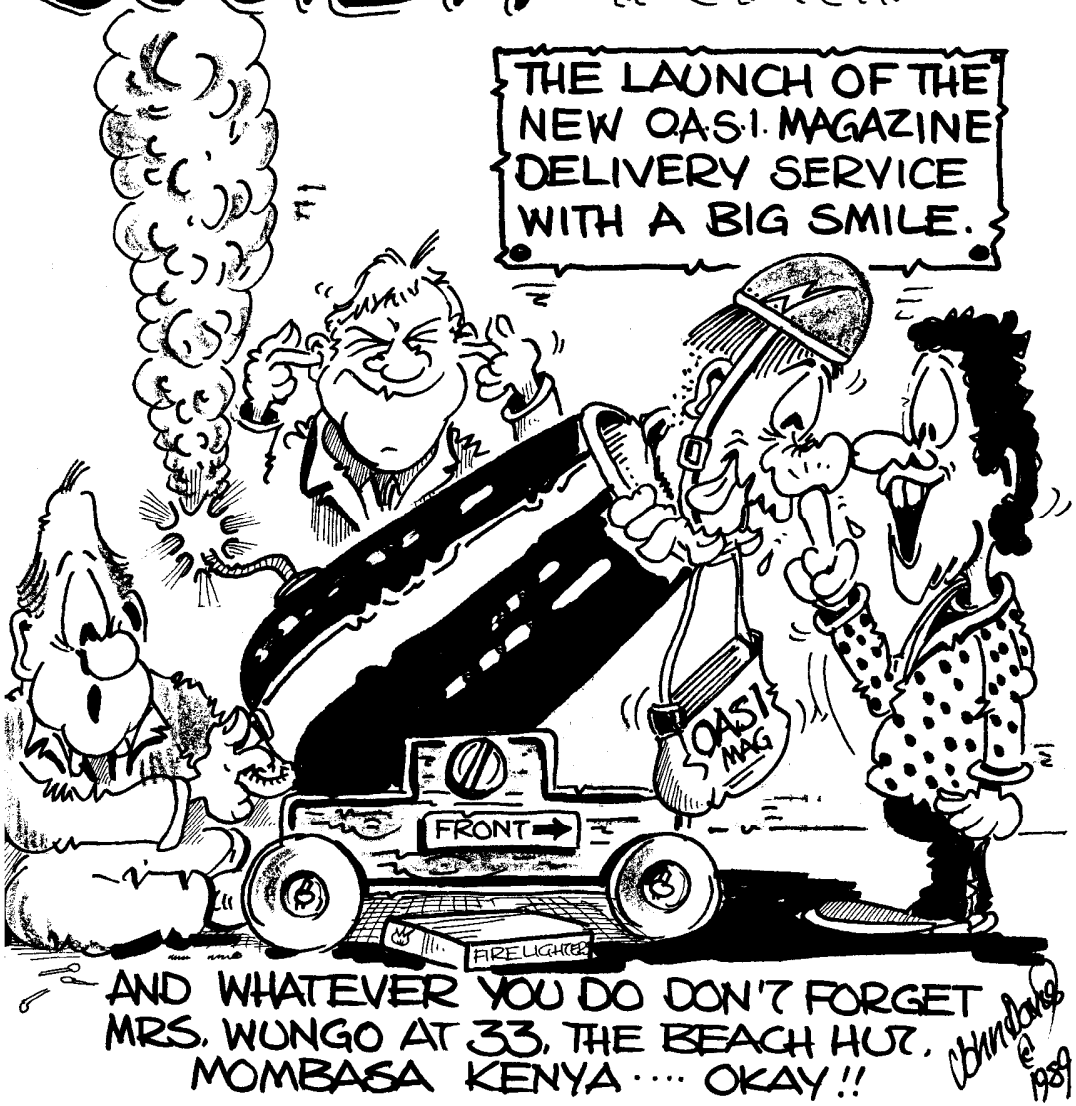
ORWELL ASTRONOMICAL SOCIETY IPSWICH

FEBRUARY 1989



SOCIETY NEWS

1 Next Committee Meeting

The next meeting will be held on Saturday 18th February at the observatory, starting at 7.30. This is open to all members.

2 1989 SUBSCRIPTIONS

The 1989 subscriptions are due on 1st January.
THE RATES FOR 1989 ARE:-

JUNIOR & OAP's	£4.50
ADULT	£7.00
FAMILY	£8.00

Plus an extra £2.00 for newsletter postage if required.

NIGHT SKY

(ALL TIMES G.M.T.)

SUN Rises approximately between 07 50 to 07.00
Sets approximately between 16.30 to 17.30

MOON

MERCURY Mercury is a morning object in February. Greatest western elongation is on the 18th (26°). In mid month it will be rising about one hour before the sun. Mag. 0

VENUS At the start of the month Venus rises about one hour before the sun, this decreases to only a few minutes at the end of the month. Mag. -3.9

MARS Mars is moving east in Aries this month, it is still observable but not as well as before Christmas. It sets after midnight. Mag. 1

JUPITER Jupiter will visible throughout the month. It will be setting at about 01.45 mid month. Mag. -2.4

SATURN Saturn is visible in the morning sky, rising before 06.00 in mid month. Mag. 0.6

URANUS Uranus is also in the morning sky. It is rises about 30 minutes before Saturn.

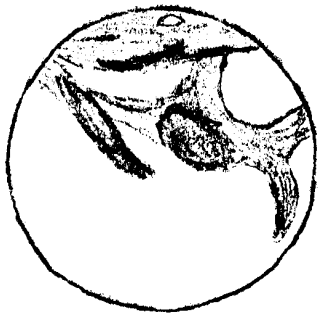
NEPTUNE Neptune is in the morning sky, located a few degrees to the east of Saturn.

R. GOODING

Further Observations of Mars

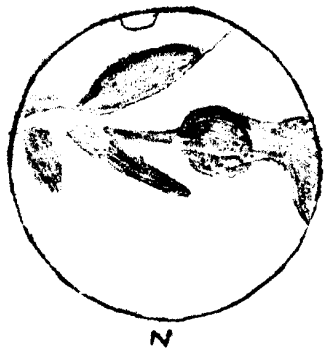
David Payne

The following are some observations of Mars made since the last article describing observations during October. The first is October 31st the evening was very clear but there was significant rapid and large scale turbulence that impeded observations. However there were occasional fairly steady periods during which a significant amount of detail was visible.



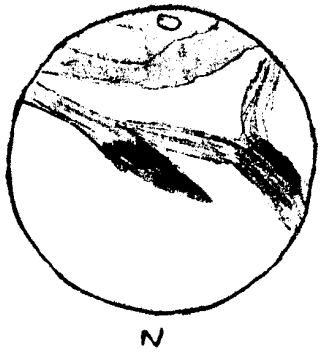
31st October 1988
10:15pm UT
10inch Reflector
150 - 280x Magnification.
Clear sky, rapid turbulence, occasional steady periods.

The next observation was on 2nd November and was made with the 10inch Orwell Refractor. Again turbulence affected observations and there were only fleeting moments of steady seeing.



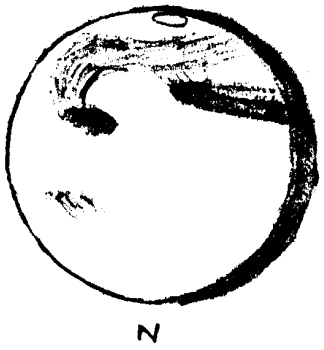
2nd November 1988
10:15 pm UT
10inch Orwell Refractor
200x Magnification
Seeing turbulent.

The 4th November was a good night with fairly steady seeing, although a slight haze was present. On this night there was a slight hint of a darker border to the north pole. This was very difficult and uncertain but was the first time that I had glimpsed any darker areas in the northern region during this opposition.



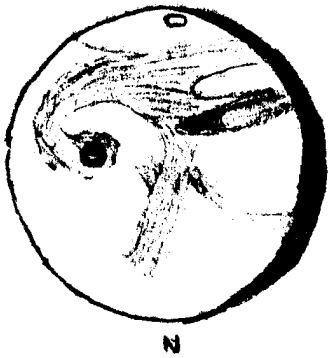
4th November 1988.
10:50pm UT.
10inch reflector.
280x Magnification.
Seeing steady with slight haze.

The next observation was delayed by poor weather until 13th November. The seeing was clear, again tubulence was affecting contrast but occasional good periods of steadness would occur.
On this occasion there was a hint of a very low contrast dusky areas in the northern hemisphere but these were difficult and uncertain. It did however suggest that there had probably been extensive dust storms in the northern hemisphere that might now be abating.



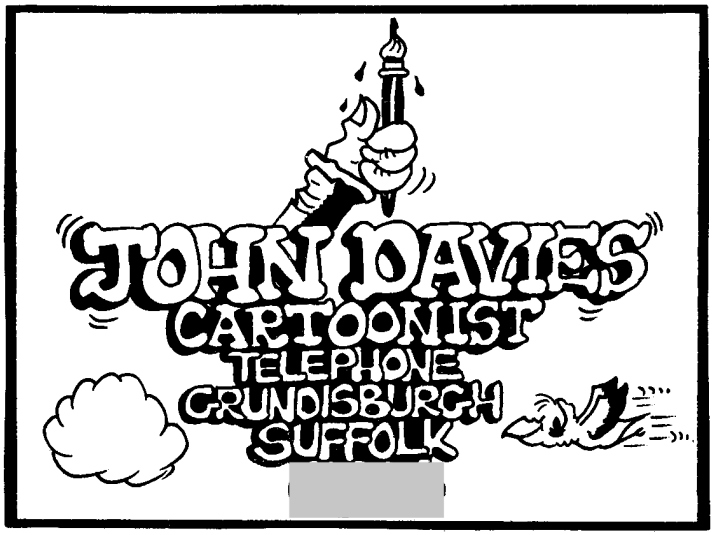
13th November 1988
9:10 pm UT
10inch Reflector
150-280x Magnification
Seeing clear some turbulence but occasional good periods.

The last observation shown was on 16th November with the Orwell 10inch refractor. The seeing was fairly good and steady and markings in the northern hemisphere could definitely be discerned although of very low contrast. By this time (and the observation on the 13th) the disk of Mars was becoming obviously gibbous.



16th November 1988
10:15pm UT
10inch Orwell Refractor
200x Magnification
Seeing fairly good and steady.

With moderate instruments it is worth continuing observations of Mars into the new year. Please send any drawings to myself or any committee member and I will include them in a future article. Alternatively write an article yourself and submit it for inclusion in the journal!



HOW TO HOOK UP TO A STAR (OR SOMETHING ELSE)

Whilst at Herstmonceux last October, Roy Adams attended the lecture by Dr. David Stickland, of the Rutherford Appleton Laboratory, about the IUE - International Ultraviolet Explorer - Satellite. It seems any serious astronomer, professional or amateur, can apply for time using this satellite.....

If the number of people in the Conference Room at Herstmonceux Castle on the 8th of October was anything to go by, the IUE certainly has been the world's most popular - and most productive - telescope. The Conference Room is much more in the nature of a large hall, and was packed so full that people in places were standing. I would say I was about the 480th out of possibly 500 people to get into the lecture, with not only feet firmly on the ground, but somewhere half-way up as well. My coat became my seat on the carpet right by the speaker, so I had no excuse for missing anything, and mine must have been the most visible hand to him later raised to ask questions. The wall behind was my seat-back, but Antony (my son) who chose a perch in the wall undoubtedly meant originally to house the bust of some bygone dignitary, and myself soon were transported well away from the physical trappings of Earth, out into the ever-ready 'skies' of geostationary orbit.

It may seem amazing, but IUE has now been up and about for twelve years. And it is still functioning, although one might say quite expectedly, now at somewhat reduced ability. When one considers the environment in which it operates, it is hardly surprising that its solar cells have become a little degraded. But apparently the Satellite is still good for a few years yet if past performance is anything to go by. The fact that the IUE started out with half a dozen stabilisers and now has only two or three, does not seem to have affected operation nearly as much as expected. It seems the complement of such equipment was well'over-designed', or that the ingenuity of controllers needs to be praised in higher volume. David said that there are plans to put into operation which will allow use of the Satellite even with one gyroset going - and tentative programmes for when there are NO stabilisers ...

The IUE has been enormously useful not only because it can operate from outside the Earth's turbulent atmosphere, bad weather conditions and atmospheric glare commonly known as daylight (and moonlight) continuously, but because its reception range of from 1 100 Å to 3 000 Å encompasses a colossal amount of information available in the higher energy bands beyond visible light. Work can therefore be done with this Satellite-mounted telescope that can not be done by Earthbound equipment, as any telescope under the Ozone Layer and immersed in the air, which contains oxygen, is deprived of most UV radiation of shorter wavelength than about 3 000 Å or 0.0003 mm. The shorter wavelengths of UV also afford greater angular resolution of anything studied for a given objective lens or mirror diameter. (Other advantages of a geostationary-hung telescope can be freedom from distortion of telescope masses by Earth gravity, and troubles caused by atmospheric attack of optics, and wind-buffetting, although in 'space' the sheltering effect of Earth's atmosphere from ultra-fast-moving particles is not present.)

The IUE uses an 18-inch diameter beryllium mirror, which has heaters around it to maintain a certain temperature throughout the mirror which is standard to keep its figure. If the mirror's temperature was not controlled in this way, it might distort enough to much impair results. Beryllium was possibly chosen for its lightness and thermal conductivity, maybe too, for its hardness. David hadn't all the info with him to answer my questions on this fully. (I know how he feels - if you had the answer to everything to hand, you'd need a pantechnichon!)

In operation as of course in standby, the delicate sensors of the camera have to be kept from pointing at the Sun or Moon, and if stars like Capella are traversed, the

optics have to be defocussed. Bright light would burn out the material of the sensors.

The most common use of the telescope is in ultraviolet spectroscopy. The rays from a chosen star pass through a spectrograph maker and can then be received down on Earth. Such spectrographic pictures after transmission can be analysed, and composition of stars therefore shown by comparison with known spectroscopic lines occurring in 'the laboratory' on Earth.

One vital piece of research achieved with this equipment was the finding which UV source disappeared in the Sanduliac supernova 1987a explosion. Novae give out a lot of high energy, UV'light'. The supreme resolution at UV wavelengths helped resolve the situation finally between the almost inseparable images of other wavelengths in the 'visible', and radio frequencies.

So if you have a research programme you would like to undertake which involves study in the UV spectrum of stars or nebulae, including objects in the deep Southern skies (yet another advantage of a telescope more remote from Earth and not bound to view only down to a certain declination) all you apparently have to do is to formulate your programme and apply to the Rutherford Appleton Laboratory for time with the IUE. Assuming you have done your prep. satisfactorily and the programme is suitable, one then goes on to apply on acceptance, for accommodation in Spain.

The normal duration of allotted time is about a fortnight. Just right for a fine 'starbusman's' holiday (or should I say, 'starbusperson's'?). David said that if you pick your time right, in relation to the position of the telescope and objects, and a concurrent user's programme does not involve studies set at a great angle in the firmament from yours, a lot of results can come through directly onto computer each night or day which still allows other things to be done. If the telescope has to be oriented through a large angle between concurrent programme pointings, a lot of time is lost in the movement - anything up to an hour each way. This is because power is limited and anyway, one cannot expect to swing the Satellite equipment round fast in the free suspension of'space'and still have the thing rock steady for several hours during observations.

The terms of agreement regarding your research are that results remain yours alone for six months after your observations are taken, then they are published.

Not having the ability from other commitments to vacate England for such research, I did not ask David who pays the cost of accommodation (or fares) or any other incidentals, but for anyone who may be able to go on this sort of half-work, half-play holiday, it seems a great idea! David said that one could arrange things so the day could start with an 0930 breakfast, spend a few hours on the observing programme, and be just right for the local evening 'hop' afterwards, and the requisite decent sleep for the next day, and so on.

Well, if my 'starship' comes home, I should be thinking more of brushing-up my Spanish dancing (and Spanish language) rather than my Latin-American and Ballroom tuition as of late. If I can cast my star-nets right. But surely David meant 'fiesta' rather than 'hop'? Or is that for when the IUE is over Brazil...?

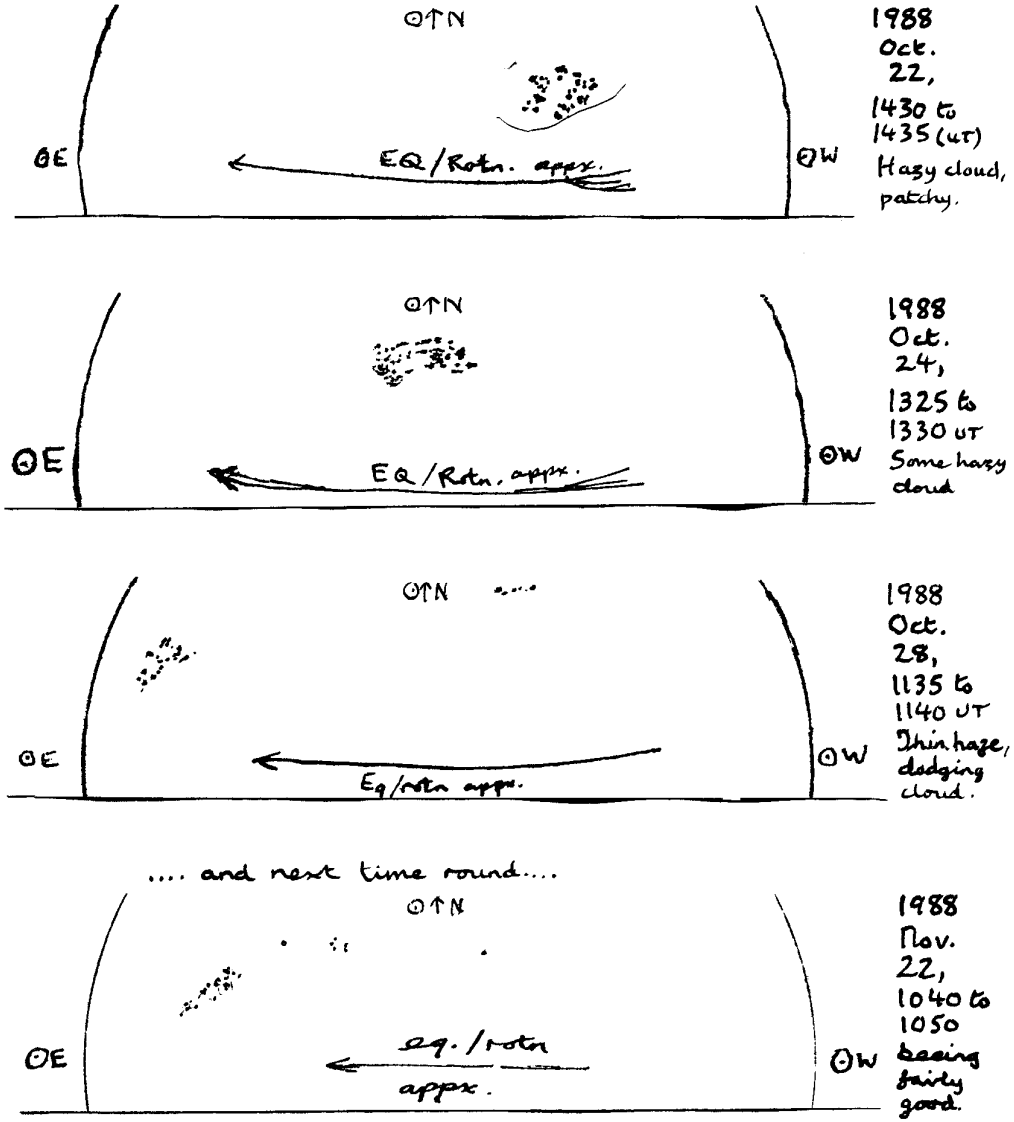
Happy Xmas (or early New Year) programming...and thank you, David, for a very absorbing lecture and slide show.

Roy Adams.

An Unusual Sunspot Group

by Roy Adams.

Hoping readers will like to see something warm around Christmas and New Year, what about these: All drawn in back projection using 2·1" o.g F17, racked 1" eyepiece and surveyor's tripod. Location, 16 Fitzwilliam Close, Ipswich. Seen'naked eye' thro' overexposed neg.



BULLITIN BOARD

CLUB LOGO CLOTHING

The order has now been placed for sweaters and sweatshirts with embroidered OASI logos for those who requested them. There will be two or three spares available for subsequent purchase. At present we have not recieved enough orders for club ties to place an order, but if you would like to order one then contact a commitee member and give the details (all requests recieved so far have been noted).

LIBRARY NEWS

A number of new books where purchased during 1988. These were :
EXPLORING THE NIGHT SKY WITH BINOCULARS (P. MOORE),
ORBITSII,
THE GUINESS BOOK OF ASTRONOMICAL FACTS AND FIGURES,
ASTRONOMY WITH YOUR PERSONAL COMPUTER,
MICROCOMPUTER CONTROL OF TELESCOPES and
THE YEARBOOK OF ASTRONOMY 1988.

Donations included several books on celestial navigation and a copy of Nortons star atlas.

A lock has been fitted to the library cabinet to improve security when the club room is left unattended by members. Keys will be distributed to directors to allow access to the library for members.

Could all library users observe a 12 week nominal limit for the duration for book loans, with a return to the library of at least two weeks. This will ensure books are not, effectively, removed from circulation.

If any member can suggest a, cheap, source of plastic book covers or a replacement book case, then let me know.

WINCHESTER WEEKEND 1988

A number of members will be going to the BAA Winchester Weekend Convention this year. Details of the event may be obtained directly from the BAA or via a commitee member.

P.R. Richards.

OASI TELESCOPE MAKING SECTION by Mike Harlow

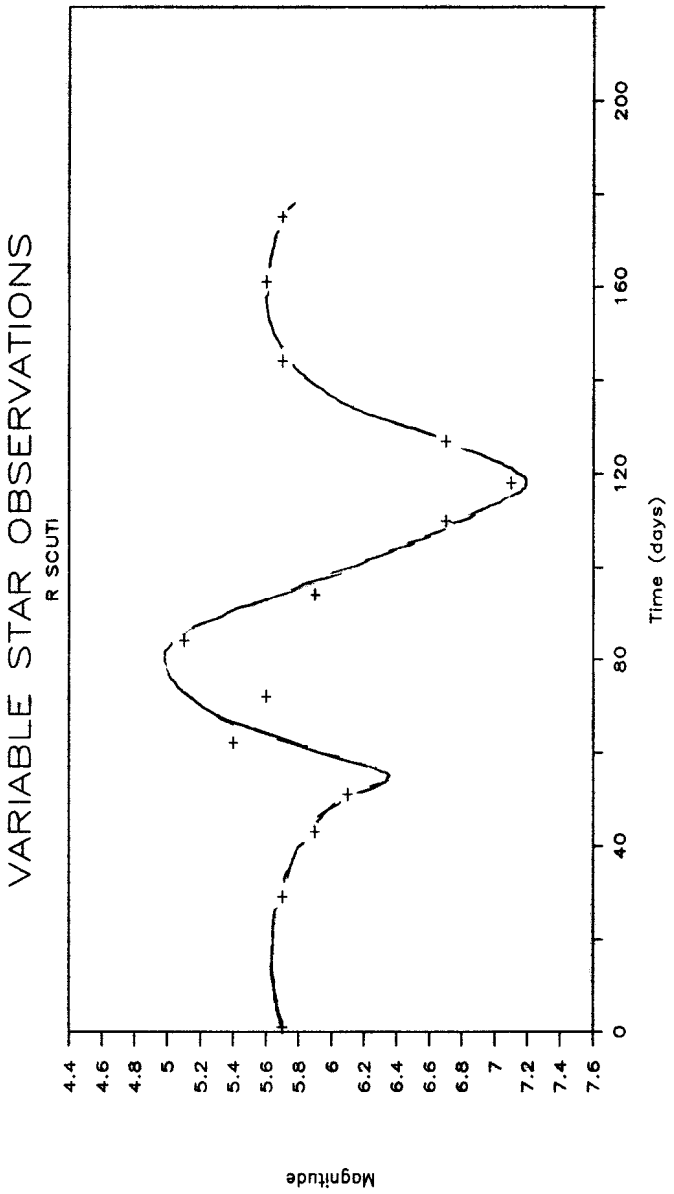
Following the lead of the British Astronomical Association which announced the formation of a telescope making (TM) section last year we decided recently to do the same within our society. TM covers quite a range of activities including mirror making, construction of mountings, tubes etc, as well as electronics for the drives and even computer control. Several members of the OASI have skills in one or more of these areas so by setting up a TM section this experience can be brought together.

Amateur Telescope Making has changed considerably since it became popular in the 1920's and 30's. At that time it was often necessary to build your own telescope because they were too expensive to buy. Now however the situation is different. Mirrors and even complete telescopes are now available relatively cheaply---so why make one?

There are two quite different reasons for building your own. The first is simply that telescope making can be very satisfying and also brings with it a deeper understanding of how telescopes work. The second, more important reason, is this. I've said that mirrors are fairly readily available at reasonable cost: Well this is true for the usual 6inch f/8 or 8.5inch f/5, for example, but anything more advanced is much more expensive. Not only this but there are some optics that can't be bought unless it's a "one-off" from a specialist company and that's really expensive. In summary then TM is not only rewarding in itself but the skills and understanding aquired making simple telescopes enable much more advanced systems to be attempted. The essential point is that it is possible to make exactly the telescope, mirror or lens that you want.

As I see it the OASI TM section should have two objectives. The first is to collect together experiences and information from those already involved in TM so that they can help each other with their projects. The second objective should be to build equipment for the observatory. Two ideas come to mind immediately: A small, portable Newtonian for use either on the balconies at the observatory or on field trips and a very low magnification Huygenian type eyepiece for the 10 inch. Other ideas would be very welcome.

Initially the TM section will meet on Wednesday evenings which is when the most members come up to the observatory. At present there isn't room for any practical sessions but, as I've said, to start with the main aim will be to exchange ideas and information. Hopefully members will write up some of their TM work to appear from time to time in the OASI newsletter. Do you have anything to contribute? If so, bring it along on a Wednesday or send it to any one of the members listed on the back page of this newsletter.



PROGRAMME FOR FEBRUARY

Mondays from 8pm — GENERAL OBSERVATION SECTION

6-13-20-27

Mr R Newman, Felixstowe IP11 9DY Tel. Fel.

Mr J King, Felixstowe IP11 9LQ Tel. Fel.

Tuesdays from 8pm — GENERAL OBSERVATION SECTION

7-14-21-28

Mr R Newman, Felixstowe IP11 9DY Tel. Fel.

Mr J King, Felixstowe IP11 9LQ Tel. Fel.

Wednesdays from 8pm — NEBULA AND FAINT OBJECTS SECTION

1-8-15-22

Mr M Cook, Ipswich IP4 5PZ Tel.

Mr D Payne, Wickham Market IP13 0SD Tel.

Fridays from 8pm — GENERAL OBSERVATION SECTION

3-10-17-24

Mr P R Richards Tel.

Mr M Harlow, Trimley IP10 0XB Tel. Fel.

All nights open to all members but on nights other than Wednesday ring directors to confirm dates. All numbers Ipswich (0473) unless otherwise indicated.

1989 COMMITTEE

CHAIRMAN	D Payne	(Address above)	Home:
VICE CHAIRMAN	D Barnard	(Address above)	Work: Home:
SECRETARY	R Gooding	, Ipswich, IP1 6AE.	Work: Home:
TREASURER	M Nicholls	, Capel St Mary, Ipswich, IP9 2EX.	Home: Work:
MAINTENANCE	M Cook	(Address above)	Home: Work:
JOURNAL CO-ORD	E Sims	, Ipswich IP1 4HA	Home:
LIBRARIAN	P Richards	(Address above)	Home: Work:
	J King	(Address above)	Home:
	A Smith	, Ipswich IP2 9ES	Home: Work: