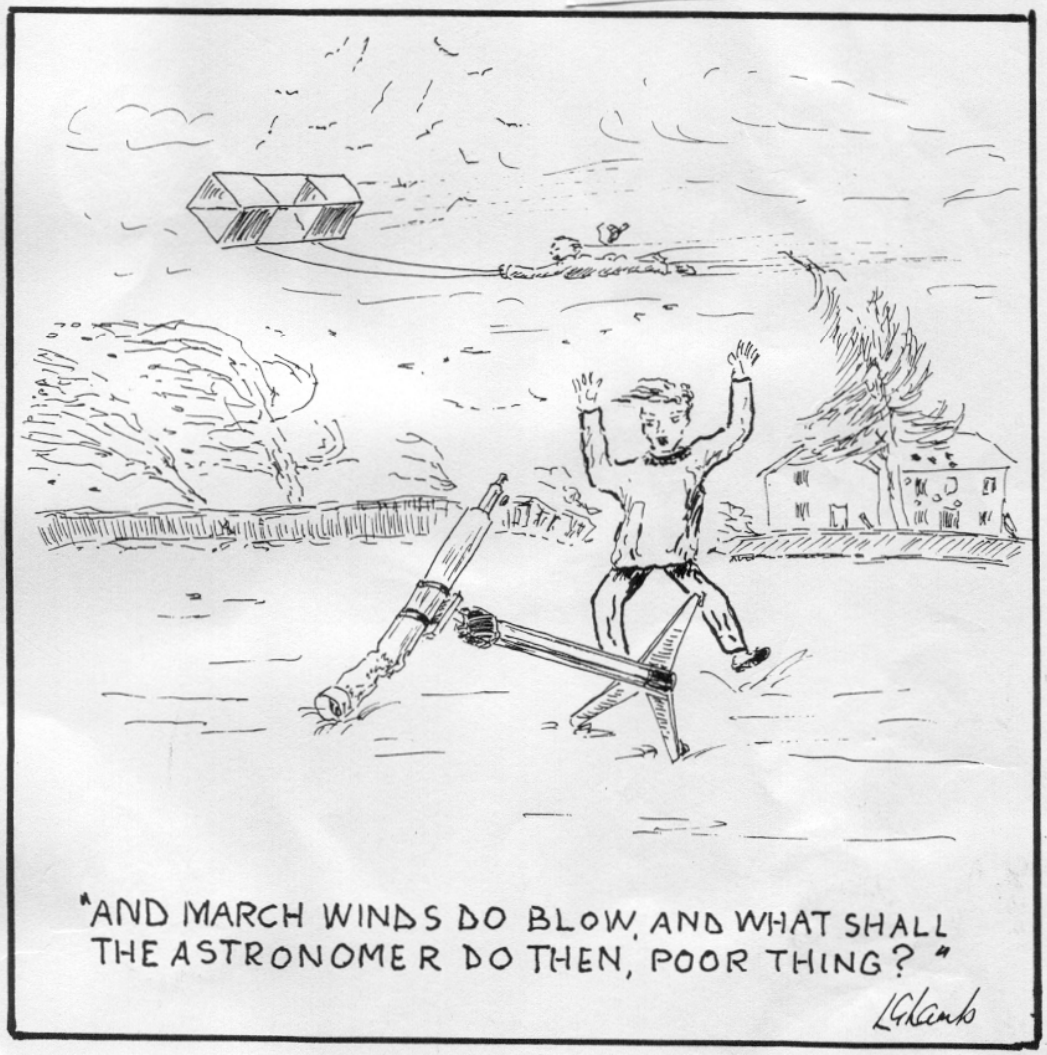
ORWELL ASTRONOMICAL SOCIETY IPSWICH

Charity No 271313

MARCH 2000



Society News

1 Next Committee Meeting

The next committee meeting will be held on Saturday 8th April from 19:30 in the clubroom. This is an open meeting and any one who is interested is invited to attend.

2 Events for 2000

Event	Details	Date
Star Tracking at Ipswich Museum	A space exploration and astronomy exhibition with lunar samples, a NASA space suit, meteorites and activities for children	12th February to 1st April Free admission Museum opening hours (Tuesdays to Saturdays)
Country Fair	This will be held at Orwell Park School	5th March
Lecture Meeting	21st century astronomy – short talks by members 20:00, Friends' Meeting House	Friday 31st March
Visit to Norwich AS observatory	To be arranged.	March /April
Visit to Cambridge AS and Braintree AS	These were proposed at the AGM	Nothing arranged yet
BAA Winchester Weekend		14th to 16th April
Lecture Meeting	Twinkle twinkle little (neutron) Star, Paul Roche National Space Science Centre This talk is entertaining as well as informative. 20:00, Friends' Meeting House	Friday 9th May
BAA Exhibition Meeting	London Guildhall University	24th June
Summer Barbecue	To be arranged	
Summer Excursion	No date fixed yet. No venue fixed yet	
Open Weekend		7th & 8th October
Equinox Star Party	Thetford Organiser; Loughton A.S	25th October
Lecture Meeting	Mars and the Amateur Astronomer, Richard McKim, Director of the BAA Mars Section.	Friday 24th November
Christmas Meal	Provisionally set for the 13th	

Country Fair Sunday 5th March from 10:00 to 16:00

We have been asked to open the observatory for this event. As with a Open day several members will required to help to show visitors the observatory. If you can help please come along.

3 Membership subscription for 2000

Subscriptions for 2000 will be due from 1st of January, for members who have not already paid. The rates for the New Year will be: -

Junior & OAP	£9.00
Adult	£13.00
Family	£15.00

A renewal form was included with the January newsletter. If you have not paid your subscription for 2000 by 31st March you will not receive April's newsletter. Please fill in the blue form that came with January's Newsletter and return to Martin Cook. If you don't have a form, please pick one up from the dome. It would be appreciated if you could return this so that the society membership records can kept up to date.

Please make cheques & P.O.'s payable to the: -

ORWELL ASTRONOMICAL SOCIETY (IPSWICH)

Please return all subscriptions to

Martin Cook
[redacted]
Ipswich
IP4 5PZ

4 Society Messaging by Email

Email accounts are now becoming widely used and your society is no exception. 25 members are now included on the society email distribution list Many messages are sent between members, relating to society activities and general discussions. If you have an email account and are not already on the society email distribution list, and would like to be, please email either Pete Richard or myself.

[redacted] or [redacted]

5 Monthly Astronomy Magazine Programme (FinalFrontier)

I found out about this programme at Astrofest. This is a monthly BBC2 series about astronomy and space exploration. It is presented by Alexandra Barnett from the National Space Science Centre. Next transmission dates are: -

March	Time	April	Time
Friday 3rd	00:30	Friday 7th	00:30
Sunday 5th	08:00	Sunday 9th	08:00
Friday 10th	no time set	Friday 14th	no time set

The Web URL is http://www.open2.net.finalfrontier
I have not seen this advertised, as it is fitted into the Open University programme schedules.

Night Sky

All times GMT

Sun

The sun will be rising approximately between 06:50 to 05:40
The sun will be setting approximately between 17:30 to 18:30

Moon

New Moon	1st Quarter	Full Moon	3rd Quarter
6th	13th	20th	28th

Mercury Mercury will be inferior conjunction on the 1st this month. It moves back into the morning sky, reaching greatest western elongation on the 28th at 28°.

Venus Venus remains in the morning sky, but is to close to the sun to be seen this month.

Mars Mars will be it will be setting at about 21:00 at the end of the month. Magnitude.1.4

Jupiter Jupiter will also be setting by 21:00 at the end of the month. Magnitude –2.1.

Saturn Saturn remains visible in the early evening sky this month. It will be setting around 21:30 at the end of the month. Magnitude 0.3

Uranus Uranus will be rising at about 04:00 by the end of the month.

Neptune Neptune will be rising at about 03:30 at the end of the month.

Roy Gooding

OCCULTATIONS DURING MARCH 2000

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 or R	Date & Time (UT)	Lunar Phase	Sun Alt (°)	Star Alt (°)	Min Dist (rad)	Star	Mag
D	10 Mar 21:07	0.23+	-29	16	0.81S	ZC 462	6.0
R	21:41	0.24+	-33	11			
D	12 Mar 22:16	0.45+	-36	27	0.02S	104 Tau	4.9
R	23:15	0.46+	-40	18			
D	13 Mar 20:28	0.56+	-23	51	0.27S	chi 2 Ori	4.6
R	21:35	0.57+	-32	42			
D	14 Mar 19:49	0.67+	-18	58	0.11N	zeta Gem	4.0
R	21:02	0.68+	-28	54			

James Appleton

Society Telescope Training

The OASI's main asset is the fine 10" refracting telescope mounted in the equatorial room. This instrument is suitable for the usual range of amateur activities and in the hands of a skilled user is also capable of serious astronomical work.

Several members of the society have recently expressed an interest in using the 10" refractor. Have you ever wanted to become proficient in its use and qualified to use it, but not known how? If your answer is yes, then please read on - this could be the opportunity that you need……..

At its last meeting, the committee discussed proposals to encourage use of the telescope and to provide the necessary training to interested members of the Society: the benefits would be to the individual members and also to the Society as a whole. After much debate (!!) the committee agreed the following approach:

- The committee and members already qualified in the use of the telescope will assist unqualified members to become qualified through informal training, guidance and encouragement. The committee will post a list of currently qualified members on the notice board in the clubroom.
- A member who is interested in becoming qualified to use the telescope should approach any member of the committee. The committee will identify qualified members to provide training and guidance to the interested member.
- Training will be largely informal, and will include safety matters and familiarisation with the dome and telescope. As part of the training, the member will be expected to assist hosts conducting visits by external groups to the observatory.
- The committee will organise 2-3 scheduled training sessions during the summer months to provide a specific focus for interested members.
- When a member feels competent in the use of the telescope, he/she should approach the Chairman. The Chairman and another qualified user of the telescope will assess the member's competence. If the member comes up to standard, his/her name will be added to the list of qualified users, and he/she will in turn be expected to assist prospective new users of the telescope to become proficient.
- Once a member has become qualified in use of the telescope, the onus is on him/her to practice and develop astronomical skills (e.g. finding faint objects) further through regular use of the telescope with a view to becoming an observing director.

We will publish more detailed proposals, including dates of summer telescope training sessions, in future newsletters.

James Appleton

A sample of Easy Messier Objects for March

David Payne

One of the problems a newcomer or beginner encounters when trying to observe deep sky objects is simply finding them. Finding objects in the sky is a skill that generally just requires practice to aquire but there are a few pointers and techniques that can be used to help find and observe deep sky objects.

For March I have chosen three galatic clusters that once found are easy to see so that there is little chance of them being over-looked. One of the objects, M44 in Messier's catalogue, can be found with the naked eye on a reasonably clear night. The other two M67 and M48 are also fairly bright and are both easy binocular objects.

Before describing the objects and how to find them I will outline my tips and tools for enjoying deep sky observing. The first two tools that are needed are a list of deep sky objects and a good star map, Norton's is an excellent starting point. Each map has notes identifying some of the more conspicuous and interesting deep sky objects. As observing skills develop and interest increases it is worth progressing to a more detailed map such as the Sky Atlas 2000. This is a larger scale set of maps and also shows fainter stars down to magnitude 8. For the ultimate guide to deep sky objects I still think there is nothing better than "Burnhams Celestial Handbook". but for a gentler start with just the Messier catalogue then "The Messier Album" by Mallas and Kreimer and/or "Messier's Nebulae and Star Clusters" by Glyn Jones are also both excellent books.

The next major tool is a pair of binoculars, 10x50mm or 7x50mm are fine for finding many Messier objects or at least identifying the star patterns that will be used to locate the desired object. When using binoculars for astronomical work it is essential that some method of steadying them is used, ideally on some form of mount such as a camera tripod or possible the telescope mount fitted with suitable attachments. At the very least something solid should be used to rest them against while trying to observe. Having said that however, when just identifying star patterns against a star map mounting is less essential particularly for lower powered 7x50s.

The third major item is of course the telescope and for deep sky work size really does count! However one of the pluses for deep sky observing is that what ever size instrument is used there are always interesting objects within reach. The telescope will need a finder scope to help align on the correct region of sky,once it has been identified. Also required is a low power eyepiece with a wide apparent field of view. This eyepiece should give around a 1° or more real field of view with about 50 times magnification. As an example: for a telescope with an objective (lense or mirror) with focal length of 48 inches (~120cm) an eyepiece focal length of 1 inch or 25mm with an apparent field of view of ~50° would be ideal. Some deep sky objects respond well to higher magnifications and additional shorter focal length eyepieces will also be useful. Again for deep sky observing eyepieces with large apparent fields will generally give the most rewarding views.

The telescope needs to be well mounted ideally on an equatorial mount with the polar axis correctly aligned to the north celestial pole.

Finding a deep sky object is essentially a series of steps by which the area of sky being searched is narrowed down until the object appears in the field of view of the main telescope.

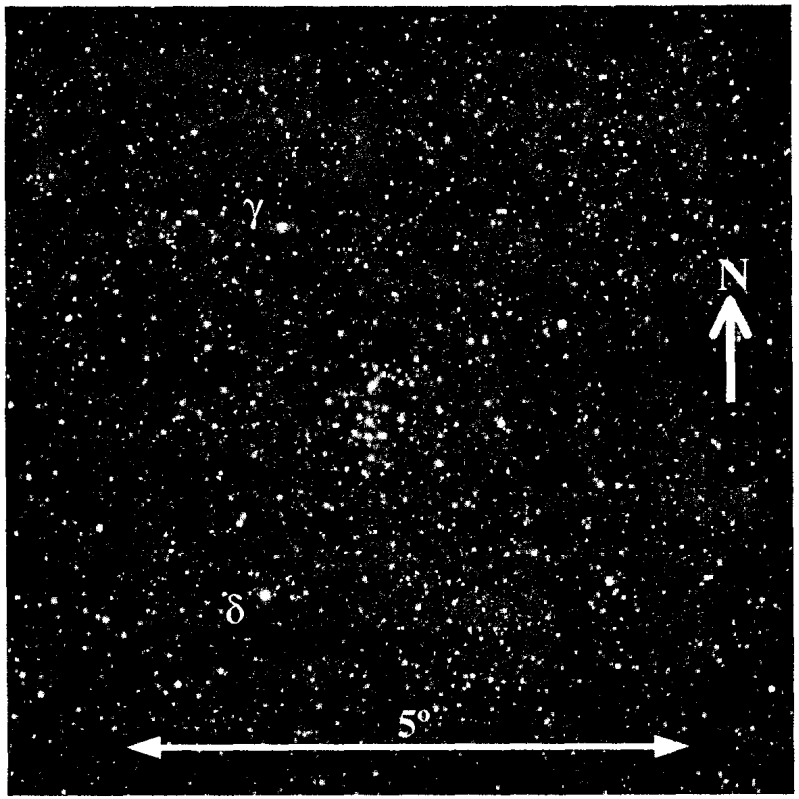
The first step is which direction to look! As an example we will start with M44 a bright galactic cluster. Mid evening (~9:30pm) around the middle of March M44 is close to due south. Start by facing south, Orion lies west towards the horizon, the Plough is high over head appearing close to the zenith. Leo lies to the east of due south and the twins Castor and Pollux lie slightly west of due south. M44 lies in the constellation Cancer the Crab which lies directly between Gemini and Leo.

We have now defined the rough area of sky that we need to home in on. checking with Norton's star atlas or some other star map, the constellation Cancer can be found. The first thing to note about Cancer is that there is little of note in it! The brightest stars are only magnitude three and there are only two of those. In fact it is only the presence of M44 and M67 and that it is a zodiacal constellation that marks it out at all!

If it is a particularly clear night the eye might be automatically drawn to M44 as a faint misty patch lying between two of Cancer's brighter stars. If

however there is any mistiness about, light pollution or interfering moonlight it may be a more difficult object and not visible to the unaided eye.

The next step in narrowing down the region to search is to find some pointer or guide stars. By looking at the star map it can be seen that M44 is located between γ Cancri and δ Cancri and that these two stars lie just over one third of the distance along a line from Pollux in Gemini to Regulus in Leo. Using binoculars, or with the naked eye if it is clear enough, scan along this line to the area identified and find the two stars γ & δ Cancri. Once these two stars are found in binoculrs, M44 is also easily visible. But assuming it was fainter and required a little more searching, note from the star map that M44 forms a shallow triangle and lies to the west of a line connecting the two stars. Place the lowest power (widest field of view) eyepiece in the telescope and using the telescope finder



M44 "Beehive" galactic cluster in Cancer

align the telescope to the position of M44 identified in the binoculars. Remember that telescope finders usually invert the image and a mental rotation needs to be made when comparing finder and telescope views with binocular/naked eye views! Assuming the object is bright enough to be visible in the finder (and M44 will be once found) and is centred then the cluster will appear in the telescope field of view.

M44 is a large object about 1° across and really needs a field of view larger than this to been seen in its entirety and to good effect. I always think that M44 makes a better binocular object than a telescopic one.

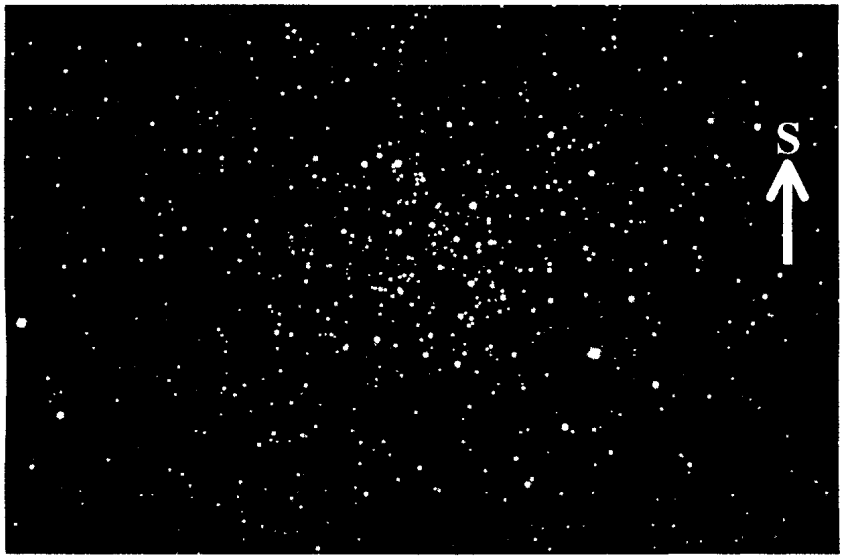
M44 is about 525 light years away and has about 200 stars identified as members of the cluster. Eleven of the stars are sixth magnitude and even Galileo, who was the first to observe it with a telescope, counted 36 stars within the cluster.

Having successfully found M44 the next object is M67 a fairly rich galactic cluster also in Cancer. Having previously found γ & δ Cancri these two star can now be used as pointers for M67. On the star map continue a line through these two stars southwards for a distance almost twice their separations. To the east of this line lies the star α Cancri. Find this star with binoculars and note the three stars 60 , 50 and 45 Cancri forming a shallow arc to the west of α Cancri. Note that on the star map M67 lies mid way between 60 and 50 Cancri. Identify and note this position in the sky using binoculars. If it is dark and clear M67 will be easily seen in binoculars at this position, if it is misty or washed out by light pollution or moon glare then the telescope will be required to see it. Align the finder to the position noted with binoculars (remembering the mental inversion) centre this position, or the object if it is visible, and again the object should be in the field of view of the telescope.

M67 is a fine galactic cluster with over 500 stellar members in the magnitude range 10 to 17. The distance is estimated to be about 2500 light years with a diameter of about 12 light years. M67 is not typical of normal galatic clusters and appears to be unusually ancient. The age is estimated to be about 10 billion years an age more usually associated with globular clusters than galactic clusters. Galactic clusters tend to get disrupted by gravitational interactions as they orbit the galaxy and surviving in such a compact form for this length of time is very unusual. M67 appears to

have survived because its orbit takes it well above the plane of the galaxy, where most disruption takes place, and it therefor spends little time passing through the galactic plane during each orbit.

The final object M48 may be a little more difficult to find as it lies in a relatively barren area of sky. However it does have several good pointer and

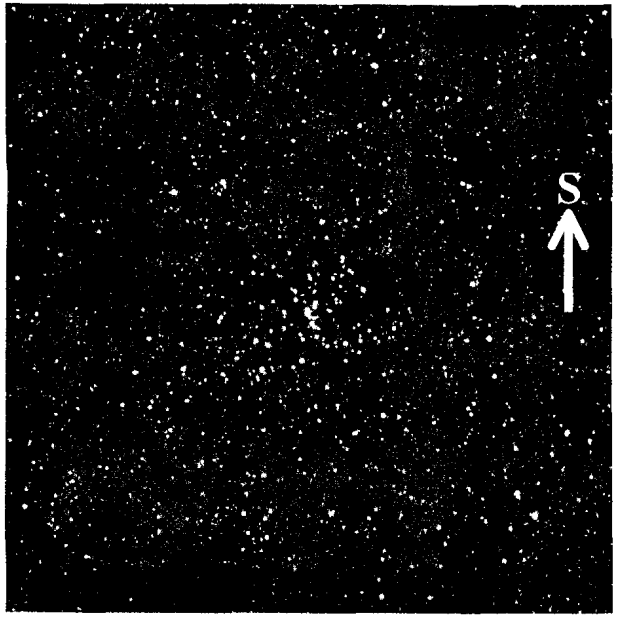


M67 galactic cluster in Cancer

guide stars that aid locating the object and make finding it less difficult than fist impressions might give. The primary pointers for M48 are Procyon in Canis Minor and β Canis minor, lying about 4 degrees to the north west of Procyon. Locate these two stars on the star map and project a line south east about 12 degrees or three times the separation of Procyon and b. This almost exactly pinpoints the position of M48 just east of the Hydra- Monoceros border. On the star map note three stars forming a triangle around M48 with M48 approximately in the centre. The north west star is ζ Hydrae, the north east star is a small group of three formed from 2, c & 1 Hydrae. The southern member is a fainter sixth magnitude star.

Using the pointers Procyon and β Canis minor find the triangle of stars and locate M48 in the centre with binoculars. Again if it is clear and dark M48 should be easily visible as a small misty patch. If it is misty or hazy with light problems then it may not be visible. Position the telescope to the same region

using the finder. With the lowest power widest field eyepiece check the telescope view to see if the object is visible. If not move the telescope slowly and in turn north, south, east and west by an amount up to about 3/4 of the field of view, always return or re-centre the telescope on the original position before moving in one of the other directions. The area of sky covered by this movement should be more than enough to find the object if the original, positioning was a little off dead centre.



M48 galactic cluster in Hydra

M48 or NGC2548 is also a bright galactic cluster of magnitude 5.5. Originally this was one of Messier's missing objects, when he catalogued it he gave the position 4° north of NGC2548 where no such object exists! NGC2548 was identified as the missing object from similarities with the description given by Messier.

M48 is estimated to be around 1500 light years away with a true diameter of around 20 light years. The cluster contains about about 50 members between 8th and 13th magnitude.

All the object described above are easy binocular objects, with M44 also being a naked eye object under favourable seeing conditions. Finding them is good practice to moving on to other more difficult objects. It is worth practicing finding objects using these "star hoping" techniques. Eventually it enables many more of the very interesting objects in the NGC catalogue as well as the more difficult Messier objects to be found and identified and it has the added advantage of being an excellent way of finding your way around the sky!

FINAL FRONTIER

No - *don't worry* - this isn't about 'Boldly going'* etc to places where mankind has never been before and encountering aliens who can speak English, albeit with an American accent..

This 'Final Frontier' is a **new monthly BBC2 TV programme** about, to quote from a flyer handed out at Astrofest (*that's the only reason I found out about it*) 'The exciting world of astronomy and space exploration. It brings you all the news and reviews and helps you find out how *you* can get involved'. The programme is presented by Alexandra Barnett from the National Space Science Centre and broadcasts during the Open University transmission periods.

Intrigued by the previously mentioned flyer, I duly tuned in and was quite impressed by it. Lasting just 15 minutes, subjects covered by the February programme included a brief insight into the world of our most successful Nova hunter, Mark Armstrong, Solar observation, Astro news and a monthly guide to the night sky. Ms Barnett looks rather like an exile from the Blue Peter presenters, but she clearly knows and enjoys the subject. It doesn't, perhaps, go into as much detail as our beloved 'Sky at Night' and is presented in a trendy Baseball Cap & Trainers style!

The March edition is scheduled for transmission on Friday 3rd March at 00.30hrs and repeats on Sunday 5th at 08.00hrs.

The April edition will be transmitted on Friday 7th April at 00.30hrs and repeats on Sunday 9th at 08.00hrs.

So, apart from the occasional Astronomy Documentary, I reckon that now makes the old goggle box worth switching on for a grand total of 35 minutes a month!!

For those of you who have Internet access, more details are available on **www.open2.net/finalfrontier** *Ken Goward*

** My much feared English master would have insisted that should be 'Go boldly'..*

2000 COMMITTEE

		Home Phone	Work Phone
CHAIRMAN	D Payne		
SECRETARY & WORK PARTY ORGANISER	R Gooding		
TREASURER	K Goward		
MECHANICS	M Cook		
NEWSLETTER CO-ORDINATOR	E Sims		
BEGINNERS MEETING CO-ORD	T Sampson		
DARK SKIES & VISIT CO-ORD	G Coleman		
EQUIPMENT CURATOR	J Walsh		
LIBRARIAN	J Appleton		
CO-OPTED MEMBER			
LECTURE CO-ORDINATOR	P Richards		

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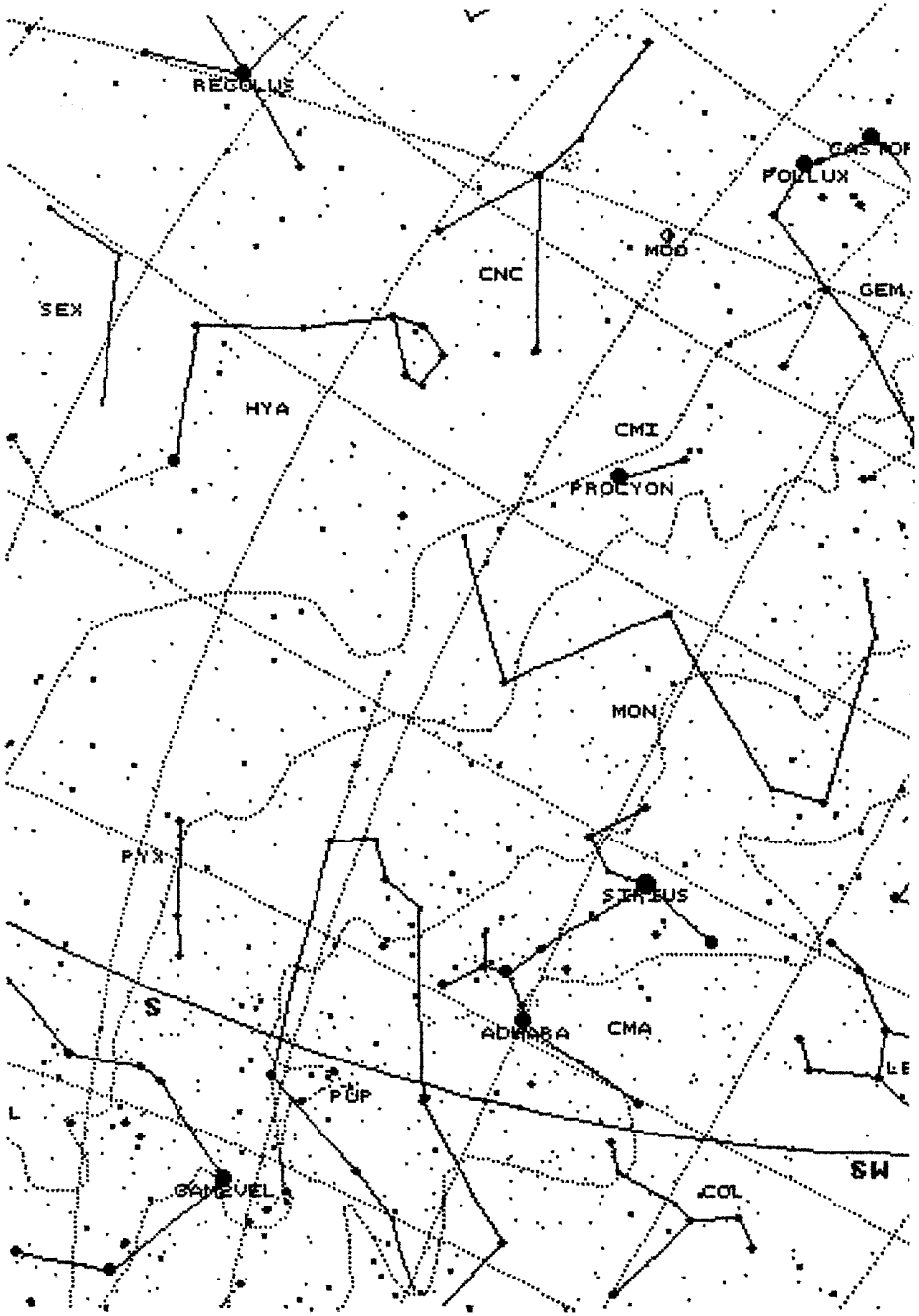
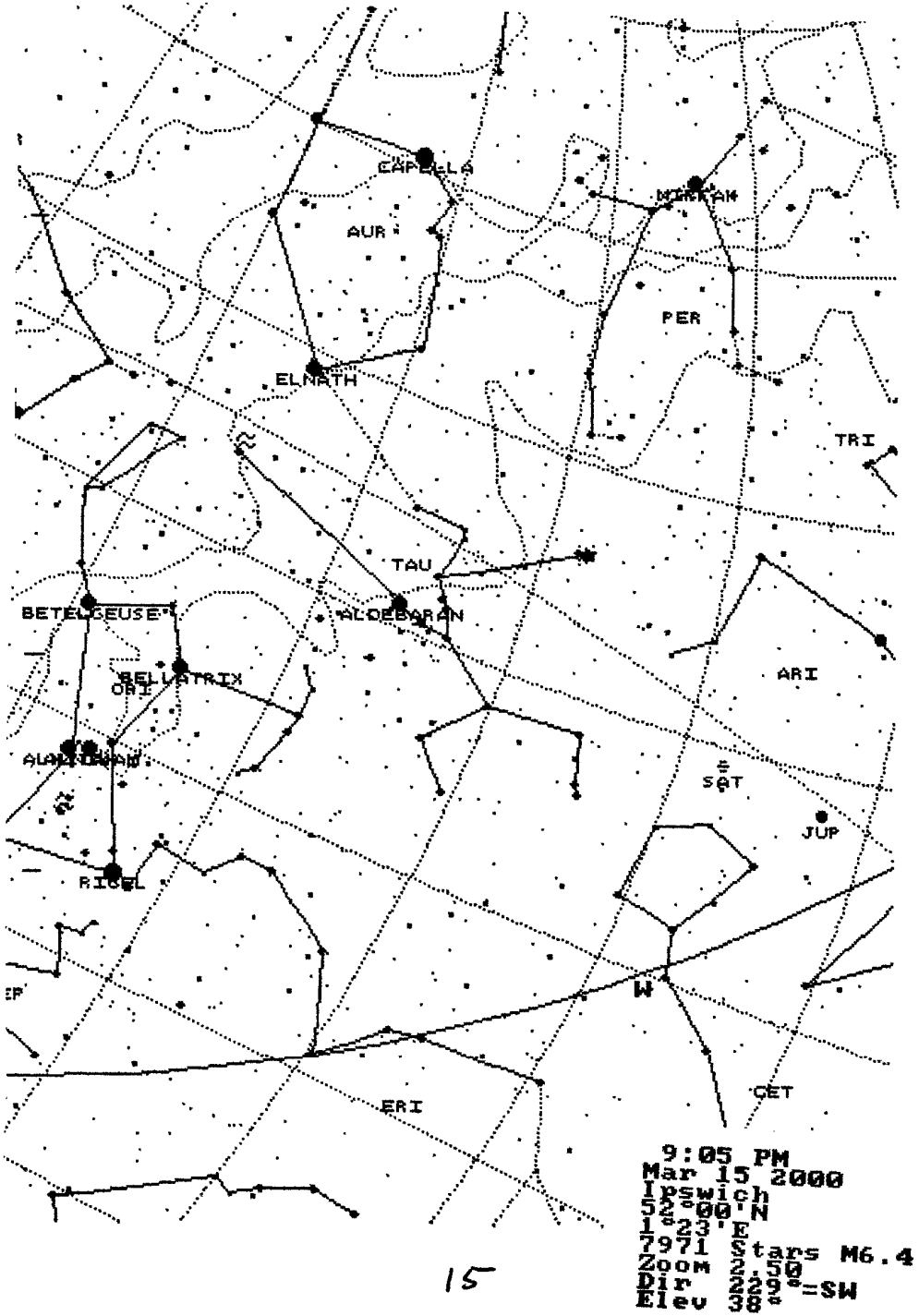
CORRESPONDENCE ADDRESS — R Gooding OASI Secretary [redacted] Ipswich Suffolk IP1 6AE

MEMBERSHIP — M. Cook [redacted] Ipswich IP4 5PZ





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Observing Programme For March

Dates	Observing Director	Activities
Mondays from 7.30pm	T Sampson	General Observation
Tuesdays from 7.30pm	G Coleman	Group Visits
Wednesdays from 8.00pm	M Cook D Payne	Nebular & Faint Objects
Thursdays from 7.30pm	G Coleman	Group Visits
Fridays from 7.30pm		Double Stars

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. Committee Meeting
The next committee meeting is going to be held on Saturday 8th April in the club room at the observatory at 7.30pm. All members are welcome to attend.

2. Workshop
Wednesday March 8th 7.30pm. Lunar occultations - the amaturs opportunity.

3. Lecture Meeting
21st Century Astronomy. Short talks by members 31st March 2000 at 8.00pm. Admition free.

4. Workshop
Wednesday April 8th 7.30pm. Astrophotography.

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/