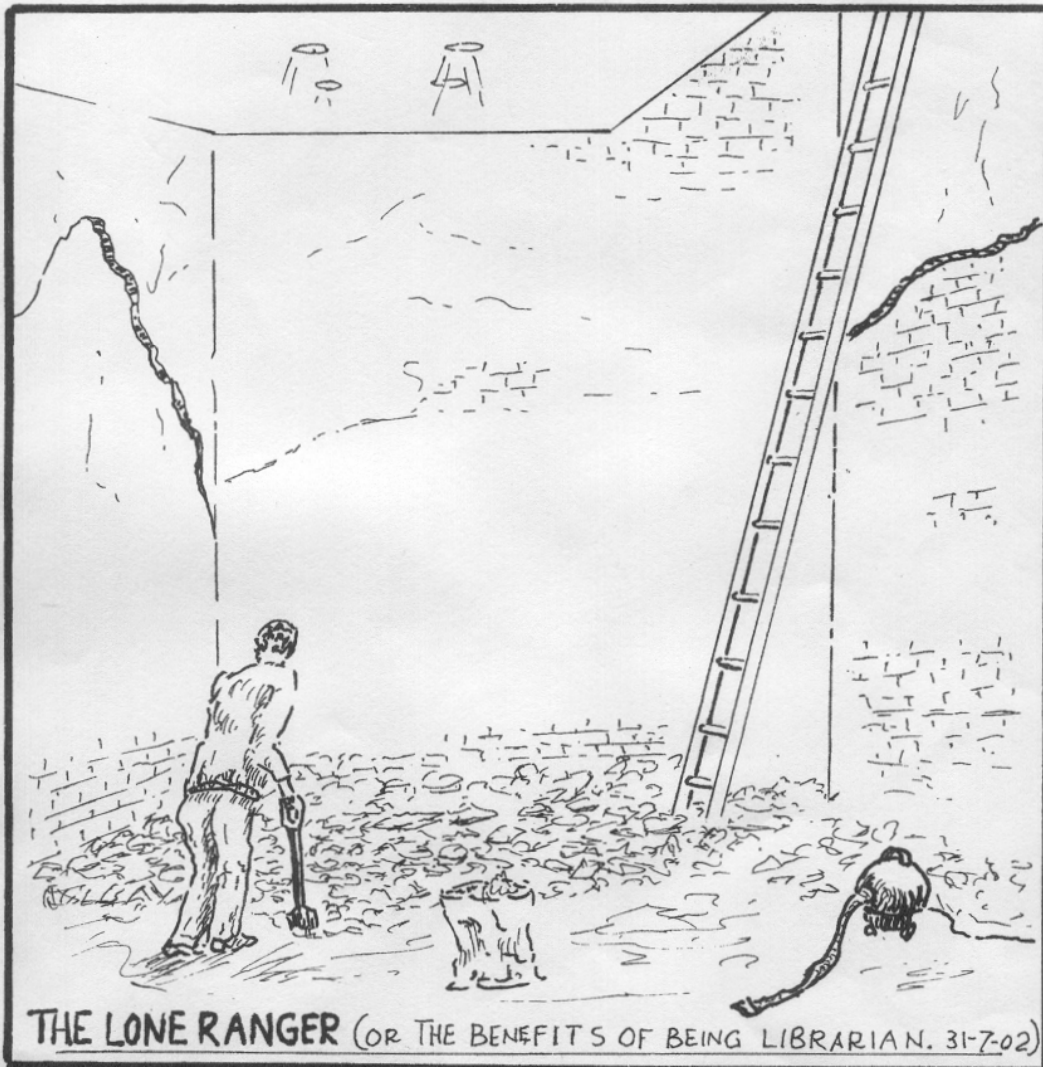


ORWELL ASTRONOMICAL

SOCIETY IPSWICH

Charity No 271313

OCTOBER 2002



Society News

Open Weekend !!!



As much help as possible will be required for this year's event to run smoothly. If you are able to help, please contact any committee member, so that your name can be added to the rota.

Dates:- Saturday 9th November from 17:00 to 22:00
Sunday 10th November from 17:00 to 22:00

1 Next Committee Meeting

The next committee meeting will be held on Saturday 26th October at 19:30 in the clubroom. This is an open meeting and any one who is interested is invited to attend.

2 Events for 2002

Event	Details	Date
Astronomy Workshop	Gravity the Basic Force Presented by Pete Richards	Wednesday 2 nd October
Lecture Meeting Friend's Meeting House, Fonnereau Road	Nik Szymanek: Imaging the Universe	Friday 18 th October 20:00
FAS Convention	Lecture Theatre 1 in the Ken Edwards Building, University of Leicester	Saturday 19 th October
Astronomy Workshop	Constellation Close Up Presented by James Appleton	Wednesday 13 th November
Open Weekend	Members help will be needed again this year, to prepare the displays.	Saturday 9 th and Sunday 10 th November
Lecture Meeting Friend's Meeting House, Fonnereau Road	Members Meeting Titled Size Matters Large Telescopes Old and New Ken Goward: The Birr Observatory Neil Morley: The Millennium Telescope	Friday 15 th November 20:00 start
Astronomy Workshop	Inside the Sun Presented by Mike Whybray	Wednesday 4 th December
Christmas Meal	Provisional date	11 th December

Events for 2003

Astronomy Workshop	Collimation of Telescope Optics Presenter St John Robinson	Wednesday 8 th January
Astronomy Workshop	Transit Telescopes Presented by Bill Barton	Wednesday 5 th February
Astronomy Workshop	Hertsprung Russell Star Sequences Presented by Paddy O'Sullivan	Wednesday 5 th March
First Presidential Lecture	Dr. Allan Chapman The Victorian Amateur Tradition At Orwell Park School	Friday 7th March 2003
Astronomy Workshop	Comets, Asteroids and Impacts Presented by Richard Lyzinski	Wednesday 2 nd April
Astronomy Workshop	Radio Propagation Presented by Paul Whiting	Wednesday 7 th May

3 Request for Photographs

The first Public Open day the OASI staged as held in 1972. I am provisionally planning a "30 years of Public Open Days" Exhibition for the Open Weekend in November. If any one has any photographs of old Open Days in the 1970's 1980's and 1990's I (Roy Gooding) would like to borrow them, in order make copies.

4 Society Lecture Co-ordinator Vacancy

The job of organising a society Lecture programme has arisen. If you would like to fill this job, please contact any committee member.

Night Sky (October)

All times GMT

Sun

The sun will be rising approximately between 06:10 and 07:00

The sun will be setting approximately between 17:50 and 16:30

Moon

New Moon	1st Quarter	Full Moon	3rd Quarter
6 th	13 th	21 st	29 th

Mercury Mercury is at greatest western elongation on the 13th. In mid month Mercury will be rising about 2 hours before the sun. By the end of the month it will at magnitude -1.0, in the early morning twilight.

Venus Venus will be at inferior conjunction on the 31st

Mars Mars will be rising at about 04:00 towards the end of the month. Magnitude 1.8.

Jupiter Jupiter moves back into the evening sky this month, rising at about 23:00 at the end of the month. Magnitude -2.0.

Saturn Saturn will be rising at about 20:00 in mid month. Magnitude 0.0.

Uranus Uranus will be rising at about 01:00 in mid month. Magnitude 5.7

Neptune Neptune will be rising at about 23:30 in mid month. Magnitude 7.8

Meteor Showers

Shower	Maximum	Limits	ZHR
Piscids	October 13 th	September to October	?
Orionids	October 20 th	October 16 th - 27 th	25

Meteor source is the BAA Handbook

OCCULTATIONS DURING OCTOBER

The table lists stellar occultations which occur during the month under favourable circumstances. The data relates to Orwell Park Observatory, but will be similar at nearby locations.

D / R	Date & Time (UT)	Lunar Phase	Sun Alt (°)	Star Alt (°)	Min Dist rad	Star	Mag
D	15 Oct 18:07	0.74+	-11	14	0.59N	ZC 3178	6.2
D	18 Oct 18:38	0.94+	-17	17	0.03S	30 Psc	4.4
D	18 Oct 21:08	0.95+	-38	31	0.82S	33 Psc	4.6

James Appleton

Millennium Telescope Update

Mirror specifications

Primary mirror (Pyrex)

Diameter:	482mm	18.98"
Edge thickness:	38mm	1.496"
Focal length:	2165mm	85.24"
Focal ratio:	F/4.5	

Secondary mirror (plate glass)

Major axis:	150mm	5.91"
Minor axis:	106mm	4.17"
Thickness:	14.5mm	0.57"

Second Open Meeting, 10th July 2002, School Science Room

Requirements, design goals and some further design examples were presented and discussed, the output of which is as follows:

1. The telescope must be portable implying de-mountable and easily assembled. When disassembled, it should fit in a small to medium sized hatchback e.g. Golf or Focus so it can be transported to an alternative location. All de-mountable components should be capable of unaided lifting and manoeuvring by two reasonably fit people. This imposes an upper limit of around 27 kg or 60 lb. per component. Suitable handholds and/or supports required for lifting heavier components, e.g. mirror cell assembly.
2. The suggested storage area at the observatory is the area located at the bottom of the dome steps.
3. It was thought more likely the telescope would be used in the school grounds or transported to a dark sky location rather than being used in the dome or balcony.
4. The mirror specification is fixed so the cell must be designed to support our 19" mirror without severely degrading optical performance. Mirror protection is a primary consideration assuming the telescope will be used for Public viewing.

5. The height of the assembled telescope is primarily governed by the primary mirror's focal length. Keeping the mirror and balance point of the telescope as low to the ground as possible minimises the height of the assembled telescope expected to be of the order of 7 ft. A small ladder is required for viewing objects at or near Zenith.
6. Use of an open Serrurier Truss structure promotes rapid cooling of the primary mirror, minimises weight and is less prone to windage than a closed tube assembly. A shroud covering the tubes can be added later on if required.
7. The weight of the secondary cage needs to be kept minimal and has to allow for the heaviest eyepiece.
8. The design should allow for optical encoders and motor drives to be added at a later date.

Design and Construction Update

Several members have been meeting and discussing / progressing the design and construction of the telescope mostly on Wednesday evenings. An 18-point primary mirror cell assembly has been designed and construction has commenced. Figure 1 below shows the ladder frame used to support the mirror support bars and triangles. This measures 590 x 545 mm.

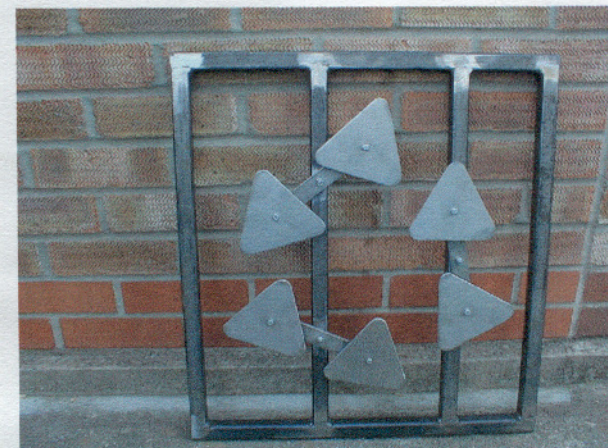


Figure 1 –Start of Mirror Cell assembly

The mirror cell was dimensioned using a combination of the Plop Drop mirror cell design software program and other design sources including Kriege and Berry. Three metal bars supporting each pair of triangles are centred on the threaded primary mirror collimating bolts. Their relative positioning within the frame has to be one of the more critical aspects of the design.

Steps required to complete the primary mirror cell include the addition of:

- 18 x support pads at the points of each triangle (Teflon or furniture gliders)
- 3 x retaining clip 120 degrees apart at the edges of the mirror to prevent it falling forwards out of the cell. These will be located on the ladder frame
- 2 x split bolts for tensioning the primary mirror sling (car safety belt!) on the edges of the ladder frame holding the lower edge of the mirror preventing it falling downwards out of the cell. Similarly located on ladder frame
- Fan(s) taken from surplus PC to cool the primary
- Mirror cover using retaining clips as support points

More information will be provided in a future update.

Thetford Star Party Update Saturday 7th September

Paddy and I had agreed this date was probably the best opportunity to meet any large telescopes and their owners. Drizzly weather in the morning prevented us setting off until just after lunchtime and we arrived at Thetford just after 2pm. Fortunately, the weather held during the afternoon and gave us an excellent opportunity to meet people setting up their telescopes for Sunday evening.

Our persistence paid off. Both of us were completely bowled over by the number of large Dobsonian telescopes present, both commercially produced and home made. We counted five telescopes in the more than 15" category. The largest was a 20" Kriege & Berry Obsession standing around 7 ft tall. My only regrets were not bringing along a camera as well as missing yet another Aurora the night before! Nevertheless, we made best use of time discussing our design with these large telescope owners which met with their approval. We found them more than willing to discuss their scopes with us sharing experiences and various design tips. One commented large Dobsonians seem to be slowly replacing electronically controlled Schmidt-Cassegrains at star party events. In general, the Dobsonians we saw at Thetford tended to adhere more to the Kriege and Berry design principles using enclosed mirror cell assemblies rather than employing ultralight designs. This

means our design is pretty much at the leading edge of Dobsonian technology as far as the UK is concerned.

Here is a summary of two designs seen at Thetford.

AstroSystems Telekit, USA

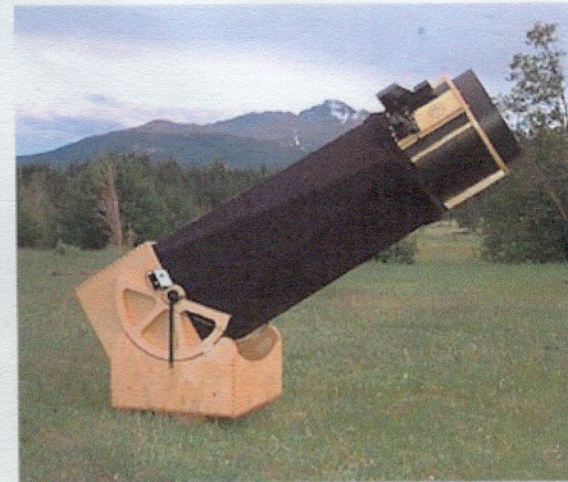


Figure 2 – AstroSystems Telekit

Commercially available scope imported as a flat packet kit from the USA requiring assembling and finishing. Made almost entirely of ApplePly. Various sizes available, we saw an 18" scope. Several interesting design features including lightweight AstroSystems Crayford focuser made of what looked like resin material. The focuser employed 4 x hex-wrench-adjustable levelling feet at its corners allowing the optical axis of the focuser to be accurately positioned during collimation.

Kriege and Berry Obsession 20"

The design has already been illustrated in previous articles. Interesting design feature was the secondary mirror used a Novak holder rather like a small cake tin with a turned in bottom edge to prevent the mirror falling out. This is intended to minimise mechanical pinching of the secondary mirror and consequent image degradation.

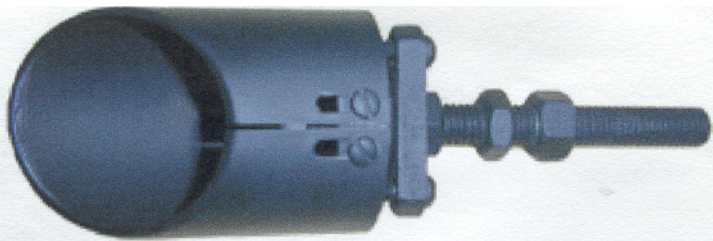


Figure 3 – Novak Secondary Holder

The owner demonstrated how the secondary cage is attached to the truss tubes using commercially available fittings. This is our current favoured attachment mechanism. Setup and takedown is a matter of seconds rather than minutes and can easily be completed by one person. The aluminium truss tubes are simply held against the edge of the tube retaining assemblies by a simple aluminium wedge and cam lever assembly. The ends of the tubes are open; no threaded inserts are required to attach the tube to the attachment assembly. Note “strings are attached” with this assembly preventing components falling onto the primary mirror.

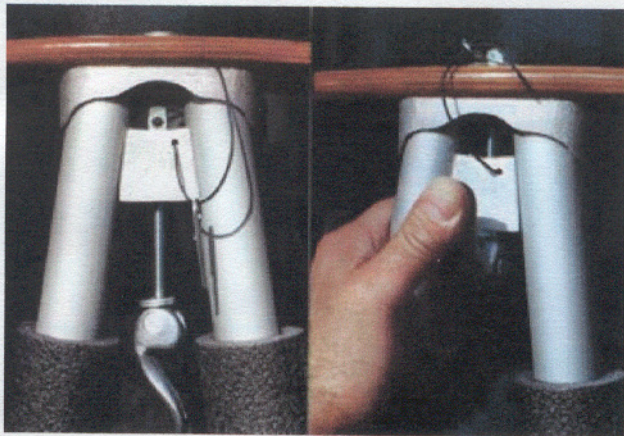


Figure 4 – Kriege & Berry Secondary Cage Attachment

Further design recommendations from Thetford

Everyone we spoke to stated it was essential to provide some form of secondary mirror heating mechanism to guard against dewing.

Ultralightweight finders such as the Kine Optics finder are recommended to minimise secondary weight and can be purchased from Beacon Hill Telescopes.

A suitable equivalent to the black “Kydex” plastic baffling material used in the USA can be purchased via Telescope House. They know of a supplier in Sussex who supplies matt-black sheeting used to make Schmidt-Cassegrain telescope dewshields.

A book on ultra-lightweight Dobsonians has recently been published and is worth investigating further. The author is John Lightholder. This will be confirmed via posting an electronic query to the “bigdob” internet discussion group. The trend towards more lightweight Dobsonians is the next evolutionary step in the design.

Additional baffling behind the primary mirror may need to be considered to avoid light interference when viewing objects at lower elevations, and if we are dedicated enough, snowy conditions!

The spider supporting our secondary mirror requires careful engineering if it is to be used with a single ring secondary cage. The pyramid spider as employed in the Greg Babcock telescope design looks suitable and should be further evaluated.

The equivalent to the electronically controlled GOTO telescope in the Dobsonian world is optical encoders with in John Dobson’s terminology “yoghurt powered” drives. Optical encoders help locate dim objects; once aligned to two alignment stars, the encoder used to manually point the telescope to the correct location. This was seen on at least two telescopes at Thetford and would be a useful design feature at a later stage.

If we are to use the telescope for public viewing, it is essential the primary mirror be covered to guard against risks such as falling objects and “kids gobbing”.

Neil Morley – 14th September 2002.

Or, we could leave the library as it is....

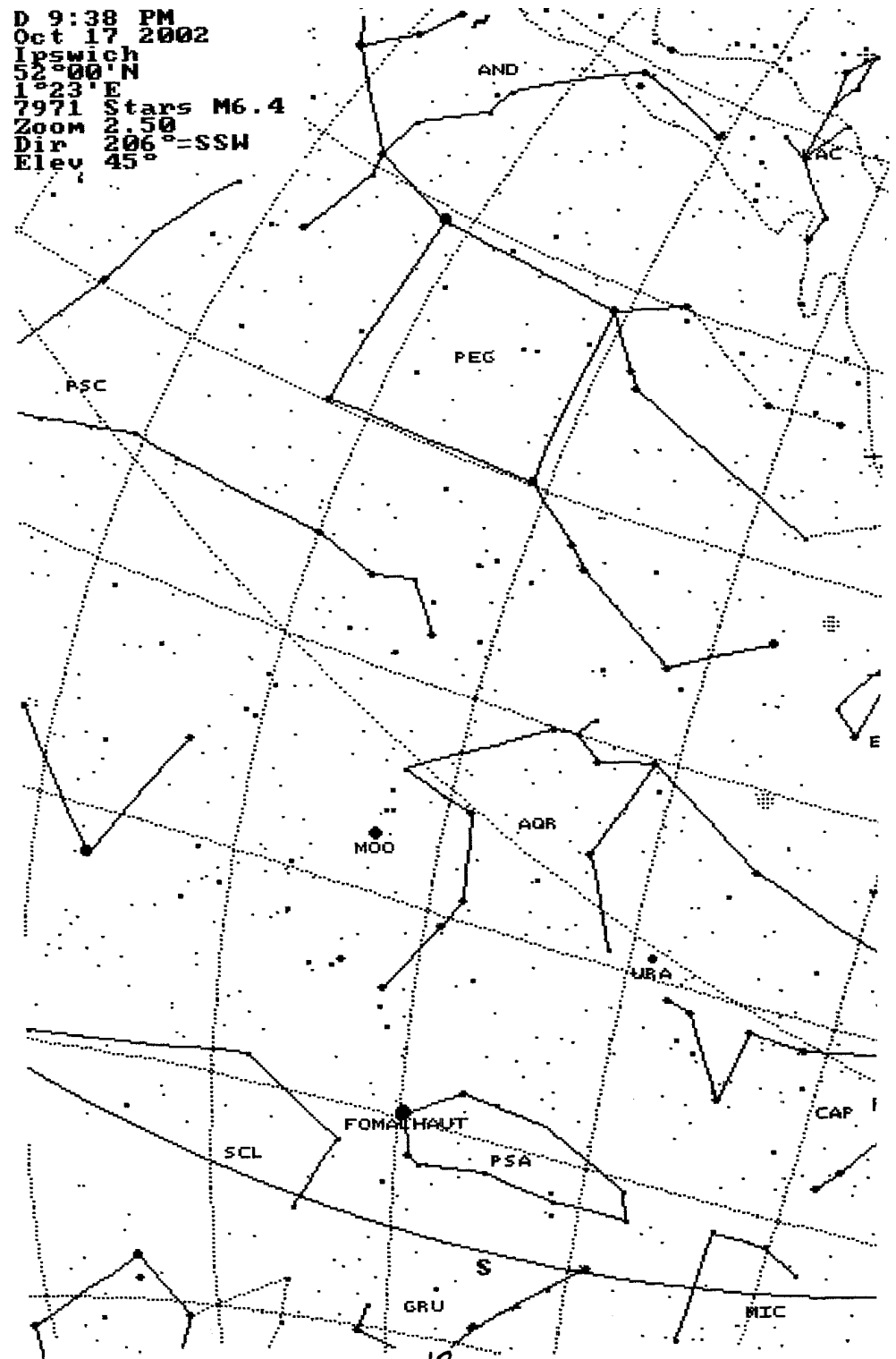


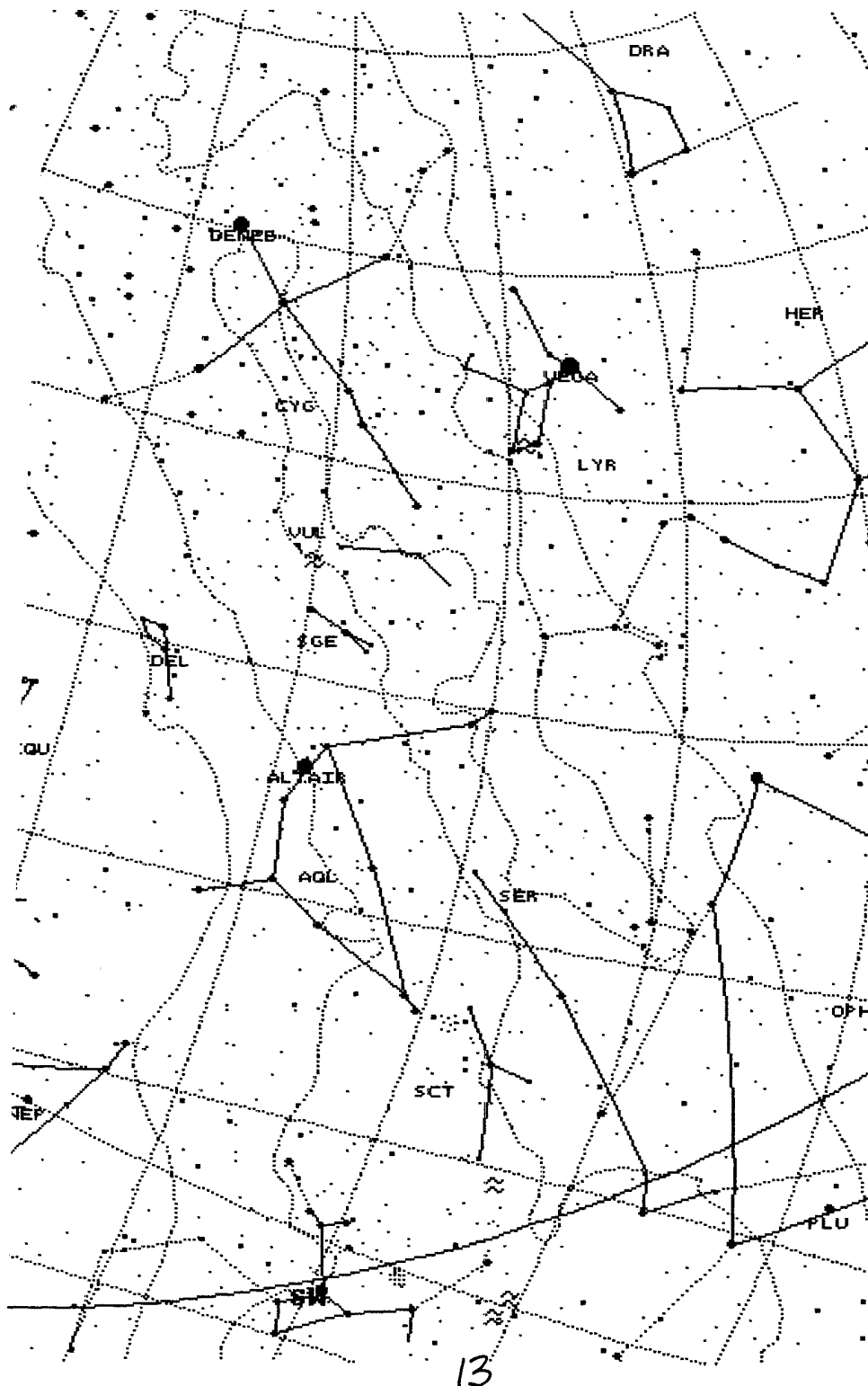
Since early 2002, OASI has been undertaking a major project to reconstruct the library at Orwell Park Observatory. The above photo shows the state of the new library at mid-July 2002. Volunteers with experience or abilities in DIY projects are needed to assist – no previous experience is necessary.

Contact Roy Gooding for further information.

James Appleton

D 9:38 PM
Oct 17 2002
Ipswich
52°00'N
1°23'E Stars M6.4
Zoom 7971 NN 50
Dir 206° =SSW
Elev 45'





ASTRONOMICAL TELESCOPES

Here are a couple of adverts received by the club from non-members upgrading/changing their equipment. The first is an SCT from one of the top manufacturers, the second is a Newtonian reflector from a manufacturer of lower cost – but still good quality instruments. If you want advice why not ask other members at the observatory on a Wednesday night.

CELESTRON G8 eight inch Schmidt Cassegrain Telescope EQ5 HD Equatorial Mount with Dual-Axis Motor Drives. Field Tripod. Star Diagonal. Polar Axis Alignment Scope. 8x30 Finder Scope. Dew Shield. 40mm, 26mm, 17mm, 12.5mm, 7.5mm and 6.3mm Celestron Plossl Eyepieces. All new September 2001 and in mint condition. Can be test driven if required. Upgrading to larger telescope. Original cost £1400. Accept £700.

Call (Dave) [REDACTED]

Helios Explorer 200, 8 inch Newtonian Telescope With: EQ5 Equatorial Mount, Single Access Drive; Polarscope; 3 Eyepieces (20mm, 10mm, 6.5mm). £425. Contact Mark on [REDACTED]

Using the TOMLINE TELESCOPE

Our showpiece, the TOMLINE telescope, is essentially a fairly simple piece of mechanical equipment. It is however, unique, irreplaceable and somewhat elderly, over 130 years old and in view of the present day insistence on safety, the OASI committee requires members wishing to operate the telescope unsupervised, to become proficient in it's use.

Any member interested in learning how to use the Tomline telescope situated in the observatory dome with a view to becoming an accredited operator complete with certificate to prove it, please add your name to the list in the observatory and/or contact Martin Cook or Garry Coleman.

2002 COMMITTEE

		Home Phone	Work Phone
CHAIRMAN	D Payne		
SECRETARY & WORK PARTY ORGANISER	R Gooding		
TREASURER & PUBLICITY	K Goward		
MECHANICS	M Cook		
NEWSLETTER CO-ORDINATOR	E Sims		
ASTRONOMY WORKSHOP	T Sampson		
VISIT CO-ORDINATOR	G Coleman		
EQUIPMENT CURATOR	J Walsh		
LIBRARIAN	M Whybray		
CO-OPTED MEMBER			
LECTURE CO-ORDINATOR & DARK SKIES	P Richards		
JOURNAL ARTICLES TO CORRESPONDENCE ADDRESS	E Sims		Ipswich Suffolk IP1 4HA
	R Gooding		OASI Secretary Ipswich Suffolk IP1 6AE
MEMBERSHIP	M. Cook		Ipswich IP4 5PZ

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Observing Programme For October

Dates	Observing Director	Activities
Monday 8th October		Small Telescopes Night
Tuesday		Nothing Booked
Wednesdays 2nd 9th 16th 23rd 30th	M Cook D Payne	Nebular & Faint Objects
Thursday 10th October - 17th October -	Woodbridge Cubs Overstoke History Group	Group Visit
Friday		Nothing Booked

All members are welcome on any night, but on nights other than Wednesday please check with the appropriate director that the observatory will be open.

Special Events

1. ASTRONOMY WORKSHOP 2nd OCTOBER

The Astronomy Workshops starts at 7.45pm on Wednesday 2nd October. The topic is " Gravity the basic force" The presenter will be Pete Richards,

2. COMMITTEE MEETING 26th NOVEMBER

The next Committee Meeting is to be held on Saturday the 26th of October at 7.30pm in the club room at the observatory. All members are welcome to attend.

3. LECTURE MEETING 18TH OCTOBER

A lecture is to be held at the Friends Meeting House in Fonnereau Road Ipswich on 18th October 2002 at 8.00pm. Admisslon free.

Society Contact Details

	Home Phone	Work Phone
Chairman	D Payne	
Secretary	R Gooding	

Contact details for the full committee are inside the back page.

e-mail queries: ipswich@ast.cam.ac.uk
 WWW address: <http://www.ast.cam.ac.uk/~ipswich/>

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