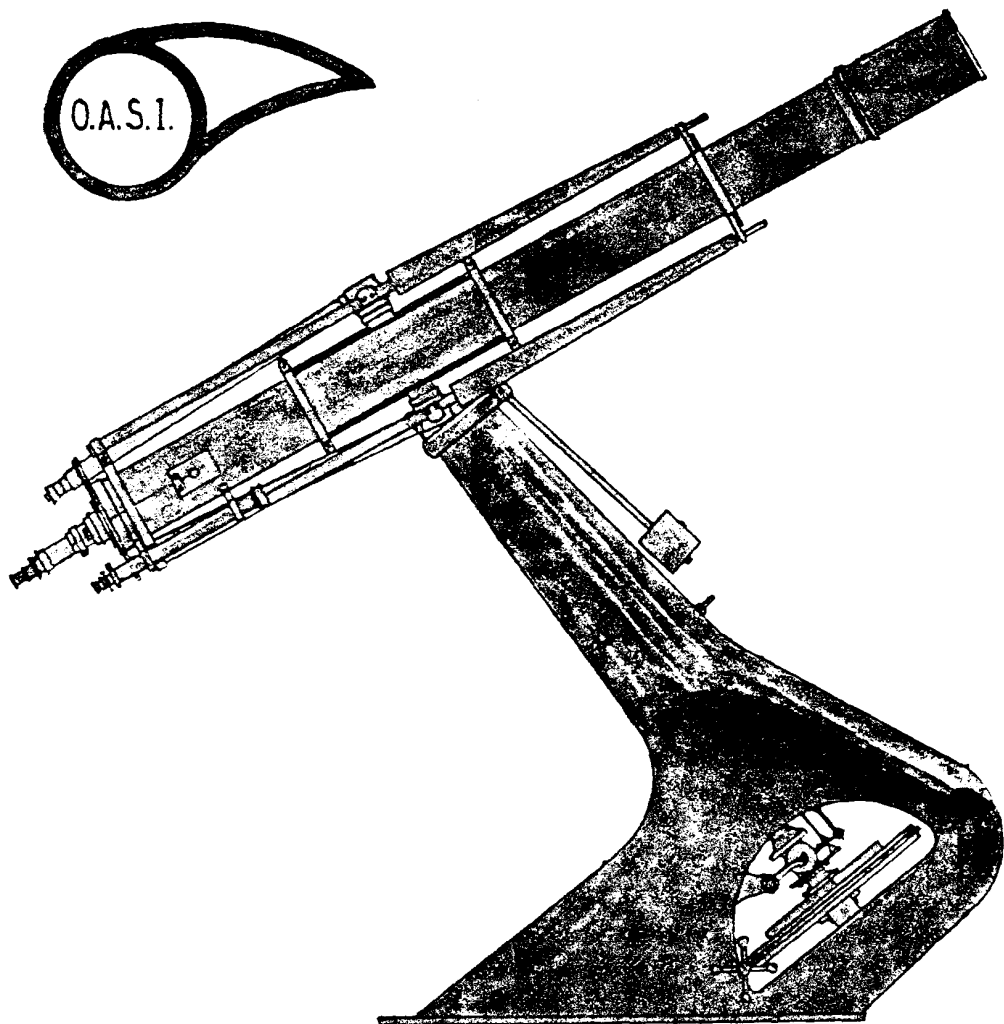


1983
FEBRUARY

THE JOURNAL OF THE ORWELL ASTRONOMICAL SOCIETY (IPSWICH)

Your submissions of items for the Journal will be welcome.

O.A.S.I.



The Orwell Park Observatory 10-inch Astronomical Telescope at Nacton near Ipswich

THE NIGHT SKY AS SEEN FROM ORWELL PARK IN FEBRUARY

THE views of the celestial Vault generally seem little changed from the scenes progressively visible in January except that now Leo and Scorpio can be seen rather earlier. Time now to catch up on some 'deep-sky' sweeping whilst skies can be quite dark for so long - the Milky Way earlier in the evening; Leo, Leo Minor and Coma Berenices successively later, and for '3-am' observers, the Northern Virgo area.

The newly-appearing fields as one comes toward morning light yield some fine observation.

It may be possible with fairly large telescopes to see Comet 1982f, now proceeding slowly (from our point of view anyway) on a curve in the south-eastern zone of Auriga toward Castor (and Pollux) in Gemini. The border between the two constellations should be reached near the end of the month, when the borders of resolution of a 10- to 12-inch telescope should be also reached (or should I say 'visibility') with the comet then at a predicted 14.5 mag.

The comet is very well placed for observation during most of the evening all through the month except when the Moon interferes.

Searching for comets, particularly new ones, is quite exciting and involves considerable competition. Maybe the O.A.S.I. could do more in this direction, though I hasten to add I do not wish to be taken as being in any way critical of members' efforts by saying this!

THE SUN Risetime for 52°N latitude is from 07h 42m on the 1st to 06h 51m on the 28th. Hosting constellations, Aquarius then Pisces. Sunspot activity could now be on the wane - but one never really knows what the Sun is going to offer in the order of two or three weeks' time. Sunset from 16h 46m to 17h 36m.

THE MOON

Phases	Last Quarter	04d 19h 17m	First Quarter	20d 17h 32m
	New Moon	13d 00h 32m	Full Moon	27d 08h 58m

Occultations	Star	Phase	Mag.	Time	Times listed are
D = Disappearance	600	D	6.8	20d 19h 04.4m	those for the
Stars listed according	929	D	5.8	22d 22h 07.9m	latitude and
to Zodiacal Catalog	931	D	6.7	22d 22h 19.4m	longitude of
(ZC) numbers.	942	D	6.3	22d 23h 09.3m	Greenwich.
	1118	D	6.0	24d 02h 15.1m	

THE PLANETS

Mercury will not be easily visible this month, though in clear skies, conjunction with the Moon on the 10th (15h) with Mercury 2° N of the Moon may assist finding, but Mercury is very low in the sky. Mercury's greatest western elongation (26°) on the 8th (20h). Diameter decreases from 8" arc to 5".

Venus A fine evening object low in the WSW, for up to 2 hours after sunset, duration increasing toward the end of the month. 1/2° S of Mars on the evening of the 18th. Venus will then be at mag. - 3.4. The planet's diameter increases from 11" arc to 12" during the month.

Mars 'Hugging' close to Venus all through the month (never more than 10° apart), Mars is only 1/2° N of Venus on 18th, and an early evening object. Mag. is only

-1.4 and diameter ^{at 4" arc, however,} It might seem that the 'hugging' is for 'mother love' rather than anything else.

Jupiter Visible for several hours in the later part of the night. Conjunction with the Moon occurs on 6th but this is just after midday. (1.5° S of the Moon.) Jupiter's magnitude is -1.6 and equatorial diameter 33" arc.

Saturn is a morning object at mag. +0.7, visible from about midnight. Equatorial diameter 16" arc. In conjunction with the Moon on the 3rd, during the evening (2° S).

Uranus and Neptune are very low in declination, but both attain 10° altitude in the early hours of the morning, Uranus being the earliest and easiest to detect, and rising earlier as the month matures. Respective diameters 4" arc and 2".

Source: Whitaker's Almanack 1983. All times U. T. Roy Adams

METEOR NOTES FOR FEBRUARY 1983

by David Barnard

There is one shower visible from our latitudes this month:

The Alpha Aurigids. Maximum occurring between February 6th and 9th, but active until mid-month. ZHR at maximum of 12. Radiant 04h 56m, +43°. Telescopically active. Favourable this year. Meteors are fairly slow and bright. Broad maximum suggests this is an old stream.

There is a METEOR COUNT on Tuesday, February 8th at the Observatory starting at 8 pm.

OCCULTATIONS (other than those listed earlier)

Although there are two grazing occultations this month, one on February 19th at 23h 08m, and the other on February 23rd at 03h 49m, they are only visible from north-west Scotland (Durness!) and on a line through the Isle of Sheppey in Kent to Liverpool respectively. (Talk has been heard of observing the former, though..)

An occultation more conveniently visible is one by the minor planet Antigone on February 27.79, although the magnitude change is only 0.1 over a duration of 3 seconds! This is occulting a star. The grazing occultations above are by the Moon, of course, occulting a star.

D. B.

WHAT ABOUT THESE TO LOOK FOR? MINOR PLANETS, FEBRUARY

We do not hear much about minor planets, and looking through the B.A.A. Handbook for 1983 the other day, I saw that several minor planets could be at some time during February, visible in ten-inch aperture telescopes and possibly lesser diameter instruments. So here are five of these wanderers, all brighter than about 13th magnitude, with approximate positions for mid-February (15th), and magnitudes. If you decide to search for them and attempt to follow any in their 'wanderings', I suggest resort to the fuller details in the B.A.A. Handbook or in any other source which may be available.

Minor Planet	R.A.	Dec.	Mag.
16 Psyche	15h 20m	-15°	12.3
18 Melpomene	11h 06m	+08°	11.0
22 Kalliope	12h 16m	+19.5°	11.5
26 Proserpina	15h 23m	-17°23'	13.0
52 Europa	07h 52m	+20°05'	11.4

... AND THE ZODIACAL LIGHT?

Until the middle of the month it may also be possible to see the evening cone of the Zodiacal Light in the western sky after skies become dark enough. No telescope needed for this but the thought reminds us that it is not only pin-points of light we need dark, light-pollution-free skies for. No wonder this phenomenon is seldom mentioned these days.

RCA

During the winter months Orion the Hunter is prominent in the southern sky. In February the constellation is on the central meridian in early to mid evening and is then at its best for observing.

The diffuse nebula M42 must be one of the best known objects in the sky, it is certainly one of the most spectacular. It surrounds the famous multiple star Theta Orionis which is the central star of the 'Sword of Orion'. On good, clear nights it is just visible with the naked eye making Theta Orionis look rather fuzzy. With binoculars it is seen as a faint misty patch surrounding Theta. When a three-inch telescope is used Theta can be resolved into its four major components and structure can be seen in the nebulous material surrounding them. With telescopes of eight inches or more considerable detail can be seen, especially in the bright central region where the high surface brightness permits high magnifications to be used.

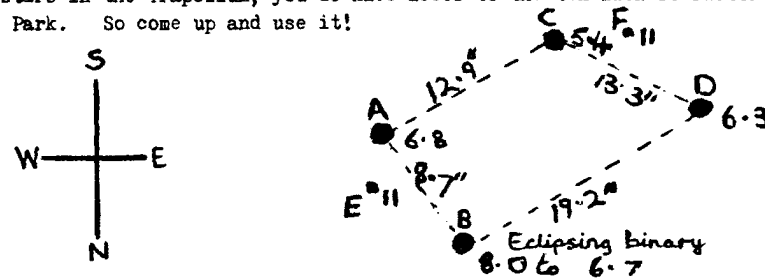
The Nebula is estimated to be around 1 600 light years away. The diameter of the region seen on photographs is about 30 light years. Although the average density of the dust cloud is about a million times less than that of the best laboratory vacuum produced on Earth, there is enough material in these clouds to make 10 000 stars the size of the Sun. From the spectral characteristics of the stars within the Nebula it is found that they are very young and have only recently been formed. One estimate of the age of the stars forming the Trapezium (Theta Orionis) suggests that they only started to radiate 23 000 years ago and it is very likely that new stars are being formed at the present time.

Theta Orionis consists of four stars known as the Trapezium and is situated in the central region of the Nebula. As mentioned above they can be seen with a three-inch telescope while in a four-inch or larger they are easily visible. Besides these main four stars there are two other 11th magnitude stars next to the stars A and C (see diagram, the numbers by the stars are visual magnitudes).

These stars are quite difficult to see because of the large magnitude difference between them and the Trapezium stars. However, when the seeing is good they can be seen with a six-inch telescope and there are reports of them being visible in a three-inch. I have found them useful as a guide to seeing conditions: if both stars can be seen clearly and steadily in a ten-inch telescope then the seeing can be classed as being very good. It doesn't happen very often! Star A is fainter than star C and the 11th magnitude star next to A is generally much easier to see than the one next to star C.

The light from the Orion Nebula is generated by the strong ultraviolet radiation emitted by the Trapezium stars. This causes the gas of the Nebula to fluoresce and glow like a cosmic fluorescent light.

Take the trouble to observe this nebula during February: it is well worth while and remember, if you haven't a telescope of your own to observe the two faint stars in the Trapezium, you do have access to the ten-inch refractor at Orwell Park. So come up and use it!



VARIABLE STARS

by Mike Nicholls

Instead of a light curve, this month I thought we would discuss the R Coronae Borealis class of irregular variables. These stars remain at maximum brightness for most of the time, maybe for several years or maybe less than a year. At irregular intervals they drop in brightness rapidly by anything up to nine magnitudes. By 'rapidly' we are talking of a period of within a few weeks. Here they remain for anything up to months or even years before returning, usually more slowly and rather erratically, back to maximum again.

They are relatively rare stars and thought to be quite old. The intrinsic brightness and size is unknown for certain because of unreliable distance measurements. The spectral types seem to be various but the spectroscope shows one thing in common; they contain a high proportion of carbon and a low proportion of hydrogen. The presence of the carbon is the basis for the most popular theory as to the mechanism of the variations. It is thought that the star occasionally emits a cloud of carbon which condenses high in the cooler atmosphere to form a veil of soot, thus screening the light output. Eventually the veil disperses and the star brightens again.

R Coronae Borealis itself is the most well studied of the class, the variations having been discovered in 1795. Since then there has been one period of ten years when it remained at maximum. Also in this time there was a period of about nine years when it never settled at maximum at all. No signs of regularity have ever been observed.

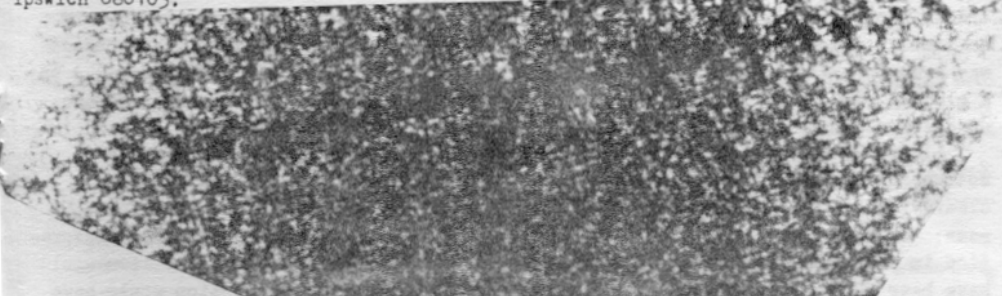
FIREBALL REPORTS

by A. J. Smith

On December 22nd a rather vague report of a fireball was given to me by a friend at work. In view of the rather imprecise details available further investigation was not thought worthwhile. However, on developing the latest film from the Society Fireball Camera, there on film was the elusive fireball. Seen travelling from north west to west, at about 2100hrs on Wednesday, 22nd December 1982, the fireball track was faintly recorded just above the roof of a nearby house. A photograph (negative reproduction) is reproduced below.

Also, on Thursday, 23rd December, another fireball was reported by an O. A. S. I. member. Seen travelling from due north to west, at an altitude of 20°, this fireball was orange-red in colour and at least as bright as a firework rocket. This fireball, as well as being bright, also undulated as it went. (Time 1945hrs.)

If anyone has seen either of the above fireballs, please contact Alan Smith on Ipswich 686103.



...AND ANOTHER BY BOB NEWMAN ... via David Barnard ...

A bright fireball, approximately magnitude -12 was seen by new O. A. S. I. member Bob Newman at 0045hrs on Sunday, January 16th. It lasted about 10 seconds, and travelled from east to west with a whistling, rumbling sound. This was also orange/reddish in colour, and there was no fragmentation.

COMET 1982f, P/CHURYUMOV-GERASIMENKO GENERAL OBSERVAT. B. SECTION
O. A. S. I. REPORT

by Roy Adams

Observation date/time: 1983 Jan. 9th, 2100h to 2245h
 Observers: M. Barriskill, R. Adams
 Instruments: O. P. 10-inch + Erfle eyepiece 32 mm focal length;
 on-board finder. No drive fitted.
 Predictions: S&T 1983 Jan.
 Charts: As in clubroom.
 Seeing: Good and still but this due in part to misty haze

which held about 1 to 1.5 mag. penalty at first, increasing by 2245h to about 2.5 mag. No Moon.

Notes: The area for observation being high in altitude was reasonably free from glare of terrestrial lights even though some haze persisted.

MAIN COMMENTS: After the usual interpolations from predictions, the position of the comet was estimated on one of the Clubroom charts (white objects on black ground) and using binoculars (11 x 80) M. Barriskill attempted to find the comet before using the 10-inch, but this was not possible. So using Castor and Pollux as 'pointers' and angle gauge, the triangle of stars 63, 64 and 66 was found, in the OPI0 finder a smaller triangle including star 63 was identified, and soon the small, misty patch which was expected, was found, at this stage of the viewing quite strongly identifiable against the background. It seemed to be 'exactly' in the right place and of predicted magnitude, but even so, we checked to see if any other similar misty patches were about, and checked Norton's for any marked objects in the region. There were none.

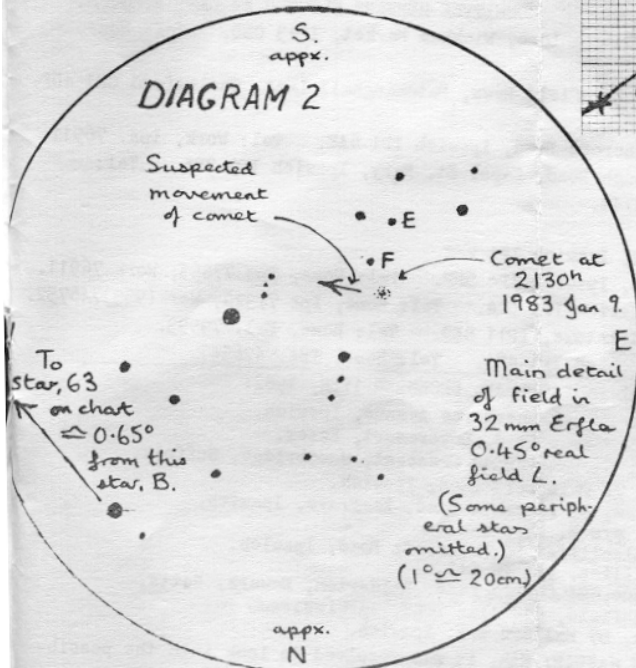
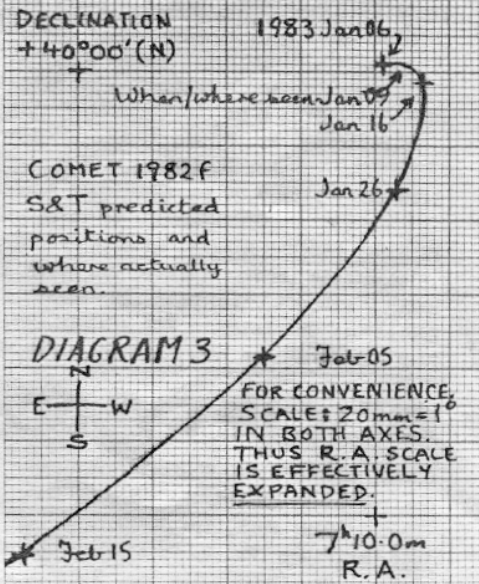
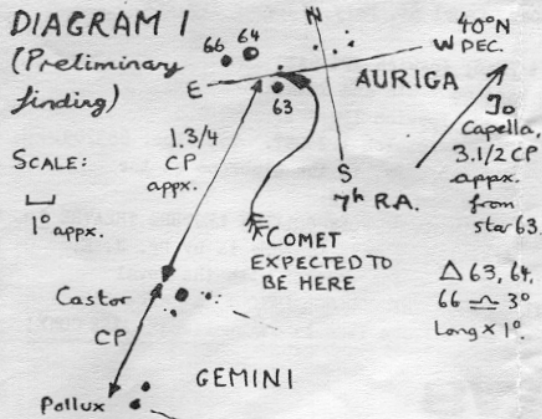
The checking would not in this way be needed for a much faster-moving comet but this one even in half an hour had no detectable movement. Checking the angle made with two other stars (marked E and F in the diagram) still was inconclusive with deteriorating visibility making the comet hardly seeable at all at 2245h but a reduction in the estimated angle EF produced to EFComet from 40° to 38° was suspected, with motion across the field approximately from ENE to WSW.

This would not conflict with predictions: though the suspected direction mean should have been inclined a little more southward, the incremental movement in R.A. and Dec. per hour calculated on a mean between predicted positions ten days apart (6th and 16th January) came to respectively only 4"arc and 1.5"arc - without use of higher powers and 'microscope-graticule' eyepieces not possible to surely confirm. Incidentally, the use of means of figures on curved orbits or other tracks should be always considering further predicted positions, back and forward in time if possible, as between two predicted positions, the comet or other object may even reverse its direction, and the much smaller increments of time markable on a plotted curve on a separate piece of paper should always be taken when real accuracy of checking or determination is required.

In fact the comet was viewed at or very near its time of slowest apparent motion, as can be seen from diagram 3, and in this particular case, it is very clearly seen from the plotted curve, the folly of checking direction from a simple mean: on Jan 9, the comet was in fact travelling exactly as suspected from observation in a direction between due W and WSW. The mean straight-line direction would have been WSW or a little more southward. But on Jan 6, the direction would have been between WNW and W, and on Jan 15th to 16th, it would have been (and expectedly was, with respect to the time of writing of this article) travelling nearly DUE SOUTH. It is better to plot curves using graph paper with equal scale for both axes - in diagram 3, 10 = 20 mm. - if the positions are all below about 45°N Dec, but if R.A. intervals of time, not actual angle, are used, R.A. is expanded. For true accuracy, copies of star charts are required.

The comet's integrated magnitude was predicted to be 12.2 and this was verified approximately. The discernible diameter of the comet (it was roundish in shape) was about 40" arc. There was a more or less central brighter head apparent, possibly 8" to 10" across. The positions given are for 0000h on the dates concerned, in diagram 3. By the end of February, the brightness will have gone down to about 14.5 mag.

The position and speed of the object (apparent motion) in its path on the 9th January would have been the most suitable of all for photographing it - better build-up would have occurred at the time of slow passage and stars would have registered better. But no drive was available and this fact made it more difficult to draw the comet's field even though a low power (132x) and 0.45° real field eyepiece was used.



Original and copy drawings by Roy Adams. Letters by stars are for identification only. No drawing of finder field was made, but this could have been useful. Any further observing notes by others re this comet would be of interest. R.C.A.

ORWELL ASTRONOMICAL SOCIETY (IPSWICH) - PROGRAMME FOR 15 FEBRUARY at the Observatory, Orwell Park School, Nacton, near Ipswich.

TUESDAYS from 8 pm General Observations Section 1st, 8th, 15th and 22nd.
Directors: Mr. N. Gage, [redacted], Felixstowe IP11 8ED. Tel: Fel. [redacted].
Mr. R. Hebbes, [redacted], Felixstowe IP11 7BL. Tel: Fel. [redacted].

*METEOR COUNT INCLUDED on the 8th at 8 pm at the Dome.

WEDNESDAYS from 8 pm Nebulas and Faint Objects Section 2nd, 9th, 16th and 23rd.
Directors: Mr. D. Payne, [redacted], Wickham Market, IP13 OSD. Tel: Wickham Market [redacted].
Mr. M. Cook, [redacted], Ipswich IP4 5QA. Tel: Ips. [redacted].

FRIDAYS from 8 pm Variable Stars Section 11th and 25th.
Directors: Mr. M. Nicholls, [redacted], Capel St. Mary, Ipswich IP9 2EX. Tel: Gt. Wenham [redacted].
Mr. R. Gooding, [redacted], Ipswich IP1 6AE.

SUNDAYS from 8 pm General Observations Section 6th and 20th.
Directors: Mr. M. Barriskill, [redacted], Ipswich IP1 2EZ.
Mr. R. Adams, [redacted], Ipswich IP2 9ST. Tel: Ips. [redacted].

SATURDAY from 7.30 pm COMMITTEE MEETING, 5th February, in the Clubroom at the OBSERVATORY, to which all members are invited.

THURSDAY LECTURE MEETING on 24th February, 7.30 pm at SUFFOLK COLLEGE LECTURE THEATRE 2. Please note Lecture Theatre TWO owing to a transfer. This Lecture is by Dr. J. E. BAKER - subject, 'INTERSTELLAR MOLECULES', and is in conjunction with the Royal Society of Chemistry. FOR MEMBERS UNFAMILIAR WITH THE COLLEGE LAYOUT, a large CAR PARK exists at the rear, and the interior of the college is well signposted; PLEASE COME!

SOCIETY NEWS

ORWELL ASTRONOMICAL SOCIETY (IPSWICH) 1983 COMMITTEE MEMBERS ELECTED AT LAST A. G. M.

Chairman: Mr. D. Payne, [redacted], Wickham Market, IP13 OSD. Tel: Home, [redacted]; Work, Ips. [redacted].

Vice-Chairman: Mr. R. Cheesman, [redacted], Chelmsford CM1 4DF. Tel: Work, [redacted].

Secretary: Mr. R. Gooding, [redacted], Ipswich IP1 6AE. Tel: Work, Ips. [redacted].

Treasurer: Mr. M. Nicholls, [redacted], Capel St. Mary, Ipswich IP9 2EX. Tel: Home, Ips. [redacted]; Work; Ips. [redacted].

Other Members:

Mr. M. Barriskill, [redacted], Ipswich IP1 2EZ.
Mr. D. Barnard, [redacted], Ipswich IP4 5PP. Tel: Home, Ips [redacted]; Work [redacted].
Mr. M. Cook, [redacted], Ipswich IP4 5QA. Tel: Home, Ips [redacted]; Work [redacted].
Mr. N. Gage, [redacted], Felixstowe, IP11 8ED. Tel: Home, Fel. [redacted].
Mr. E. Sims, [redacted], Ipswich IP1 4HA. Tel: Home, Ips. [redacted].

PRIZEWINNERS IN THE GRAND DRAW HELD ON SATURDAY, DECEMBER 11TH, 1982:

£25	1039	D. Brackenbury, [redacted], Ipswich.
£15	3380	M. Mann, [redacted], Dovercourt, Essex.
£10	2913	Ron Edward, [redacted], Woodbridge, Suffolk.
White wine	0670	K. Ranson, [redacted], Ipswich.
Cyprus sherry	0058	Claire Nayse, [redacted], Kegrave, Ipswich.
Bordeaux blanche	3743	Pink Opel, c/o R. Cheesman.
Black Magic	3555	A. B. Hindlecliffe, [redacted], Ipswich.
Black Magic	2742	Russell Fillies, c/o BP Oil.
£2 book token	4020	F. Pearnside, [redacted], Balderton, Newark, Notts.
£2 book token	4316	Mr. P. Schofield, [redacted], Ipswich.
Quality Street	3902	M. Roberts, [redacted], Ipswich.

NICE ENDPIECE: AT THE A. G. M. ON JANUARY 8th, it was resolved to look into the possibilities of making a reasonably large PORTABLE telescope as an O. A. S. I. Project.