

ORWELL ASTRONOMICAL SOCIETY IPSWICH.....

NEW YEAR ISSUE



SOCIETY NEWS

1993 ANNUAL GENERAL MEETING

* The 1993 Annual General Meeting will be held *
* on Saturday 16th January 1993, in the class *
* room behind the school's library. The meeting will *
* begin at 8.00 pm. All members invited to attend. *

2 1993 ANNUAL SUBSCRIPTIONS

The annual subscriptions are due on January 1st 1993. The rates for the new year will remain at the 1992 levels.

Rates for 1993-

JUNIOR & OAP	£7.50	(under 18 or in full time education)
ADULT	£10.50	
FAMILY	£12.00	

Cheques & P.O.'s made payable to the ORWELL ASTRONOMICAL SOCIETY (IPSWICH) together with this form to Membership Secretary:-

Mr. D. Barnard

IPSWICH
IP3 8RN

NIGHT SKY

All times GMT

SUN

Rises approximately between 08.10 to 07.50
 Sets approximately between 16.00 to 16.40

MOON



MERCURY Begins the new year in the morning sky. It is at superior conjunction on the 23th. It will be to near the sun in the evening sky at the end of the month to be seen.

VENUS Venus is still well placed in the evening sky this month. It will be at greatest eastern elongation on the 19th (47°). Mag. -4.4

MARS Mars is opposition on the 7th, and will be above the horizon all night. Mag. -1.4

JUPITER Jupiter starts the year in Virgo, It will be rising before midnight by the end of the month. Mag. -2.1

SATURN Saturn is low down in the western sky at the beginning of the month. By the 31st it will have set before it gets dark.

URANUS Uranus will be in conjunction with the sun on the 8th. It will not be observable this month.

NEPTUNE Neptune is also in conjunction with the sun on the 8th.

R. Gooding

The Orwell Astronomical society is affiliated to the:-

British Astronomical Association
 Federation of Astronomical Societies
 Federation of East Anglian Astronomical Societies
 Junior Astronomical Society

To the prospective new member the Orwell Astronomical Society offers the following:-

A monthly newsletter giving full details of society activities

Attendance at all evening meetings at the observatory

Attendance at lecture meetings.

There are usually several excursions to places of astronomical interest each year.

Field trips to observe meteors and occasional graze occultations.

Loan of society library books and back issues of various astronomical magazines.

The society receives the following publications:-

Journal of the British Astronomical Association plus their circulars and newsletters.

Journal of the Junior Astronomical Society plus their circulars.

Newsletters of the Federation of Astronomical Societies.

The Astronomer plus their circulars.

Newsletters and Journals of other local Astronomical Societies.

Journal of the British Meteor Society.

Sky & Telescope Astronomy Astronomy Now

Every year new books are purchased for the library together with any additional equipment that is required for the observatory.

Taurus the Bull

David Payne

Dominated by the 1st magnitude red giant star Aldebaran and containing the Hyades and famous "Seven Sisters" or "Pleiades" star clusters the constellation Taurus the Bull is a prominent feature in the evening sky during the winter months. The constellation contains only two but very famous Messier objects - M1 the famous "Crab" nebula and M45 the "Pleiades".

Aldebaran is traditionally the "Eye of the Bull" a red giant star of magnitude 0.86 with small irregular variability over the magnitude range 0.78 to 0.93. It lies at a distance of 68 light years with a luminosity about 125 times that of the Sun and a diameter about 40 times the Sun. Aldebaran appears to be a member of the Hyades star cluster but this is a line of sight coincidence as the Hyades lies at a distance of about 130 light years twice that of Aldebaran. The proper motion of members of the Hyades cluster is also different from Aldebaran.

The Hyades cluster is a 'V' shaped group of stars extending about 4.5 degrees to the west of Aldebaran. Although not as striking as the Pleiades and rather dominated by the presence of Aldebaran, it is an interesting group for binoculars or rich field telescopes. Next to the Ursa Major group the Hyades is the closest of the galactic clusters.

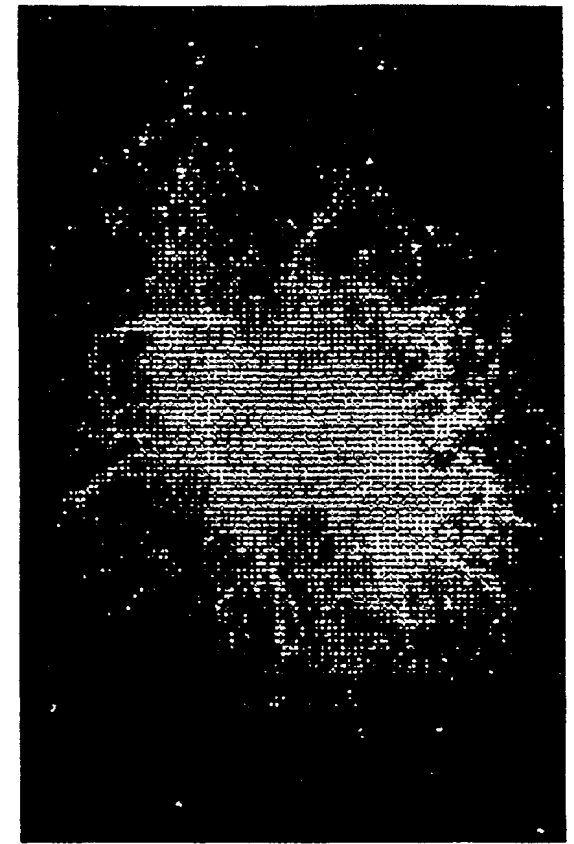
The V shaped region is about 8 light years across. This region is the centre of a much larger grouping of fainter stars covering much of Taurus and sharing a common proper motion. The main 'V' region of the cluster contains about 130 stars above magnitude 9 with probably several hundred fainter members scattered throughout the constellation.

The famous "Crab Nebula" the first object listed in Messier's catalogue is probably the most studied of all the deep sky objects. It was Messier's observation of this object in 1758 that caused him to embark on his famous catalogue of deep sky objects, albeit to prevent other astronomers confusing them with 'new' comets.

The "Crab Nebula" is a supernova remnant that occurred about 900 years ago. Chinese records from the Sung Dynasty report a "guest star" appearing in Taurus at a position southeast of Zeta Tauri which shone so brightly it was visible in daylight for 23 days. The coincidence in time and the closeness of position is taken by most astronomers today as certain evidence that the "Crab Nebula" is the remnant of the

1054 AD Supernova. However it cannot be said to be proven beyond doubt because of the discrepancy in position recorded by the Chinese (they recorded the supernova to be southeast of Zeta Tauri while the position of the nebula is 1 degree north west of Zeta Tauri)!

The nebula has an integrated magnitude of 9 and can be found with a 3inch as a faint misty patch but without any really discernable shape. With a 6 inch the irregular outline can be glimpsed and with a 10 inch some detail can begin to be seen. The distance of M1 is about 6300 light years and it has a diameter of about 6 light years. It is expanding at the rate of 600 miles/second or about 50 million miles/day.



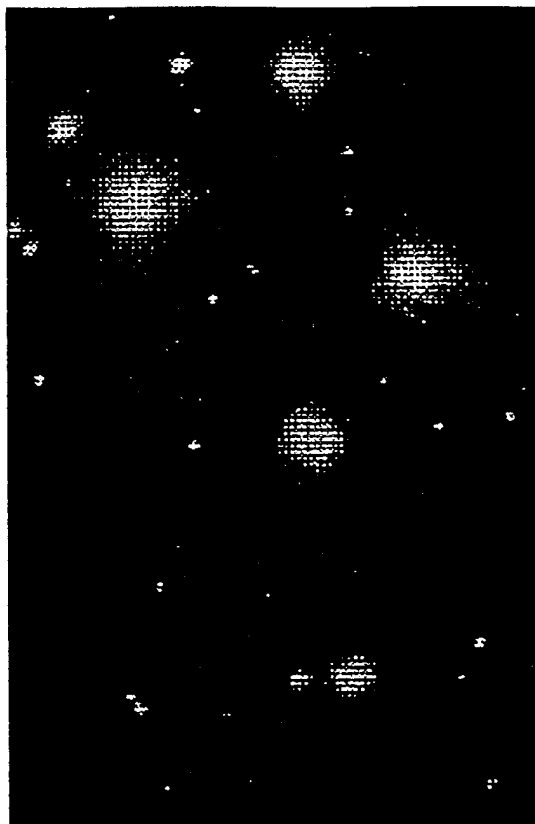
M1 The Crab Nebula

The stellar remnant of the "Crab Nebula" is a neutron star and pulsar rotating at nearly 30 times per second. The pulsar behaviour was first detected by radio telescopes and was, at the time of discovery, the only such object that had a clearly associated optical source. Measurements were therefore performed to determine whether the star was also a pulsar in the optical region of the spectrum and on January 15th 1969 the crab revealed the first optical pulsar to be discovered.

The other Messier object in Taurus is the "Seven Sisters" or Pleiades star cluster. Clearly resolvable by the unaided eye this is the most spectacular of the galactic clusters. Most people can discern six or seven stars without difficulty and up to eleven can be observed under very good dark skies. There are about 20 stars that are bright enough to be glimpsed under the best conditions but the crowding and overall brightness of the region makes this impossible. The Pleiades cluster is over 1 degree across and low power, wide field eyepieces are required

if the cluster is to be seen in it's entirety. It is a truly splendid object for binoculars particularly if they can be mounted.

The cluster is about 410 light years away and hence the nine brightest stars lie in a region about 7 light years in diameter. All the brightest stars are blue giants, the brightest of which is Alcyone at 1000 times the luminosity of the Sun and an apparent magnitude of 2.86. For comparison, a star the same luminosity of the sun lying at the distance of the Pleiades would be a 10th magnitude object. There are about 250 stars now recognised as true cluster members ranging in brightness from the 1000 Sun luminosity of Alcyone to faint red dwarf objects less than 1/100th the luminosity of the Sun.



M45 The Pleiades

The whole of the Pleiades cluster is embedded in a faint diffuse nebulosity shining by reflected light from the blue giants. The brightest portion of this nebulosity surrounds the star Merope and is hence known as the "Merope" nebula. It has been glimpsed with very small telescopes, sightings with instruments even as small as a 2 inch have been reported. However exceptional seeing conditions must have been present for such observations. More usually very dark skies and at least a 6 or 8 inch telescope is required and the slightest glow from the moon or light pollution will render it invisible. I have only seen it once clearly and unmistakably with my ten inch reflector (on an exceptional night in December 1985 when I could also see Halley's Comet with the unaided eye!), although I have had more uncertain sightings on a few other occasions.

The Hyades and Pleiades are both well known and easy naked eye

objects but are well worth examining with binoculars. With the Pleiades try drawing all the stars you can see without optical aid before observing with a telescope or binoculars. The Crab nebula is not a difficult object to locate but will need a four inch or above to begin to discern the general shape. Pick a clear, dark moonless night and have a go!

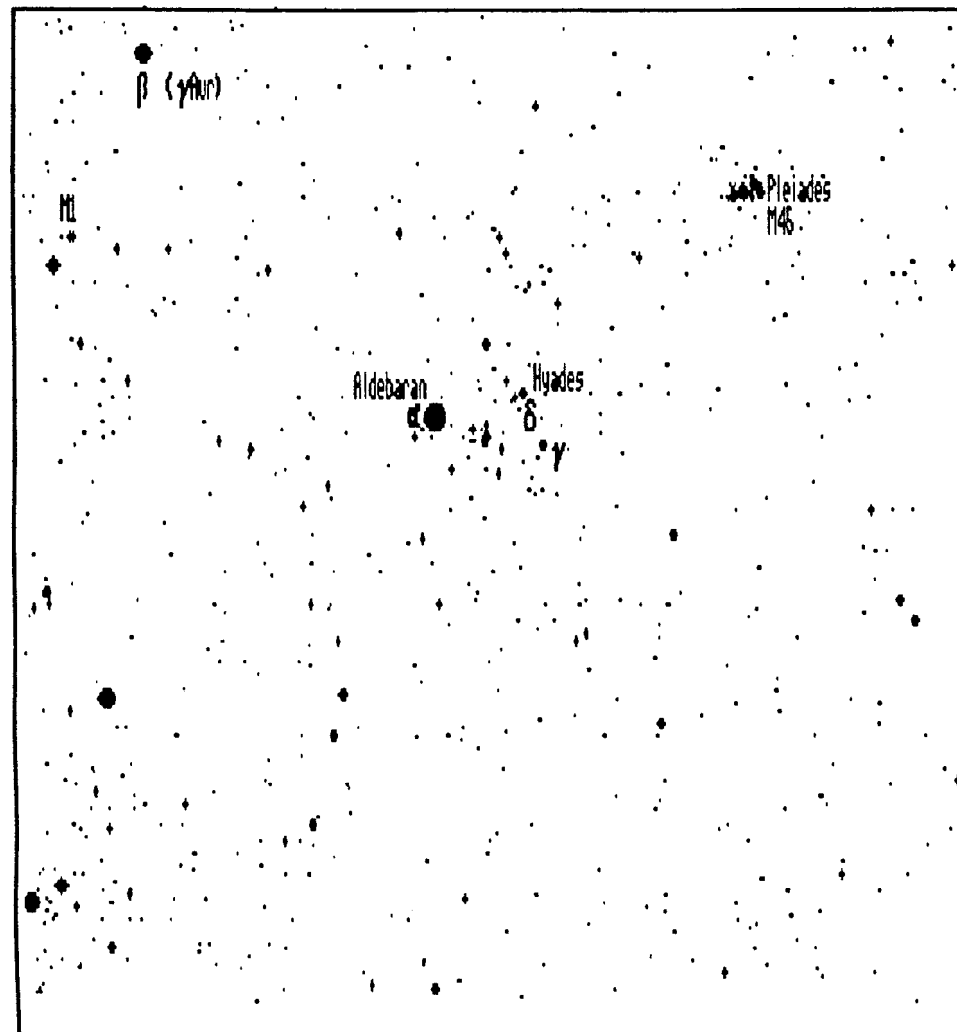
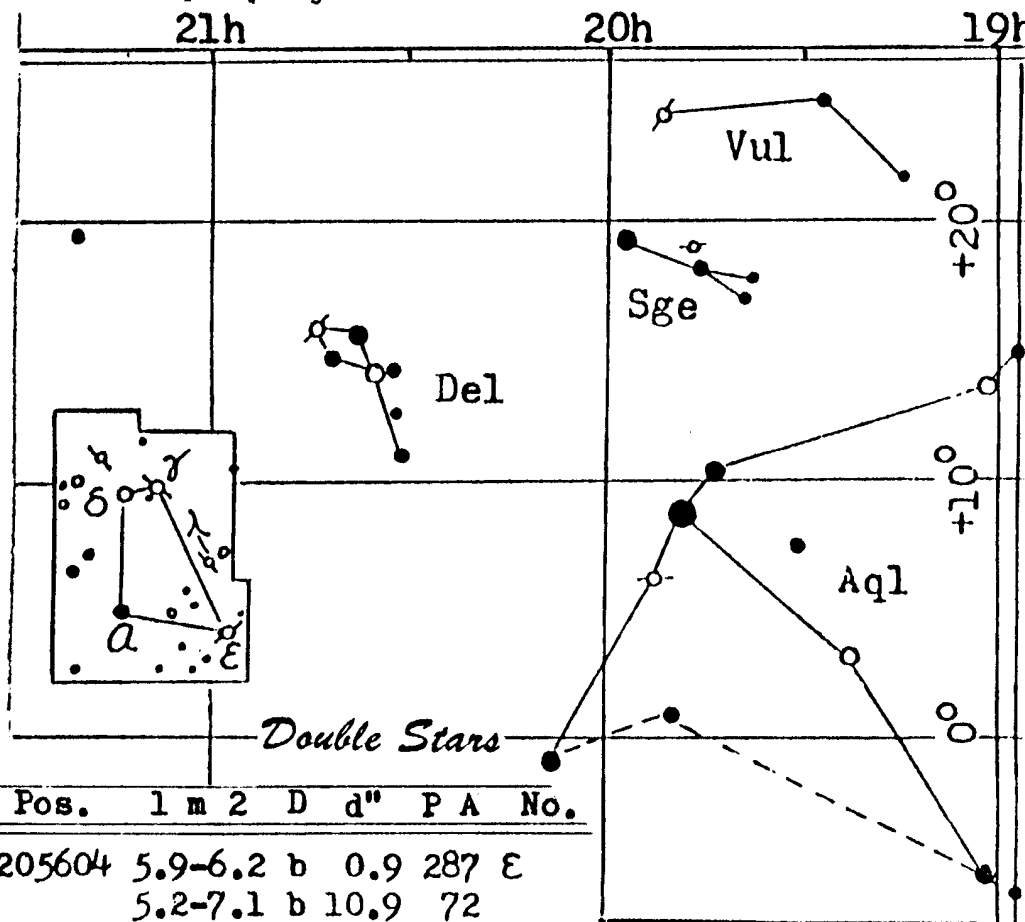


Chart of Taurus Region

EQUULEUS

Equuleus is the second smallest constellation in the

equatorial region of the sky. It is sometimes called the Foal or Colt. Its brightest star is only 4th mag and there are no notable deep sky objects.



Pos.	1	m	2	D	d''	P	A	No.
205604	5.9-6.2	b	0.9	287	ε			
	5.2-7.1	b	10.9	72				
5906	7.4-7.4	b	2.7	220	λ			
210709	4.7-11.	b	2.4	273	γ			
1611	7.2-8.7	b	0.5	72y	B163			

ε White, blue.

GRAZING LUNAR OCCULTATIONS IN 1993

by James Appleton

Predictions have been made of grazing lunar occultations visible from East Anglia in 1993. Several grazes have been found which do not appear in the BAA Handbook for 1993.

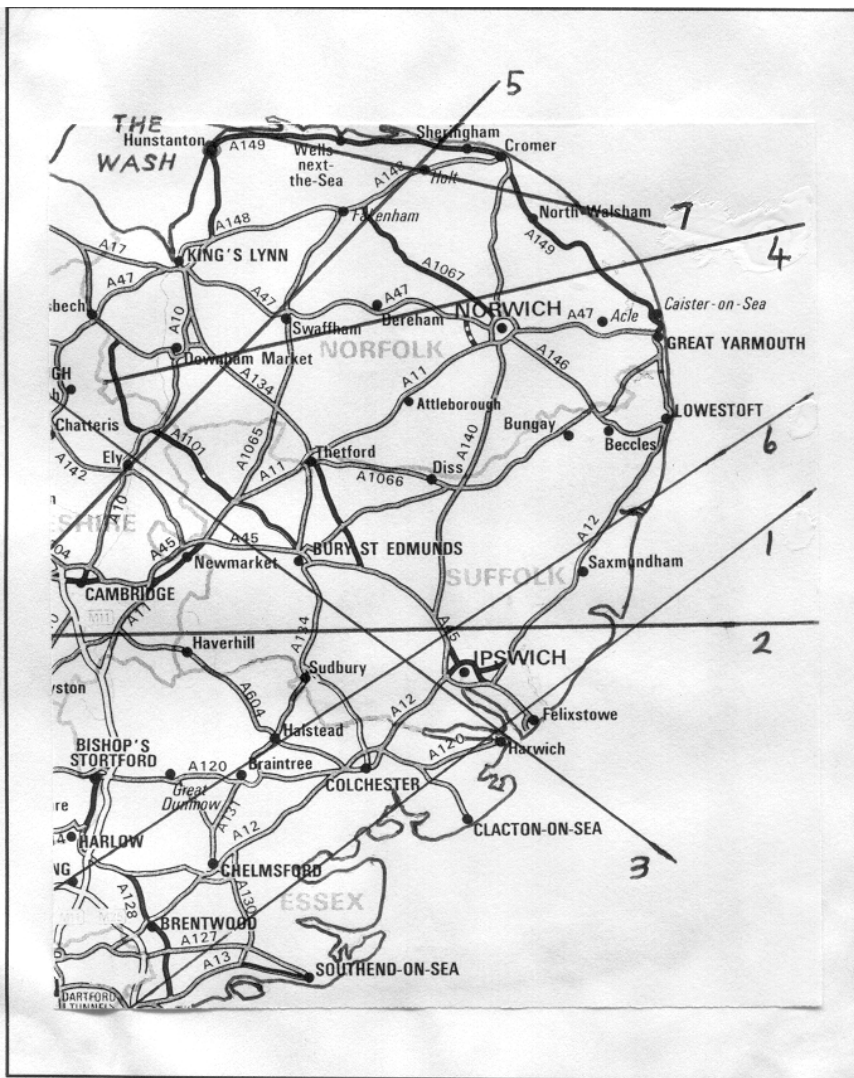
The full set of grazes (ie. those appearing in the BAA Handbook plus the others) is shown in the figure with further details in the accompanying table. The times and angles quoted in the table refer approximately to the longitude of Orwell Park.

Grazes 1 and 2 are likely to suffer from problems with skyglow, as the sun is only a few degrees below the horizon. However, graze 2 may still be worth observing, since the Moon is then very young (phase 0.08, waxing) and so will contribute little glare. Grazes 5 and 6 may pose problems due to the low altitude of the stars.

The remaining grazes offer the prospect of good observations. Detailed graze tracks will be made available nearer the date of each graze.

Track No.	Date & Time (UT)	Star	Mag	Lunar Phase	Star Alt °	Sun Alt °	Cusp Angle °
1	04 Mar 18:16	74 Gem	5.2	0.82+	45	-6	7.4 SB
2	24 Apr 19:50	51 Tau	5.6	0.08+	19	-7	11.5 ND
3	07 Sep 01:41	54 Ari	6.5	0.71-	47	-28	1.9 ND
4	13 Sep 03:58	45 Cnc	5.7	0.12-	17	-14	6.1 SD
5	22 Sep 20:00	SAO 186053	7.5	0.50+	9	-19	10.3 SD
6	03 Nov 20:34	SAO 77889	6.9	0.83-	12	-38	3.5 ND
7	28 Dec 00:12	Zeta Tau	3.0	0.99+	56	-60	18.6 ND

Note. The letters following cusp angles have the following interpretation:
 N - north cusp nearest, S - south cusp nearest.
 B - graze on bright limb, D - graze on dark limb.



ANSWERS TO LAST MONTH'S CROSSWORD BY J. WALSH.

Across. 5, Stickney. 9, Olympus Mons. 11, Herschel. 13, Maxwell. 15, Sol. 16, Sirius. 18, Tholin. 21, Igneous. 23, Tranquility. 24, Basalt. 25, Moon. Down. 1, Caloris basin. 2, Dianachasma. 3, Pele. 4, Valles Marineris. 6, Sulfur. 7, Ishtar. 8, Tharsis. 10, Plato. 12, Regolith. 14, Breccia. 17, Freyja. 19, Iron. 20, Mantle. 22, Stone.

PROGRAMME FOR JANUARY

DAYS & DATES	DIRECTORS	SECTION & ADDRESSES	PHONE INC. STD CODE
Mondays from 7.30pm GENERAL OBSERVATION SECTION			
4-11-18-25	Mr R Newman Mr J King	[Redacted], Felixstowe, IP11 9DY [Redacted], Felixstowe, IP11 9LQ	[Redacted]
Tuesdays from 7.30pm GENERAL OBSERVATION SECTION			
5-12-19-26	Mr R Newman Mr J King	(Address above.) (Address above.)	(Number above.) (Number above.)
Wednesdays from 8.00pm NEBULA & FAINT OBJECTS SECTION			
6-13-20-27	Mr M Cook Mr D Payne	[Redacted], Ipswich, IP4 5PZ [Redacted] Wickham Market, IP13 0SD	[Redacted]
Thursdays from 7.30pm OBSERVATORY VISITS FROM OUTSIDE GROUPS			
7-14-21-28	Mr P Richards Mr G Marriott	[Redacted], Nacton, Ipswich, IP10 0HS [Redacted], Ipswich, IP4 4JB	[Redacted]
Fridays from 7.30pm (may be postponed to Saturday) PLANETARY & LUNAR SECTION			
8-15-22-29	Mr P Richards Mr R A Lobbett Mr G Marriott	(Address above.) [Redacted], Felixstowe, IP11 8UJ (Address above.)	(Number above.) [Redacted] (Number above.)

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: A.G.M.

The A.G.M is on Saturday 16th January at the observatory, room to be advised later so a note will be pinned on the door on the night. As usual this is an open meeting and any member who wishes is welcome to attend.

1992 COMMITTEE

		Home Phone:	Work Phone:
CHAIRMAN	D Payne	(Address above)	[Redacted]
VICE CHAIRMAN & MEMBERSHIP SECRETARY	D Barnard	[Redacted], Ipswich, IP3 8RN	[Redacted]
SECRETARY	R Gooding	[Redacted], Ipswich, IP1 6AE	[Redacted]
TREASURER	M Nicholls	[Redacted], Capel St Mary, Ipswich, IP9 2EX	[Redacted]
MAINTENANCE CO-ORD	M Cook	(Address above)	[Redacted]
JOURNAL CO-ORDINATOR	E Sims	[Redacted], Ipswich, IP1 4HA	[Redacted]
PUBLICITY & VISIT CO-ORD	P Richards	(Address above)	[Redacted]
EQUIPMENT CURATOR	J King	(Address above)	[Redacted]
SPECIAL EVENTS CO-ORD	A Smith	[Redacted] Ipswich, IP4 5RZ	[Redacted]