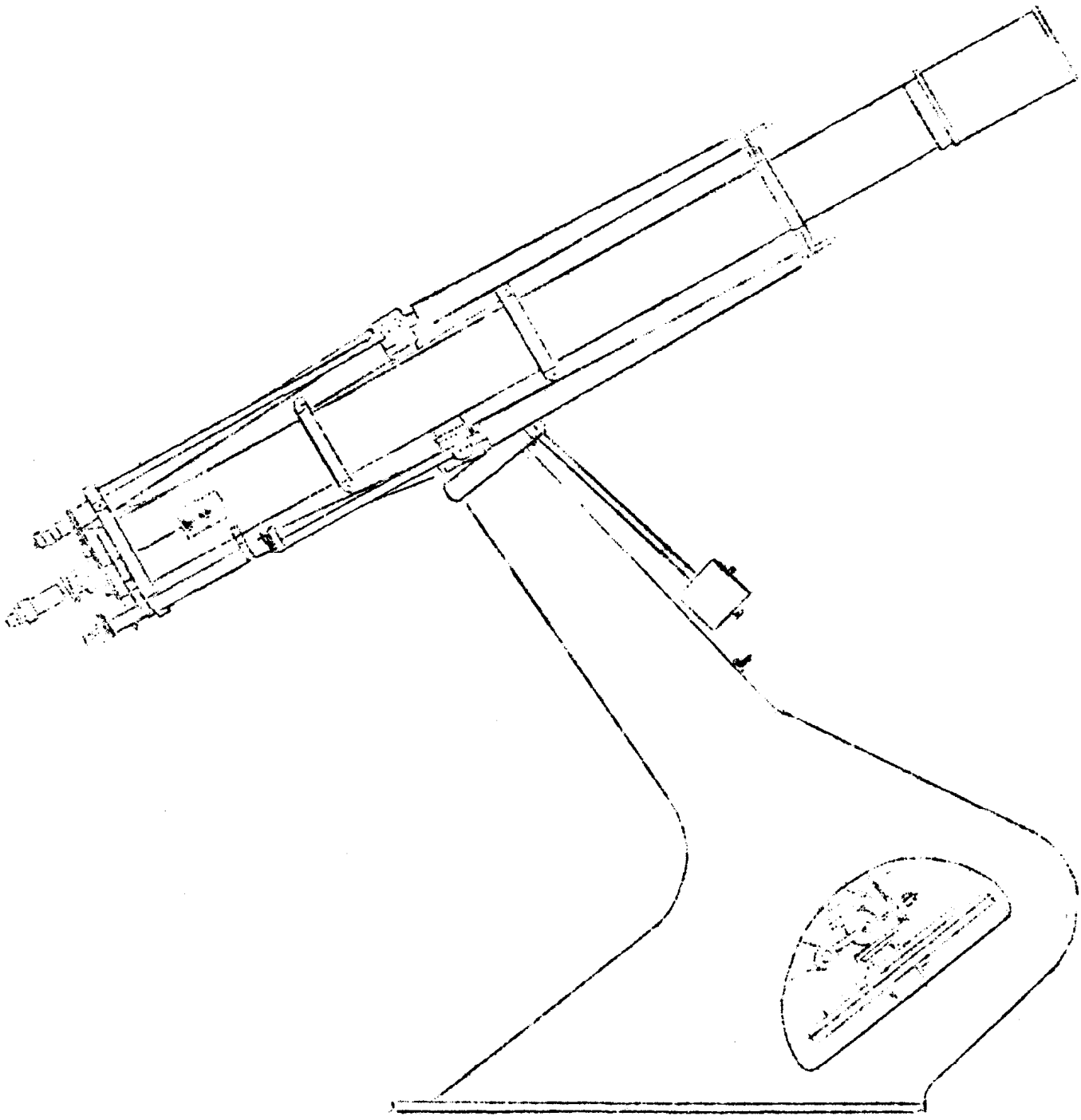
O.A.S.I.

JOURNAL of the

ORWELL ASTRONOMICAL SOCIETY (IPSWICH)

MAY 1977



Editor: Mr. M. Howe,
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BURY ST. EDMUNDS,
Suffolk.
'Phone Bury St. Edmunds [redacted]

THE NIGHT SKY AS SEEN FROM ORWELL PARK this month

At around midnight Corona Borealis is due South; it is one of the few constellations which looks a lot like its name. Before midnight Libra will be visible low down in the South; its brightest star Beta Librae is the only star in the sky which appears green to the naked eye. Even lower down the bright star Antares in Scorpius may be glimpsed - this star has a seventh magnitude green comes which is notoriously difficult to resolve, both because of the brightness of the primary and because of the low altitude. Most of this magnificent constellation is not visible from Gt. Britain.

THE SUN

The Sun begins the month in Aries, rising at 04h30m and setting at 1930, and moves into Taurus in mid-month, rising at 04h20m and setting at 2010 by the end of the month.

THE MOON - Phases

Full Moon	May 3d13h03m
Last Quarter	May 10d04h08m
New Moon	May 18d02h51m
First Quarter	May 26d03h20m

Occultations

Star	Phase	Mag	Time
1384	D	7.4	24d21h45.5m
1489	D	6.8	25d21h42.5m

D=disappearance, R=reappearance. Stars are listed according to Zodiacal Catalog (ZC) numbers.

THE PLANETS

Mercury is in conjunction at the beginning of the month but is a morning star after this until Elongation (25°) on the 27th. when its magnitude will be 0.8.

Venus reaches greatest brilliancy of mag. -4.2 as a morning star in Pisces on the 11th. and two days later at 18hrs it is 1.3° N of Mars, although of course they won't be visible at that exact time.

Mars is in Pisces for the duration at mag. 1.3.

Jupiter is disappearing into the Sun's glare this month still in Taurus its magnitude being -1.5.

Saturn is an evening star in Cancer and its magnitude is 0.5-0.6.

Source: BAA Handbook 1977. Please note all times UT (= BST - 1h).

COMETS - Miklos Lovas of the Konkoly Observatory, Budapest, has discovered two new comets recently:

1) Comet Lovas 1976k was discovered on October 27.06 at mag 17:

2) Comet Lovas 1977c was discovered on February 17.9; its magnitude as 15.

Both were well past perihelion on discovery and will probably have disappeared by now. On January 25 C. Kowal (Hale Observatories) identified a 16th. mag comet as being the first recorded return of Comet P/Taylor 1916I.

NOVA - A 9th. mag nova-like object was discovered by Kuwano in Sagittarius on Mar. 27.8d, at the following position: RA 18h35.2m, Dec -22° 23'.

FROM OTHER JOURNALS

Telescopes - Kitt Peak National Observatory, Arizona, are planning to build a telescope 5 times larger than any one existing now, according to the New York Times. Apparently it is a 'composite' similar in principle to a radio telescope array.

Mars - NASA are unofficially planning a Mars roving lander mission for 1984; capable of covering 100-1000 km, it will carry 'penetrators' which will be buried several metres deep and record seismic activity as well as chemically analysing the soil. NASA boffins at the recent Viking symposium held in Paris emphasised that their planetary exploration programmes are open to international collaboration (Nature).
Uranus - 3 independant observations of the recent Uranus occultation (see MarchOASI Journal) have shown that the planet has a ring of moonlets up to 100 km in diameter in its equatorial plane, similar to Saturn. The ring, which is between 44000 and 51000 km from the centre of the planet, was revealed by many secondary occultations occurring before and after the main one (New Scientist).
Pulsars - A pulsar in Vela has been optically identified with a 26th. mag star using the 3.9m (150in.) Anglo-Australian Telescope. The Vela pulsar is the third fastest known with a period of 1/11 second (The Guardian).
Exploding Black Holes - Prof. Martin Rees of Cambridge University has suggested that exploding black holes may be detected by the bursts of radiation which would occur when relativistic particles from the explosion interact with the neighbouring magnetic fields. This may provide the easiest method of detecting black holes which are so far only theoretical (Nature-Times News Service).

CHARLIE'S COLUMN
A Special Occultation

On Saturday 7th. May the Moon will occult the star cluster M25 in Sagittarius. There will therefore be many occultations of individual stars between about 03h35m UT and 05hrs UT. M25 (according to Norton's Star Atles) is a rather loose open cluster about half a degree in diameter, situated in the Milky Way. It has an integrated magnitude of 6.5.

The event should be very spectacular through the ten-inch. Any insomniacs wishing to view the event should contact the Chairman Mr. Cheesman or the secretary Mr.Stowe at once.

Photography - Maybe somebody can make a 'movie' film of the event. It follows:
Take many consecutive photos, exposures about 1 to 10 minutes if you can guide for that long. About a dozen frames exposed during the 90 mins duration of the event will show the motion of the Moon. A long-focus lens or prime focus of a telescope, a drive, and a 35mm camera is what you will need. Keep the Moon at the side and M25 near the centre of the field of view for photography.

The above prediction was taken from the Feb '77 "Spectrum" who in turn pinched ot from the US Naval Observatory predictions. If you wish to obtain personalised predictions for occultations do as follows: time lots of occultations using the predictions in the BAA Handbook. Once you have a few, send them to Gordon Taylor and ask for some US Naval Observatory predictions. His address is: HM Nautical Almanac Office, Royal Greenwich Observatory, Herstmonceux, Hailsham, Sussex.

Comet Grigg-Skjellerup 1902 is now visible in the morning sky. A large telescope is needed to observe it properly, such as the ten-inch. It is a pity that this prediction did not reach last months Journal because it will soon be gone. The Astronomer (TA) predicts it as mag 10, BAA Handbook as mag 13. The following prediction is from TA and the BAA Handbook p77.

Date	RA	Dec
April 24.0	20h28.8m	3°26'
" 26.0	20h31.3m	6°07'
" 27.0	20h32.4m	7°23'
" 28.0	20h33.5m	8°33'
" 30.0	20h35.5m	10°46'

It may be necessary to usethe Falkau Atles in the Society Library to find the comet. Full Moon is on May 3, then the Moon will swanup the comet for the next 10 days, and by mid-May it will probably be too dim to observe. I hope this is in time for you to see it (check for the latest news in the April edition of the Astronomer - not available at the time of writing - which will be

Other Comets

1) Comet P/Schwassman-Wachman (1925)(don't be put off by the name) has undergone some more flares this winter. At the moment it is in conjunction, but will be a morning object in August and the Autumn. Predictions on p89 of the BAA Handbook. see also TA.

2) Comet Encke (now invisible) will be an evening object in September/October, predictions on p78 of BAAH.

No other observable comets are predicted this year, at least NOT YET...

COURSES

The BAA are holding another residential weekend course at Horncastle, Lincolnshire, this year on September 9-11. Participants will be able to use Horncastle College's own 305mm (12in.) Newtonian, weather permitting. It is open to anyone over 18 for a fee of £15.75 all-in, the Tutorial Panel consisting of such distinguished personages as Patrick Moore, Cdr. Hatfield and W.E.Pennell.

The International Astronomical Youth Camp 1977 will be held in Konigswinter near Bonn West Germany from July 25-August 12. It is open to people between the ages of 15 and 22, the fee being DM300 (how much?).

Further details of either of the above may be obtained from the Editor or the Society club room.

EXOBIOLOGY pt.3

LIFE IN THE UNIVERSE

"A sad spectacle. If they be inhabited, what a scope for misery and folly, If they be not inhabited, what a waste of space."

Thomas Carlyle

More is known about conditions inside the Solar System than out, and hence by necessity a large part of the following discussion will be devoted to our Sun's family. This is a pity, since our little corner of the Universe is very diminutive and the possibilities of interesting life-forms are thus limited.

What follows is mainly concerned with the three planets Venus, Mars and Jupiter, the reasons for this being:

(a) these planets have been visited by space-probes, so that a relatively large amount is known about them,

(b) they are almost certainly the only localities in the Solar System (with one notable exception) wher the temperature range may be hospitable.

Venus

Venus has often, inappropriately, been called the Earth's twin; since the only similarities are in mass and volume, this is akin to likening Brigitte Bardot to a hundredweight sack of coal. It is an inferior planet of diameter approx. 12400 km (7700 miles) orbitting the Sun at 0.72 AU every 225 days.

From its distance from the Sun, the amount os radiant energy (flux) falling on the surface of Venus can be calculated. It turns out that, although rather hot, the temperature should not be too great for life to exist. However, Venus has a dense atmosphere composed mainly of CO_2 which acts in a similar way to a greenhouse. This greenhouse effect traps most of the heat and causes temperatures of up to 500°C. Hence Venus would seem at first sight to be a most inhospitable environment, especially considering the atmospheric pressure of well over 100 bars, in great contrast to the pre-space probe science fiction stories of idyllic seascapes and abundant plant-life.

NEWSDESK by David Barn[illegible].

The Past Month's news in Astronomy:

URANUS, the 7th planet in the solar system, has a ring of satellites like Saturn. On March 10th the star SAO 158687 occulted Uranus. These events are usually used to investigate planetary atmospheres. Several observatories monitered this occultation. Astronomers unexpectedly observed a string of secondary occultations when the star was well clear of the planet.

Recent calculations have shown that Uranus has a circular belt lying in the equatorial plane, the latter is inclined at 98° to the main plane of the solar system. The belt is between 44,000 and 51,000km from the centre of the planet, which puts it 20,000km above the surface. One disappearence of the star lasted 9 seconds, which shows that the mini-satellites are fairly large, around 100km across. Uranus' ring is probably the remains of a satellite that was smashed by tidal forces.

Note: Herschel, who discovered Uranus, also thought he had seen a ring around the planet, but the present ring would have been too faint for him to see.

To search for the belt one should look 3 - 4 seconds of arc from the planetary disc, but as they are magnitude +19 this is not a job for amateurs.

VOYAGER to look at these rings of Uranus:

During late August/early September we will see the launch of two spacecraft by N.A.S.A. on long flights through the solar system called 'Project Voyager'. The spacecraft's flight will take them to Jupiter and Saturn and past the moons of both planets. If all goes well, one of the craft will be sent to Uranus and Neptune. when the two planets would be 1700 million miles and 2700 million miles away from the Earth respectively. The first Voyager would reach Jupiter in March 1979 and Saturn in November 1980, and Uranus in January 1986.

ASTRONOMERS support U.F.O. search.

U.F.O.'s 'certainly' 'probably' or'possibly' deserve scientific investigation say 80% of respondents to a questionaire sent to the A.A.S. (American Astronomical Society). Of the 2611 members, 1351 replied and of these, only 20% thought the study unnecessary.

Thirteen A.A.S. members had strong objections, both to the questionnaire and to reports of U.F.O. sightings. "I object to being quizzed about this obvious nonsence" said one.

CANADIANS recover 3rd photographed meteorite fall:

On the evening of 5th January, 1977 the Canadian Fireball Photography Network recorded a 5 second meteorite dropping fireball of magnitude -10 over S.E. Alberta. After computing an impact point, field searches have led to the recovery of the fallen meteorite, only the third to be linked to it's fireball. 2.1kg were recovered and searches are still continuing for more meteorites. The 2.1kg. meteorite is being examined in laboratories. The meteorite was found only twelve days after it's fall, and its early recovery will enable the study of short-lived radioactivity. The meteorite is a chondrtic stone type.

The three photographed meteorite falls so far are:

1. Pribram, Czechoslovakia on 7th April, 1959 at mag. -19 and 5.8kg was recovered
2. Lost City, U.S.A. on 4th January, 1970 at mag. -11.6 and 17.3kg " "
3. Innisfree, Canada on 5th January, 1977 at mag. -10.5 and 2.1kg. " "

Boron has at last been identified in the Solar System. In the past its characteristic atomic lines were sought, but to no avail. A rocket-launched by two Harvard astronomers revealed an encouraging hint of B ron near 2,500 A and now analysis has confirmed this. Boron exists in the earth's crust and also carlonaceous chondrite meteorites. For every million atoms of silicon in solar system material, the chrondrites imply about 350 atoms per boron, Boron has also been detected in the stars Kappa Cancri, and ε Lyrae (Vega), though at much lower abundance.

WAY OUT ideas for interstellar travel:

Fusion engineers and spacecraft engineers should join forces to advance each others art, it was proposed at a B.I.S. conference on interstellar travel last week. Advances in fusion technology now gives us the power to propel a space craft to the stars.

An eleven man team, headed by former Rolls Royce rocket engineers Alan Bond, outlined at the meeting the results of a four year design study of a robot probe to reach Barnard's (no relation to me fans!) star, the second closest star to the Sun, six light years distant. The star ship, called 'Daedalus' will build up a top speed of 12% the velocity of light using electron beams to ignite hydrogen "bombs" at the rate of 250 a second.

continued.....

NEWSDESK continued

Fifty years later, it would transit to Earth photographs of the planets, if any, orbiting Barnard's star. This plan forsees tinanium and aluminium for the probe's structure being mined from the Moon, the helium-3 required for the "bombs" is to be sifted from Jupiter's atmosphere. All this would be feasible during the next century at an estimated cost of $100,000,000,000 (equivlant to one year's defence spending by the United States). But if it is so easy to travel between stars, why has the galaxy not already been swamped by the millions of other civilisations predicted to lie out there? One view very strongly supported was that we may be really the only technologically advanced form of life in the galaxy.

HOW BIG WAS TUNGUSKA?

The "Tunguska Event", a mysterious occurance in 1908 when some kind of object from space collided with a remote part of Siberia, causing devastation that covered a radius of 50km., but no crater.

Now a calculation by Professor Ari Ben-Menahem of the Weizmann Institute of Science suggests that the event involved a release of energy at a height of 8½km. equivalent to the explosion of a 12.5 MEGATONS of T.N.T.

The calculation emerges from a computor study of the seismic and acoustic data recorded at the time of the event.

U.S.A. LAUNCHES big satellite for X-ray astronomy.

If all went well, the largest X-ray astronomy satellite yet - HEAO-A , was blasted into orbit on 15th April, 1977 from Kennedy Space Centre, Florida. It is only half the size it was going to be because of the U.S. Congress cut into N.A.S.A.'s budgets. (full article in New Scientist Vol. 74 No. 1047 page 76)

ARTICLES this month:

New Scientist: Vol 73 no. 1044 page 689 on Astrons - the Earth's oldest stars? How they influenced the shaps of our continents, also new polarisation maps of nebula. Using the electronographic camera (pictures of M1, M82, M104, and the Orion Nebula (M42).

RECENT BOOKS OUT:

'In The Spaceflight Revolution' (Wiley-Interscience) priced at £13

MODERN ASTRONOMY edited by Patrick Moore (Sidgwick and Jackson)
Priced at $4.50 or £2.50 paperback.

This book has a selection of articles from various yearbooks on astronomy. Highly readable book on advances in astronomy. The book is valuable as a survey of some recent developements. For the latest news on Titan, or the radio sources outside our galaxy, this is the book if you have not got all the articles through.

METEOR NOTES for May, 1977. by Mr. D. Barnard,

There is one major shower this month - the Eta Aquarids. All of this years showers so far have been washed out by Spode, let us hope the April Lyrids count on April 23rd will not be so unfortunate. The report on this meteor count will be reported in next month's Journal.

THE ETA AQUARIDS.

Max on May 5th, Normal limits May 1st to 8th. Z.H.R. at Max = 20. Radiant rises about 0100U.T. Radiant R.A. 22hrs 24mins Dec. 00°. Moon interferes with this shower and the B.A.A. reports it as 'Unfavourable'.

We will, however, have a meteor watch to observe this shower on SATURDAY 6th MAY The radiant does not get up to 20° altitude until 0400hrs U.T. and by this time it will be laight anyway.

DAYLIGHT STEAMS.

There are two daylight streams this month which were discovered by radar:
1. May 13th The Upsilon Piscids, R.A. 1700hrs Dec. +26°. Transit hourly meteors approx 2. Normal limits May 12th - 13th.

2. May 15th. The Omicron Cetids, R.A. 26° Dec -3 Transit HR 25, normal limits May 14th - 23rd.

There are no minor observable meteor shower streams this month.

DON'T FORGET:

ONE METEOR COUNT on SATURDAY 7th MAY THE EQUARIDS SHOWER
MEET AT 10p.m. OUTSIDE the Golf Hotel Foxhall Rd. Ipswich.

B.A.A. Weekend Course - Observational Astronomy held at Winchester April 15-17th.

Report by Adam Fairhead.

For the eleventh Easter running the King Alfred's College in Winchester was occupied by a party of enthusiastic amateur astronomers. Started a decade ago with only a handfull of participents, this course is now over two-hundred strong, and brings people from all parts of the U.K. including far off places such as N. Ireland and Scotland.

The basis of the course is a series of about half a dozen lectures on observational astronomy ranging from subjects such as 'observing the Sun' to photography at the telescope', each given by a member of the panel which consists of section directors and other prominent people of the B.A.A. In recent years participents could sometimes chose between attending a beginners lecture or going to the more advanced on.

In addition to these lectures there were several slide and film shows, and the Students Union plus bar was open for individuals to get together and discuss subjects whether they be astronomical in nature or not. A number of people brought their own telescopes with them, with apertures ranging from 2 to 12 inches, so that in the evenings, weather permitting, informal viewing sessions took place.

The accomodation for the course was about the best you could expect when dealing with over two-hundred people. Each participent got a room to him or herself, including a basin, in the halls of residence which were, at the most, only a few hundred yards from the main buildings. Food was served in the main dining hall, and was of typical mass catering quality. The total cost ofthe course was £10 per head, and this included everything except coffee and drinks served in the Students Union, however next year it will have to be increased by about 15%

By teatime Sunday everyone had certainly had a good week-end. Those who were beginners were now well aquainted with the subject, while the more experienced observers had had a useful two days of lectures and discussions. The path is now set for another successful weekend in 1978, when everyone will meet again.

A. Fairhead.

B.A.A. METEOR SECTION MEETTING at Imperial College, London.

On Saturday 2nd April at 7.15 a.m. nine people in two cars set out for London of whom five went to the B.A.A. Lectures while the other four sent an enjoyable day in the British Science Museum. The five members attending the meeting, together with three other members who were already in London, sat down in the lecture room at 9.45 a.m. and with the other members of the B.A.A. numbering about one-hundred heard lectures by various members of the B.A.A. and by the director of the Meteor Section of the Natural History Museum. During the coffee period and the one hour for lunch we not only met other members of the B.A.A. but also managed to sneek in a quick visit to the Science Museum next door (although we got back to the afternoon lectures about half an hour late!

The meeting finished at 6p.m. and after seeing various equipment made by members of the B.A.A. Meteor Section we had an evening meal at Imperial College before setting off home.

The trip to London was uneventful and we found it first time (a sterling job of navigation by Mr. N. Gage!) On the way home we went around Soho, Piccadilly Circus (twice) before finding our way out of London. A short stop on the way home for liquid refreshments (about an hour) and we were home in Ipswich by 10p.m.

The cost per head was about £2.50 including a meal and a swift half of ale. The day was throughly enjoyable and informative and it is a pity that more members did not take advantage of this cheap day out.

RADIO ORWELL

On Thursday 14th April at 6.30p.m. to 7.30p.m. live on 'Talking Point' four of our members were invited to talk and answer phone in questions on astronomy. This event, which was organised after we went to print with April's Journal was posted in the Observatory. Although the four members, R.M. Cheesman, C. Munford, J. Deans and C. Radley were a bit apprehensive about being live on radio, Rummy Weston, the chairman of the programme, made us all at ease and the hour, which we thought would take a lifetime seemed to fly past and our fears were unfounded.

If any members missed this radio programme and would like to know more about it we have copies of it: Apply R.M. Cheesman, [redacted], Ipswich.

A METEOR COUNT WEEK

Any one interested in joining a week long 'ALL NIGHT METEOR WATCH' during the week 23rd July to 29th July in North Suffolk?

The week will most probably be spentunder canvas, fairly near one of the sea side resorts for the'day-life' and if anyone is interested please contact either:

Mr. D. Barnard, Telephone Ipswich

or

Mr. N. Gage, Telephone Felixstowe [redacted]

as soon as possible please.

This meeting had been approved by the B.A.A.

FOR SALE:

8¾inch aluminized mirror and matching 1.4inch diagonal. Gives good performance up to 200x

give away price of only £45

Please contact Mr. M.J. Harlow, [redacted], Felixstowe, Suffolk

Telephone Felixstowe [redacted]

ORWELL ASTRONOMICAL SOCIETY (IPSWICH)

Programme for May, 1977

AT ORWELL PARK OBSERVATORY NACTON.

MONDAYS from 8p.m. General Observations Section
Director. Mr. N. Gage, [redacted], Felixstowe, 'Phone Felixstowe [redacted]
and Mr. S. Flory, [redacted], Ipswich, 'Phone Ipswich [redacted]

2nd May
9th "
16th "
23rd "
30th "

WEDNESDAYS from 7p.m. Solar, Lunar & Planetary Section
Director. Mr. R.M. Cheesman, [redacted], Ipswich.

14th May
21st "
28th "

THURSDAYS from 8p.m. Double Stars Section
Director Mr. D. Bearcroft, [redacted], Ipswich, 'Phone Ipswich [redacted]

12th May
26th "

FRIDAYS: dfrom 8p.m. Nebula & Faint Objects Section
Director. Mr. R. Hazelwood, [redacted], Ipswich, 'Phone [redacted]
and Mr. R. Gooding, [redacted], Ipswich.

6th May
20th "

FRIDAYS from 8p.m. Variable Stars Section
Director Mr. R.S. Manning [redacted], Ipswich, 'Phone Ipswich [redacted]
and Mr. M. Siggers, [redacted], Ipswich

27th May
3rd June

VISITS TO OBSERVATORY:
arranged by Mr. R.M. Cheesman, [redacted], Ipswich.

SATURDAY 7th May from 7.30p.m. Stowmarket Rangers

FRIDAY 13th May, from 8.30p.m. Ipswich Friday Club.

OTHER MEETINGS:

METEOR SECTION Director Mr. D. Barnard, [redacted], Ipswich, 'Phone [redacted]

ETA AQUARIDS METEOR COUNT on Saturday 7th May from 10p.m.

Meet OUTSIDE the Golf Hotel, Foxhall Road, Ipswich at 10p.m. irrespective of weather conditions.