

ORWELL ASTRONOMICAL

SOCIETY IPSWICH

Charity No 271313

DECEMBER 1998



Society News

All times GMT

Night Sky

Sun

The sun will be rising approximately between 07:50 to 08:10
The sun will be setting approximately 15:50

Moon

Full Moon	3 rd Quarter	New Moon	1 st Quarter
3 rd	10 th	18 th	26 th

Mercury

Mercury will be at inferior conjunction on 1st of the month. In mid month it will be rising about 2 hours before the sun and reaches greatest western elongation on the 20th. Magnitude - 0.5

Venus

Venus will be visible low down in the evening sky this month. Magnitude - 3.5

Mars

Mars will be rising about 01:00 in mid month. Magnitude 0.0

Jupiter

Jupiter will be visible in the evening sky. By mid month it will be setting by 22:30 at the end of the month. Magnitude -2.3

Saturn

Saturn remains visible until the early hours of the night. It will be setting at about 02:00 by the end of the month. Magnitude 0.4

Uranus

Uranus will be visible in the early evening sky, setting a about 19:00 in mid month. Magnitude 5.7

Neptune

Neptune will be setting at about 40 minutes after Uranus in mid month. Magnitude 7.8

Meteor Showers

Name	Limits	Max	ZHR
Geminids	December 7 th to 16 th	December 14 th	100
Ursids	December 17 th to 25 th	December 23 rd	10

Meteor source is the BAA Handbook

1999 Annual General Meeting

The 1999 AGM will be held on Saturday 16th January form 20:00. The venue will be in the class room behind the School library. If you are not sure where this is, please meet initially in the club room.

All members are invited to this meeting. The agenda will be the same as in previous years, with a review of the societies activities in 1998 and look forward to those in 1999.

2 Events for 1998

Lecture Meeting: Martin Mobberley	3 rd December (Thursday) Friends Meeting House 20:00 start
Christmas Meal	9 th December. The venue for this years meal will be at the Newbourn Fox

OCCULTATIONS DURING DECEMBER 1998

Roy Gooding

The table lists stellar occultation disappearance events 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 (d)	Star Alt (d)	Min Dist (r)	Star	Mag
D	02 Dec 04:13	.96+	-31	11	.36S	SAO 93320	5.9
D	03 Dec 02:30	.99+	-46	37	.48S	SAO 93775	6.0
D	28 Dec 17:59	.75+	-19	40	.67S	xi 2 Cet	4.3
D	29 Dec 20:45	.85+	-44	51	.67S	5 Tau,f Tau	4.3
D R	30 Dec 19:26 20:26	.93+	-32 -41	44 51	.48S	theta 1 Tau	4.0
D R	30 Dec 19:36 20:15	.93+	-33 -39	45 50	.82S	theta 2 Tau	3.3
D	30 Dec 19:53	.93+	-36	48	.93N	75 Tau	5.3
D	30 Dec 20:27	.93+	-41	51	.13S	SAO 93975	4.8
D R	30 Dec 23:18 31 Dec 00:28	.93+	-60 -61	51 43	.02S	Aldebaran	0.8
D	31 Dec 18:04	.97+	-19	27	.19S	115 Tau	5.3
D	31 Dec 21:25	.98+	-49	53	.86N	120 Tau	5.5

On 7th December, there is a graze of the magnitude 5.1 star zeta Cancri. The graze track passes across East Anglia in the direction west → east, cutting through the southern limits of Colchester. I will produce a detailed plot of the graze track if there is interest from OASI members in mounting an observing expedition.

James Appleton

Recommended Library Books

The OASI library contains a large selection of astronomy books and videos, covering a range of abilities from beginner to advanced amateur. The following books are particularly recommended for beginners and improvers, and may prove especially useful to members of OASI attending the current series of Informal Interactive Workshops.

The library is housed in the Orwell Park Observatory, and is available for all members of OASI to consult and borrow books and videos. Please contact me with requests for additional purchases for the library.

RECOMMENDED LIBRARY BOOKS FOR BEGINNERS

Book	Subject
Philippe Henarejos, <i>Night Sky</i> , Collins Watch Guide, HarperCollins Publishers, 1997	General introduction to astronomy. Aimed at the complete beginner.
Milton Heifetz and Wil Tirion, <i>A Walk Through The Heavens</i> , CUP, 1998	Naked eye observing of the constellations for the novice. Highly recommended.
Guy Consolmagno, Dan Davis, <i>Turn Left At Orion</i> , CUP, 1995	Beginner's observing guide. Especially suitable for naked eye and binocular observers. Several members of OASI have found this book useful!
Patrick Moore, <i>Philip's Guide To Stars And Planets</i> , Reed International, revised edition 1997	General introduction to astronomy with good section on observing the constellations.
Ian Ridpath, Wil Tirion, <i>Collins Pocket Guide To Stars And Planets</i> , 2 nd edition, 1996	Observing guide with good notes for observing the constellations. Will help you find your way around the night sky.

RECOMMENDED LIBRARY BOOKS FOR IMPROVERS

Book	Subject
Fred Schaaf, <i>Seeing The Sky</i> , Wiley, 1990	Wide range of observing projects. Highly recommended.
Fred Schaaf, <i>Seeing The Solar System</i> , Wiley, 1991	Observing projects involving solar system bodies. Highly recommended.
Fred Schaaf, <i>Seeing The Deep Sky</i> , Wiley 1992.	Observing projects involving deep sky objects. Highly recommended.
Chris Kitchin, <i>Telescopes & Techniques</i> , Springer, 1995	Equipment & observing techniques
Patrick Moore (Ed), <i>The Modern Amateur Astronomer</i> , Springer, 1995	Equipment & observing techniques
John Sanford, <i>Observing The Constellations</i> , Guild Publishing, 1989	Beginner's observing guide to the constellations
Patrick Moore, <i>The Observer's Year</i> , Springer, 1997	Beginner's observing guide
Chris Kitchin and Robert Forrest, <i>Seeing Stars</i> , Springer, 1997	Beginner's and intermediate observing guide
Wil Tirion, <i>Cambridge Star Atlas 2000.0</i> , CUP, 1996	Beginner's atlas with lunar map, monthly star charts and sky atlas covering naked eye objects.
Ian Ridpath, <i>Norton's 2000.0 Star Atlas</i> , Longman, 1989	Highly recommended star atlas for both beginners and experienced observers. Comprehensive.
Valerie Illingworth (Ed), <i>Collins Dictionary Of Astronomy</i> , Harper Collins, 1994	General astronomy reference book. Very useful coverage.
Patrick Moore, <i>Teach Yourself Astronomy</i> , Hodder Headline plc, 1995	General introduction to astronomy

James Appleton

ONE SMALL STEP - THIRTY YEARS ON

By Ken Goward

Thirty years ago this month, mankind passed a landmark in exploration when the first men travelled to the moon and returned safely back. The three man crew of Apollo 8, Frank Borman, Jim Lovell and Bill Anders blasted off to test the Command and Service Module by orbiting the moon. To my peers and I, it was a personal thing - an endeavour in which we played an extremely minor part - much as Spike Milligan famously claimed to have played a part in Hitler's downfall. In the late 60s I was an Apprentice Instrument Maker, indentured at Marconi Elliott Flight Automations in Basildon, Essex. The firm, originally part of the Marconi Company, had been taken over by the American Company, Elliotts, who were sub contracted by Grumann (The principle builder of the Lunar Excursion Module) to provide on board navigation systems for the LEM and it was our privilege, in the most sterile of workshops and under intense security to manufacture some of the switching panels. I had the great fortune to be in that particular workshop at the time and to assist with the panels as part of my training. By coincidence, in 1972 the company was sold back to Marconi by Elliotts - the Apollo programme was cancelled after Apollo 17 - and I left engineering in pursuit of an entirely different career. To mark this anniversary, we will be publishing a serialised account of each mission over the next few months - as their individual anniversaries occur - leading up to the immortalised "One Small Step" phrase by Neil Armstrong in July. Perhaps we should begin with a brief reminder of events that had brought NASA to this monumental endeavour; A cynic might suppose that it was born entirely of a desire to beat the Soviet Union and win some kind of moral or scientific/engineering high ground. My personal view is there was certainly substance in that opinion, but it wasn't the whole story and I contend that the ordinary men and women of NASA were made of better stuff than that. However, in 1957 and at the height of the 'cold war', the western world was stunned when the USSR successfully put Sputnik One into orbit - its 'bleep bleep bleep' message galvanised public opinion that the 'reds' shouldn't have outer space for themselves. Another soviet first really rubbed salt in the wound when, in April 1961, Yuri Gagarin became the first human to enter outer space and orbit earth. However, despite constantly trailing soviet space feats, NASA managed just one month later to successfully launch Astronaut Alan Shepherd into a sub orbital space flight and a few days afterwards the 'space race' was really on when President J F Kennedy threw down the following gauntlet to his nation - in his words - "I believe this nation should commit itself to achieving the goal, before this decade is out, of landing a man on the moon and returning him safely to earth. No single space project in this period will be more impressive to mankind, or more important for the long range exploration of space and none will be so difficult or expensive to accomplish" Gradually, via the single man Mercury and two man Gemini space vehicles, NASA achieved many technological and manned space flight 'firsts', seizing the initiative from the USSR. Also during this period, unmanned Ranger probes were sent on photographic missions, snapping away an abundance of pictures for transmission to earth before crashing into the lunar surface. They were followed up with the Surveyor probes which soft landed on

the lunar surface, supplying much needed data on surface composition and thousands of high resolution photographs. All faith was pinned on NASA's long planned manned lunar exploration system - the Apollo Project. This would consist of a three man capsule, capable of sustaining the astronauts attached to its Command & Service Module with a separate landing and ascent vehicle for the actual moon landings. A new launch vehicle had also been developed - the mighty Saturn rocket. The Apollo capsule was not without its critics for poor standards of workmanship and a general air of having been rushed in manufacture.

Apollo 1 was ready at the beginning of 1967 atop of its Saturn 1 rocket at Cape Canaveral. On January 27th, its three man crew, Astronauts - Gus Grissom, Ed White and Roger Chaffee, were going through a full dress rehearsal for launch when an electrical spark ignited the pure Oxygen environment inside the capsule, killing all three men. The nation, indeed the world, was stunned by the tragedy and virtually the whole Apollo capsule was redesigned and the pure Oxygen environment was replaced with a Nitrogen/Oxygen mixture. Meanwhile, the next five Apollo missions would be unmanned until all the 'bugs' were ironed out of the systems.

Apollo 2 successfully launched in July 1967 to test the Saturn 1B booster system.

Apollo 3 launched in August 1967 to test the systems on the Command & Service Modules, along with the heat shield.

Apollo 4 launched in November 1967. This was the first time the 363 ft tall Saturn 5 booster was used. The mission lasted over eight hours and included two earth orbits by the Command & Service Module to test re entry systems.

Apollo 5 launched in January 1968, atop a Saturn 1B booster to test, for the first time, an unmanned Lunar Module.

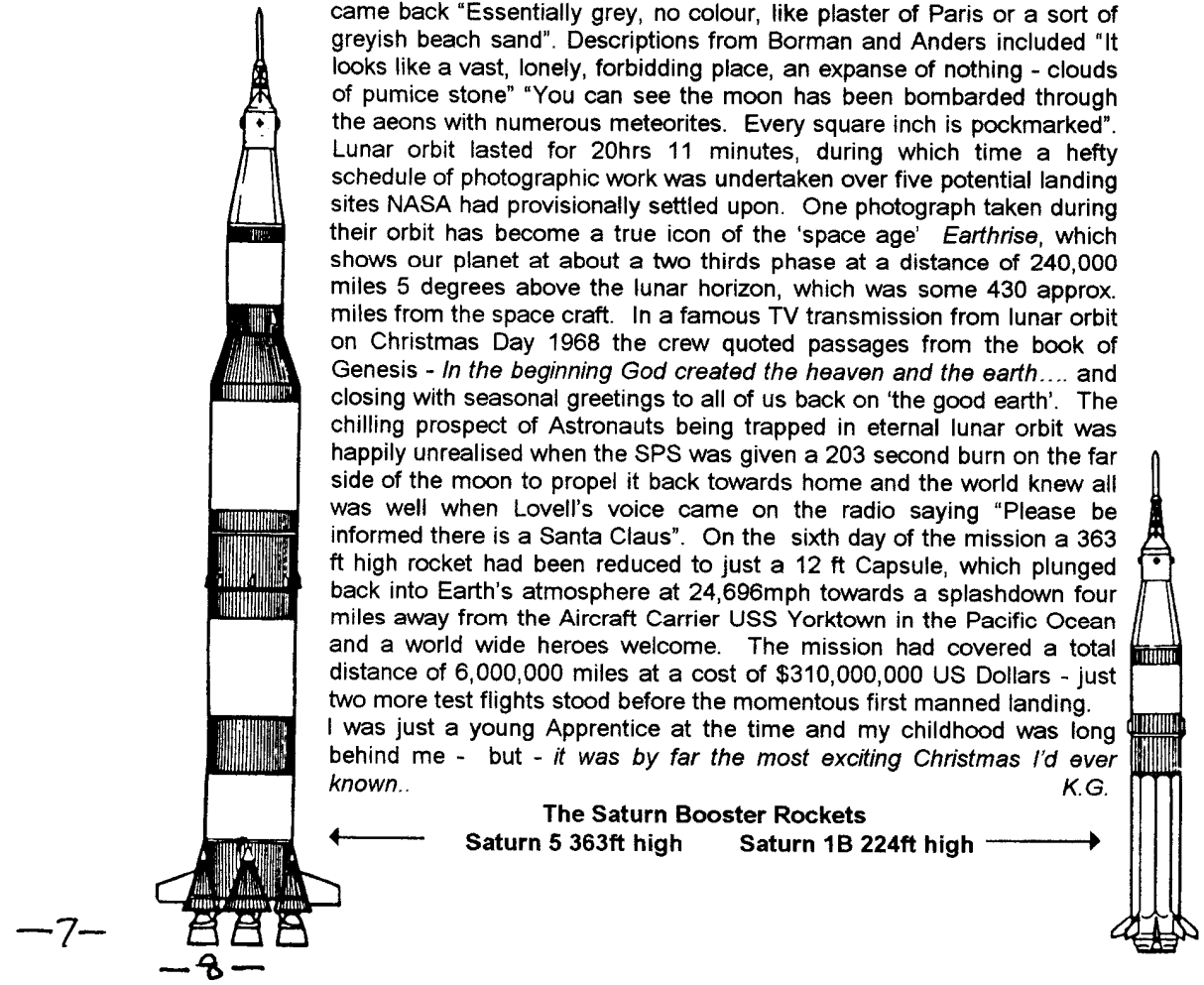
Apollo 6 launched in April 1968 for a further test of the Saturn 5 booster and the Command & Service Modules. The Saturn 5 suffered a number of faults - ignition failures on the second & third stages and an oscillation in the rockets flight attitude.

Apollo 7 marked the first manned flight in October 1968 when Astronauts Wally Schirra, Donn Eisele & Walt Cunningham orbited earth in the Capsule/Command & Service Module. The mission lasted eleven days and various minor faults manifested themselves and were easily resolved - things were not at all helped by a crew suffering from heavy colds and who became increasingly irritable as they were instructed by mission control at Houston, Texas, to undertake various tests which they considered trivial and of little practical importance. So much so that none of the three Astronauts were ever to return to space, having 'blotted their copybooks'. Overall, however, the mission had paved the way for the boldest leap yet;

Apollo 8. The technical success of the previous mission and fears over the Soviets new Zond spacecraft, which had recently safely made unmanned lunar return flights, spurred NASA to bring a manned lunar orbital flight forward from its originally conceived schedule on Apollo 9. Apollo 8 was originally to have been a proving manned earth orbit mission to test the Lunar Module. At 7.51am on

21 December 1969 Borman, Lovell and Anders blasted off atop a Saturn 5 with just a Capsule/Command & Service Module from Launch Pad 39A at Cape Kennedy. After 2 hours 50 minutes of orbital flight, mission control gave the go ahead for TLI (Trans. Lunar Injection) and a burn of just over 5 minutes of the Saturn third stage pushed up the ship's speed to 24,226mph, sending Apollo 8 away from earth. For the first time, mankind would see earth as a celestial body - arguably the most beautiful of all (*unless you happen to be a Saturn observer..*) Apollo 8 reached the moon some 69 hours into the mission, having slowed to a mere 2,223mph at a distance of 38,900 miles from earth's satellite before the moons gravity began to exert itself on the ship - speeding it to 5000mph as it swung around the far side on Christmas Eve and a 242 second burn of the SPS (Service Propulsion System), plus some further short ones for adjustment, placed the craft in an almost circular orbit at a mean altitude of 60 miles. After this frenetic activity had subsided and when asked by the mission control room what the moon looked like, Jim Lovell's voice came back "Essentially grey, no colour, like plaster of Paris or a sort of greyish beach sand". Descriptions from Borman and Anders included "It looks like a vast, lonely, forbidding place, an expanse of nothing - clouds of pumice stone" "You can see the moon has been bombarded through the aeons with numerous meteorites. Every square inch is pockmarked". Lunar orbit lasted for 20hrs 11 minutes, during which time a hefty schedule of photographic work was undertaken over five potential landing sites NASA had provisionally settled upon. One photograph taken during their orbit has become a true icon of the 'space age' *Earthrise*, which shows our planet at about a two thirds phase at a distance of 240,000 miles 5 degrees above the lunar horizon, which was some 430 approx. miles from the space craft. In a famous TV transmission from lunar orbit on Christmas Day 1968 the crew quoted passages from the book of Genesis - *In the beginning God created the heaven and the earth....* and closing with seasonal greetings to all of us back on 'the good earth'. The chilling prospect of Astronauts being trapped in eternal lunar orbit was happily unrealised when the SPS was given a 203 second burn on the far side of the moon to propel it back towards home and the world knew all was well when Lovell's voice came on the radio saying "Please be informed there is a Santa Claus". On the sixth day of the mission a 363 ft high rocket had been reduced to just a 12 ft Capsule, which plunged back into Earth's atmosphere at 24,696mph towards a splashdown four miles away from the Aircraft Carrier USS Yorktown in the Pacific Ocean and a world wide heroes welcome. The mission had covered a total distance of 6,000,000 miles at a cost of \$310,000,000 US Dollars - just two more test flights stood before the momentous first manned landing. I was just a young Apprentice at the time and my childhood was long behind me - but - *it was by far the most exciting Christmas I'd ever known..*

K.G.



The Interactive Workshops.

The interest shown in the recent initiative to hold a series of informal astronomy workshops has been heartening. An average of twenty four members have attended the first three sessions, with experienced members sharing their knowledge with those new to the subject.

This high level of participation gives rise to the following question;-

Does the society need to make it easier for new and inexperienced members to join in on our usual night?

There may be a perception that it is difficult for those new to astronomy to rub shoulders with long term experienced members. This may be associated with a reverence for the hallowed ground of the telescope dome, and the lack of space in the club room below, which is where people gather, especially on cloudy nights. It is a case of "come early to get a seat" which some may find daunting.

In reality there is no barrier to joining in. As was said at the November workshop by Joe and David, members are welcome to join in all the society activities. But sometimes perception is more powerful than fact.

With a rising membership it would be useful to have the society operating on more than one night per week, as it has in the past. The implication is that more members need to become competent to operate the telescope, in accordance with society rules. Also the regular availability of a more suitable room for training and informal use is required.

We do not want of course to have a two tier society, (no joke intended), with experienced members on one night and beginners on another. The success of the workshops is based on the involvement of experienced members along with those less so.

We may have to consider the risk of spreading the enjoyable Wednesday night over two evenings, to give the opportunity for more participation. There would also be value in meeting at other venues, where members have a good observing site at their homes.

Just thinking aloud. Ted Sampson.

Astronomical Wordsearch Puzzle:-

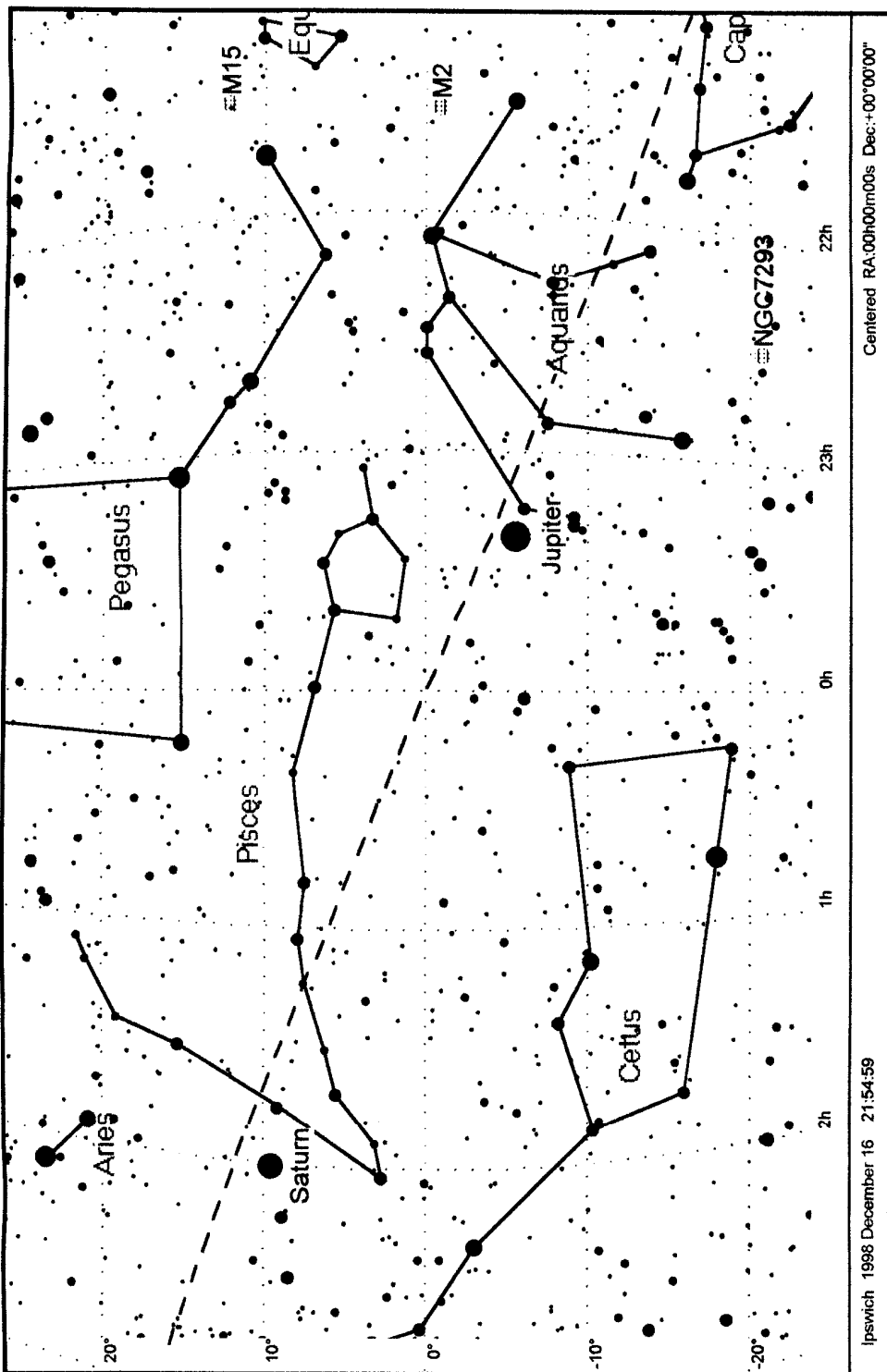
"It's in the A's"

except "OASI" -See if you can find it

best regards from Roy Lobbett

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E D N I A B S O R P T I O N A
T C Q R E D U T I T L A W S X
U A N U E A R O R U A C Q L I
A S R A S T R O P H Y S I C S
N T U T T P A S A L X S Z E A
O R E N N S E D A U E E R U I
R O T E A I I M E R T E P A N
T L A C R L O D A M H U L A O
S A M A R N O T R P O T M I M
A B A H A M N G S A A R O N M
L I L P K A H O L I L M D O A
E S Z L I X M C R A E U O N O
I A C A S T A L B E D O G T A
R O C L A Z I M U T H Y Q N A
A P O L L O A S P E C T T J A
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Absorption	Ariel
Albedo	Aries
Alcor	Arrakis
Algol	Aspect
Alphacentauri	Astrolab
Altair	Astronaut
Altitude	Astrophysics
Amateur	Atmosphere
Ammonia	Atom
Andromeda	Aurorae
Angular distance	Autumn
Anomaly	Axis
Antares	Azimuth
Apex	Oasi
Apollo	



Centered RA:00h00m00s Dec:+00°00'00"

Ipswich 1998 December 16 21:54:59

PROGRAMME FOR DECEMBER

Mondays from 7.30pm Mr N Gage	GENERAL OBSERVATION SECTION
Tuesdays from 7.30pm Mr P Richards	OBSERVATORY VISITS FROM OUTSIDE GROUPS
Wednesdays from 8.00pm Mr M Cook	NEBULA & FAINT OBJECTS SECTION Mr D Payne
Thursdays from 7.30pm Mr P Richards	OBSERVATORY VISITS FROM OUTSIDE GROUPS
Fridays from 7.30pm 4th - 18th Mr J Hood	DOUBLE STARS

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

Lectures and other events:

Annual General Meeting

The A.G.M. is to be held on Saturday 16th of January at 8.00pm in the room behind the school library. All members are welcome to attend.

LECTURE at the Friends Meeting House on Thursday 3rd December at 8pm admission FREE.

Comets and how to catch them by Martin Mobberley President of the B.A.A.

e-mail enquires to oasienq@btbcs.bt.co.uk
 WWW url <http://www.ast.cam.ac.uk:80/~ipswich/>

1998 COMMITTEE		Home Phone	Work Phone
CHAIRMAN	D Payne		
SECRETARY	R Gooding		
TREASURER	M Harlow		
MAINTENANCE CO-ORD	M Cook		
JOURNAL CO-ORDINATOR	E Sims		
SOCIETY ACTIVITIES & DARK SKIES	P Richards		
EQUIPMENT CURATOR	J Walsh		
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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
REP FOR BEGINNERS FOCUS GROUP	T Sampson		