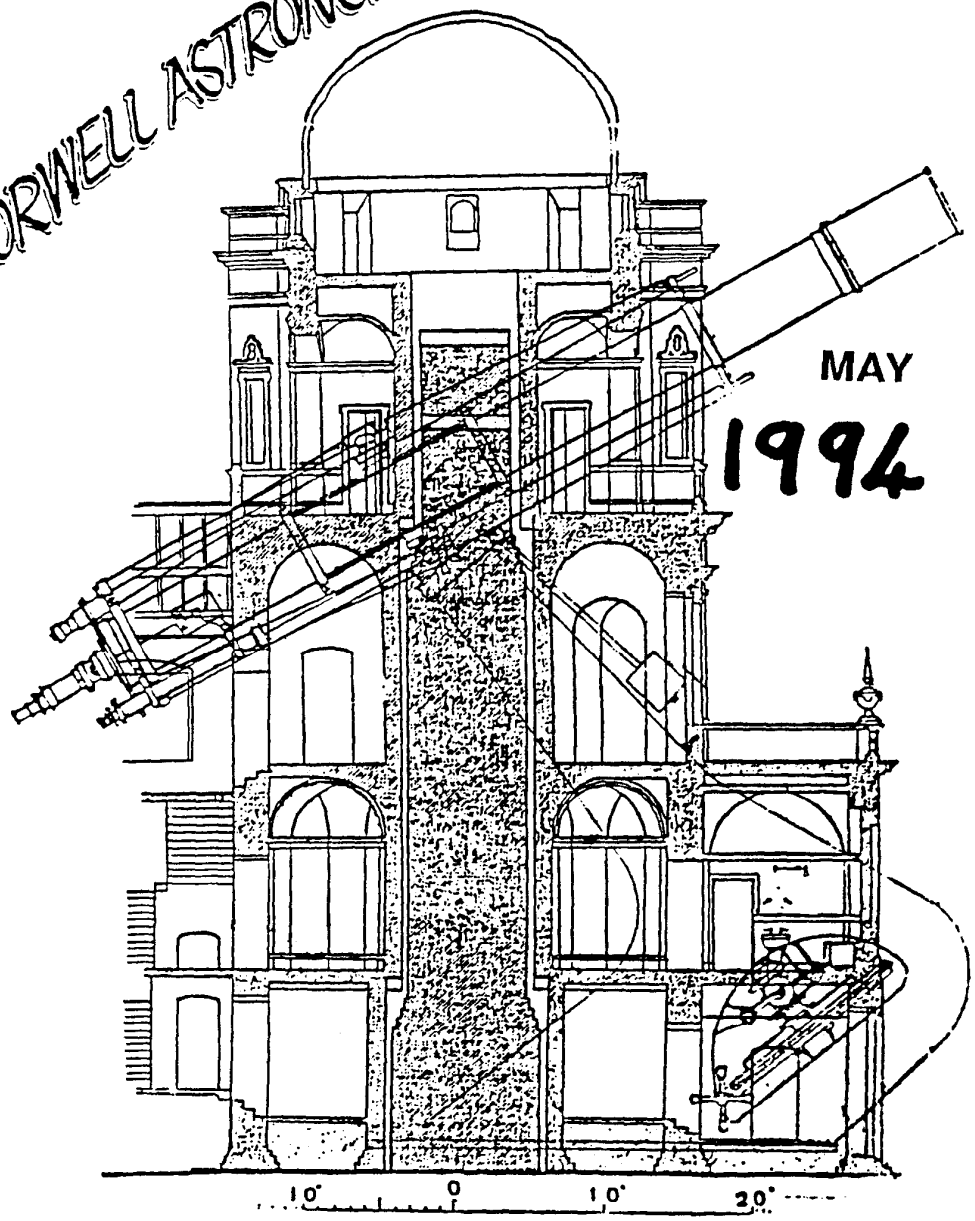
ORWELL ASTRONOMICAL SOCIETY IPSWICH



SOCIETY NEWS

1 Committee Meeting

The next committee meeting will be on Saturday 21st May, from 7.30. As usual this is an open meeting and any member is welcome to attend.

2 May's Lecture Meeting

The next lecture meeting will be held on Friday 6th May at 8.00 pm, at the Friends Meeting House Fonnereau Road.

Mr. Ron Mcarthur will give a talk on Radio Astronomy

Trip to Greenwich
Saturday 11th June

Any one who would like to come on this excursion please contact Roy Gooding

NEW MEMBER

Congratulations and best wishes to Martin And Judith Cook on the birth of a son Patrick.

3 List of Events For 1994

i) Lecture Meeting Fonnereau Road.
Mr.Ron Mcarthur Talk on Radio Astronomy 6-5-94
ii) Oxford Weekend 13-5-94
iii) Trip to Greenwich 11-6-94
iv) Parents Day 18-6-94
v) FAS Convention Cambridge 24-9-94
vi) The annual Open Weekend will be held in the autumn to coincide with the BBC's Astronomy series. Dates are not yet known.
vii) Bury Star Party. We have been asked to help organise a star party as part of the Bury St Edmunds Time & Motion Festival.
Probable date Saturday 10-12-94
vii) Christmas meal. Sometime in December 14-12-94

4 Open University TV Programmes

The Open University is running an astronomy course this year, and BBC2 will be showing a series of programmes for this:-

	BBC2 08.45 1st showing Sunday	BBC2 24.00 Repeat Thursday	
TV4	22-5-94	26-5-94	Venus Unveiled
TV5	19-6-94	23-6-94	Design for an Alien World
TV6	17-7-94	21-7-94	Mapping the Milky Way
TV7	14-8-94	18-8-94	Jets & Black Holes
TV8	11-9-94	15-9-94	Cosmology on Trial

NIGHT SKY

All times GMT

SUN

Rises approximately at 04.30 to 03.44
Sets approximately at 19.26 to 20.11

MOON

2nd **10th** **18th** **25th**

MERCURY Mercury will be easily seen in the evening sky during the last two weeks of the month. Greatest eastern elongation on the 30th (23°). Mag -1 in mid month and 0.7 on the 30th.

VENUS Venus will be visible in the western sky after sunset. It will be setting about 22.30 at the end of the month. Mag. -4

MARS Mars will be to close to the sun this month, and will be difficult to observe this month.

JUPITER Jupiter will be visible most of the night. It sets at about 03.00 at the end of the month. Mag. -2.5.

SATURN Saturn will in visible in the morning sky, rising at about 03.00 at the beginning of the month. Mag 1.0.

URANUS & Neptune Both planets are in Sagittarius. Uranus rises at about 00.10 in mid month, and Neptune rises a few minutes earlier.

A partial eclipse of the sun will be visible on the 10th. The eclipse starts at about 17.31 and can be followed until sunset.

R.Gooding

Astronomical Imaging at Keele University by Mike Harlow

Imaging in astronomy is currently undergoing a revolution and the weekend course held at Keele University on 16th-17th April revealed some of the exciting possibilities open to amateurs today. The course was run be the university centre for adult and continuing education and enthusiastically lead by Dr. Tim Naylor who is a staff member in the physics department.
I arrived on the Friday which meant that I could take advantage of the clear skies and visit the university observatory. The observatory has two domes one of which houses the 12" refractor dating from the 1870's which was originally at Oxford until the 1960's. This telescope is mostly used as a guide telescope for the 17" Newtonian reflector bolted to the side of it! The other dome houses the 24" reflector which is now used for CCD imaging using an ST-6 camera. The telescope sits in the dome while the CCD and drive control computers are in a room below the dome floor. A BBC computer controls the positioning of the telescope and a 286 PC runs the CCD camera.

It was not a terribly good night for astronomy with patchy cloud and the orange glow from Stoke-on-Trent over much of the sky. In spite of this however M66 in Leo was imaged with the 24" + CCD with remarkable detail. Internal structure and the distorted spiral arms were well seen in only 15 seconds. Indeed, with this instrument 17th magnitude stars are visible in only 10 seconds!

The following morning the course was kicked-off by Tim Naylor who introduced the first speaker, Alex Coburn, to the 60 attendees.

Alex Coburn and Steve Hale have between them developed the 'Hale' camera which is a CCD camera system based on a 512 x 512 pixel chip which is about twice the area of the next biggest amateur CCD. But more of the camera itself later. Alex Coburn gave the first talk about the theory and practice of CCD cameras, from the structure of the silicon chip to images taken with the Hale camera, in a highly technical presentation.

The second talk was a good antidote to the first 'high tech' talk. Lee McDonald was invited to the course to present the possibilities available to amateurs with 'low tech' (and hence low cost) equipment. Lee uses 4" and 8.5" Dobsonians and a 60mm refractor. The refractor is ideal for solar projection and Lee makes high quality drawing of sunspots as well as recording sunspot numbers which he submits to the BAA.

Lee's objectives was to show that you do not have to have large expensive telescope to do valuable work. The key is using the equipment you have, whatever it may be.

It was back to the technical stuff for the next talk with Tim Naylor talking about the details of using CCD cameras and how to get the most out of them. The conclusion was that you need good seeing conditions and dark skies!! not too surprising really, but there are also subtleties like matching pixel size to size of seeing disc and minimising dark currents (by cooling the chip) with respect to sky background signal.

He has calculated that the faintest stars visible with the Keele 24" reflector + ST-6 CCD would be magnitude 21!

The final talk on Saturday was by Alex Whittle, a student at Keele, who is looking at ways of achieving diffraction limited images by applying techniques very similar to those used by radio astronomers. His method involves masking off most of the telescope mirror leaving relatively small circular apertures and the examining the interference pattern in the image. I must admit it didn't sound very practical to me.

That finished the talks for the day but the best was yet to come. The clouds melted away so once again the observatories were open for business.

The first sight was the crescent Moon through the 12" refractor in twilight--a lovely sight. After dark the Hale CCD camera was attached to the 17" Newtonian--with stunning results. M51 was imaged with a 60 second exposure. M51 is being intensively studied at the moment because of the supernova visible close to its nucleus. The supernova was easily picked out with the Hale camera which with its 512x512 chip has both a wide field of view and high resolution. This particular version was controlled from a Macintosh with software written by Alex Coburn. The system is excellent and is very easy to use with pull down menus and full mouse operation. (If you are tempted to buy one they are between £2500 and £2800).

Next morning an overhead had been prepared from the CCD image of M51 so that everyone could see the galaxy in all its glory along with the supernova which was then about magnitude 13.

An excellent talk by John Brough kicked-off the Sunday morning session. A quick show of hands revealed that 10 of the 60 attendees had made at least one mirror but John's talk had something for everyone and was very well presented. John is a member of Birmingham AS and has made many mirrors for members although there is also an active TM group within the society. A practical demonstration of the Foucault and Ronchi tests was set up at the end of the talk using a video camera and monitor enabling everyone to see what was involved in testing a mirror.

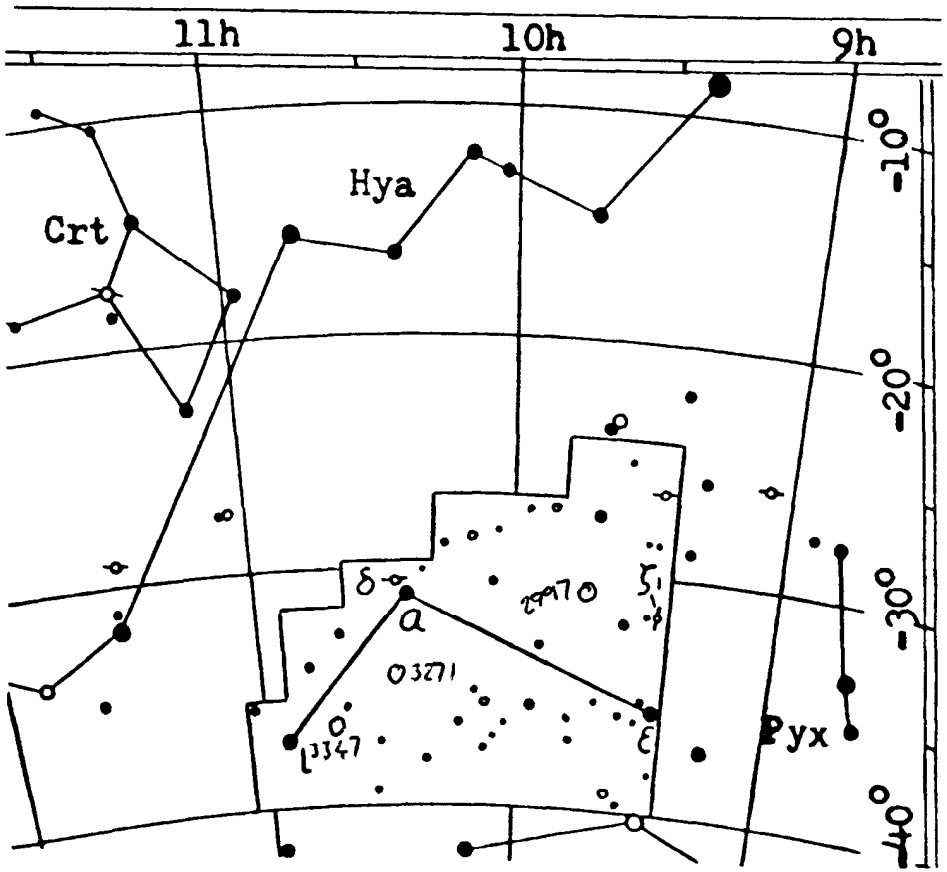
The last talk I attended before starting for home was by Steve Finney, another active member of Keele University observatory, who showed some of his results using conventional photography. Steve also described some advanced techniques like hypersensitising and litho printing to bring the most out the film.

Overall the weekend was extremely interesting and some of the images acquired were truly stunning, and almost unbelievable given the sky conditions. CCD's are certainly going to open up amateur astronomy at a time when visual observing of faint objects is becoming increasingly difficult because of light pollution. The weekend illustrated one interesting point: At times there were up to 10 people looking at the computer screen at a detailed image of a distant galaxy which would have been barely visible visually through the same telescope to just a single observer. Looking at images on a computer screen may not be 'observing' in the traditional sense but its still a real image of a real object and its accessible to many more people.

ANTLIA

Antlia has no bright stars (Alpha (α) is only Mag 4-25) and occupies a fairly empty area. There are a few double stars in its boundaries, the most prominent being Delta (δ), a slow binary it consists of two stars of 5th and 8th mag. There is one easily observed galaxy N.G.C. 2997 which is an impressive spiral. There are two other fainter galaxies N.G.C. 3271 and N.G.C. 3347 at mags 11-7 and 12-5.

ANTLIA



Double Stars

Pos.	l	m	2	D	d"	P A	No.
092726	5.7	-14.	d		4.1	178	113
2831	7.2	-6.3	b		8.2	212	ζ
102730	5.6	-9.3	b		11.0	225	δ

PROGRAMME FOR MAY

DAYS &DATES	DIRECTORS	SECTION & ADDRESSES	PHONE INC. STD CODE
Mondays	from 7.30pm	GENERAL OBSERVATION SECTION	
2-9-16 23-30	Mr J King	[redacted], Felixstowe, IP11 9LQ	[redacted]
Tuesdays	form 7.30pm	GENERAL OBSERVATION SECTION	
3-10-17 24-31	Mr D Barnard	[redacted] IP3 8RN	
	Mr J King	(Address above.)	(Number above)
Wednesdays	from 8.00pm	NEBULA & FAINT OBJECTS SECTION	
4-11-18 25	Mr M Cook	[redacted], Ipswich, IP4 5PZ	[redacted]
	Mr D Payne	[redacted] Wickham Market, IP13 0SD	
Thursdays	from 7.30pm	OBSERVATORY VISITS FROM OUTSIDE GROUPS	
5-12-19 26	Mr P Richards	[redacted], Nacton, Ipswich, IP10 0HS	[redacted]
Fridays	from 7.30pm (may be postponed to Saturday)	PLANETARY & LUNAR SECTION	
6-13-20 27	Mr P Richards	(Address above.)	(Number above)
	Mr G Marriott	[redacted] Ipswich IP4 4JB	

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: **Lecture at the Friends Meeting House on Friday the 6th of May at 8-00pm.The more people that turn up the better.**

COMMITTEE MEETING

The next committee meeting is to be held at the observatory on Saturday 21st of May. As usual this is an open meeting and all members are welcome to attend.

1994 COMMITTEE

			Home Phone:	Work Phone:
CHAIRMAN	D Payne	(Address above)	[redacted]	
MEMBERSHIP RENEWALS	M.Cook	(Address above)		
MEMBERSHIP SECRETARY	R.Gooding			
SECRETARY	R Gooding	[redacted], Ipswich, IP1 6AE		
TREASURER	M Nicholls	[redacted], Capel St Mary, Ipswich, IP9 2EX		
MAINTENANCE CO-ORD	M Cook	(Address above)		
JOURNAL CO-ORDINATOR	E Sims	[redacted], Ipswich, IP1 4HA		
PUBLICITY & VISIT CO-ORD	P Richards	(Address above)		
EQUIPMENT CURATOR	M.Harlow	[redacted] Trimley [redacted]		
SPECIAL EVENTS CO-ORD	P.Richards			
LIBRARIAN &COMP SOFTWARE	J.Appleton	[redacted] Ipswich IP3 0QJ [redacted]		