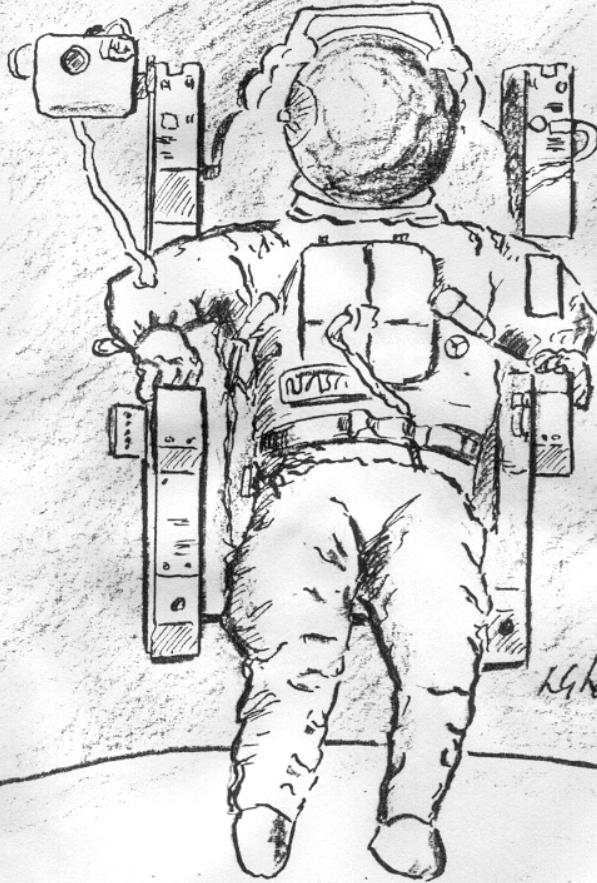


ORWELL ASTRONOMICAL SOCIETY IPSWICH

Charity No 271313.

MARCH 1996



ARE YOU SITTING COMFORTABLY?

NIGHT SKY

All times GMT

SUN

Rises approximately at 06.50 to 06.07
Sets approximately at 17.50 to 18.30

MOON



5 th



12 th



19 th



27 th

MERCURY Mercury will be difficult to see this month.

VENUS Venus will be very prominent again. in the evening sky this month. Setting about 22.00 in mid month. Mag. -4.3

MARS Mars will be at conjunction on the 4th.

JUPITER Jupiter is prominent object in the morning sky. It will be rising at 02.50, in mid month. Mag. -2.0.

SATURN Saturn will be at conjunction on the 17th.

URANUS Uranus will be rising at 04.00 in mid month. Mag. 5.8.

NEPTUNE Neptune will be rising at 03.40 in mid month. Mag. 8.0
planets will be rising sat about 06.30 in mid month.

Events For March

Day	Event
14	Jupiter 5° south of the moon.
18	Mercury 5° south of the moon.
19	Mars 3° south of the moon.
19	Saturn 4° south of the moon.
22	Saturn 1° north of Mars.
23	Venus 6° north of the moon.
23	Saturn 0.3° north of Mercury.
24	Mars 0.8° south of Mercury.
28	Mercury at superior conjunction.

R. Gooding

OCCULTATIONS DURING MARCH 1996

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. (Note: two events are listed for the nights of 26th March and 29th March.)

Date	Time (UT)	Lunar Phase	Sun Alt (°)	Star Alt (°)	Min Dist (radii)	PA (°)	Star (D = double)	Mag
Fri 01 Mar	02:11:09	.83+	-39	19	.43N	78	68 Gem	5.3
Sat 02 Mar	18:11:22	.94+	-6	28	.30N	86	Alpha Cnc	4.3
Mon 25 Mar	20:51:20	.38+	-23	35	.48N	65	115 Tau (D)	5.4
Tue 26 Mar	18:47:17	.47+	-5	54	.65N	55	ZC944 (D)	6.3
Tue 26 Mar	23:35:41	.49+	-35	17	.49N	69	ZC975 (D)	7.0
Thu 28 Mar	00:14:39	.59+	-35	17	.58S	138	51 Gem (D)	5.0
Fri 29 Mar	19:12:42	.75+	-8	49	.49N	78	45 Cnc	6.0
Fri 29 Mar	22:02:44	.76+	-29	44	.45S	137	50 Cnc	5.9
Sun 31 Mar	22:02:45	.90+	-28	43	.46N	87	ZC1519 (D)	6.5

James Appleton

SOCIETY NEWS

3 Events for 1996

This list of events was first presented at the AGM.

Lecture Meeting Ron McArthur	1st March
BAA Winchester Weekend	29th March
Lecture Meeting OASI	26th April
Oxford Weekend	10th May?
WEB Society AGM Cambridge	1st June
BAA Comet Section Meeting Cambridge	8th June
BAA Exhibition Meeting	29th June
Astro Camp	11th Aug.
Horncastle Weekend	6th Sept.
National Astronomy Week	21 to 28 Sept
FAS Cambridge Convention	5th Oct.
Christmas Meal	11th Dec.

1 1996 Subscriptions

Subscriptions for 1996 will be due from 1st of January. The rates for the new year will be:-

Junior	£8.00
Adult	£12.00
Family	£14.00

A renewal form was included with the January newsletter. It would be appreciated if you could return this so that the society membership records can be kept up to date.

This will be the last newsletter sent out to any members who have not yet paid for 1996.

Please return all subscriptions to

Martin Cook

Ipswich
IP4 5PZ

2 Committee Meeting

The next committee meeting will be held on Saturday 20th April at the observatory, from 19.30. This will be an open meeting and any member is welcome to attend.

4 Lecture Meeting 1st March 20.00

A lecture meeting has been arranged for Friday **1st March** at the Friends Meeting House in Fonnereau Road. The meeting will start at 20.00.

The talk will be given by Ron McArthur on Radio Astronomy

COMET UPDATE by Mike Harlow

When the astronomical history of the 20th century is written the last 10 years may well be remembered as the decade of 3 great comets. We have already had the first of them, Shoemaker-Levy-9. Although not visible to most people on Earth the comet made a dramatic impact on Jupiter in July 1994 and made headline news all round the world raising an enormous amount of public interest in astronomy. The second, discovered in mid 1995 by two American amateur astronomers, Hale and Bopp, will come to

perihelion in early 1997 and could rank among the great comets of all time. And the third, discovered by a Japanese amateur in January 1996, may well be the most spectacular of the three: We will know in just a few weeks time...

Great comets are rare but every year there are 20 - 30 'ordinary' comets which come and go almost unnoticed and it is one of these that I want to discuss first before getting on to the 'greats'.

Comet C/1996 B1, Szczepanski

On 27th January Edward Szczepanski of Houston Astronomical Society took a photo of the sky near M101 in Ursa Major with his 300mm camera lens. When he developed the film not only did he see many thousands of stars and a handful of galaxies but also a short fuzzy streak. The next night several other observers confirmed the new object as a comet which at that time was about 10th magnitude. Over the next few nights further observations enabled the orbit to be worked out and predictions to be made of its position and brightness over the coming months. A summary is given below:

$$\text{magnitude} = +7.5 + 5.0 \log R + 10.0 \log r$$

Date	R.A. (2000)	Dec.	R	r	Elong	Mag.	Motion
	h m	o ' "	(AU)	(AU)	o		"/hr P.A.
March 1.0	11 7.64	+31 56.0	0.528	1.487	155.2	7.8	271 222
March 4.0	10 51.38	+27 46.3	0.529	1.497	158.5	7.9	273 219
March 7.0	10 36.61	+23 29.7	0.537	1.508	159.9	7.9	268 217
March 10.0	10 23.43	+19 14.6	0.550	1.520	159.1	8.0	256 215
March 13.0	10 11.82	+15 8.2	0.570	1.533	156.5	8.1	239 213
March 16.0	10 1.74	+11 16.0	0.594	1.547	152.8	8.3	219 212
March 19.0	9 53.08	+7 41.2	0.624	1.562	148.7	8.4	198 210

In the table R is the distance from the Earth and r is the distance from the Sun. The magnitude equation shows that the comets brightness depends on three things. The first value is the comets intrinsic brightness, the bigger the number the fainter it is. The second and third terms show that as the comet approaches the Earth and Sun it gets brighter, as expected. This equation will appear again later when discussing the other two comets.

The RA and Dec numbers give the comets position on the sky and show that at the beginning of March the comet is mid way between Ursa Major and Leo and that by 19th March it has slipped past Regulus (on 15th) and is heading south west. It is worth trying to observe this comet, as it is well placed in the evenings, if only to compare it with our next visitor. . .

Comet C/1996 B2, Hyakutake

Just 3 days after Szczepanski discovered his comet Yuji Hyakutake, who lives on the southernmost island of Japan, discovered his second comet in just over a month using his 25x150 binoculars! His first comet, 1995Y1 is in the 'ordinary' category but his second is most definitely not. As soon as its orbit was determined it was clear that something special was going to

happen. The summary table of position, distances and magnitude as well as which constellation it will be in is given below:

$$\text{magnitude} = +5.5 + 5.0 \log R + 10.0 \log r$$

Date	R.A. (2000)	Dec.	R	r	Elong.	Mag.	Const.
	h m	o ' "	(AU)	(AU)	o		
Mar 1	14 51.6	-22 44	0.823	1.519	113.4	6.9	Lib
Mar 5	14 53.3	-21 31	0.690	1.446	117.4	6.3	Lib
Mar 9	14 54.6	-19 37	0.557	1.370	121.7	5.6	Lib
Mar 13	14 55.3	-16 25	0.426	1.294	126.5	4.8	Lib
Mar 17	14 54.9	-10 20	0.298	1.215	132.1	3.7	Lib
Mar 21	14 52.1	+4 21	0.179	1.135	137.4	2.3	Vir
Mar 25	14 35.4	+51 11	0.104	1.052	119.4	0.8	Boo
Mar 29	3 37.4	+71 16	0.156	0.967	73.9	1.3	Cas
Apr 2	3 12.5	+52 31	0.269	0.879	56.2	2.1	Per
Apr 6	3 06.9	+44 59	0.393	0.788	47.2	2.4	Per
Apr 10	3 03.1	+40 48	0.521	0.694	40.6	2.5	Per
Apr 14	2 59.1	+37 52	0.651	0.597	34.7	2.3	Per
Apr 18	2 54.3	+35 20	0.782	0.497	29.1	1.9	Per
Apr 22	2 48.1	+32 39	0.914	0.396	23.2	1.3	Tri
Apr 26	2 40.0	+29 15	1.045	0.301	16.7	0.4	Ari
Apr 30	2 30.7	+24 19	1.161	0.236	9.5	-0.4	Ari
May 4	2 23.7	+17 42	1.229	0.246	5.5	-0.2	Ari
May 8	2 22.4	+10 55	1.243	0.321	11.3	1.0	Ari
May 12	2 25.4	+4 44	1.230	0.418	18.4	2.2	Cet
May 16	2 30.9	-0 58	1.207	0.520	25.2	3.1	Cet
May 20	2 38.1	-6 24	1.183	0.619	31.6	3.8	Cet
May 24	2 46.8	-11 43	1.160	0.716	37.7	4.4	Eri

A few interesting facts are immediately obvious. From the first term in the magnitude equation it is clear that the comet is intrinsically faint, albeit a bit brighter than Szczepanski. However, look at R and r. On 25th March R is only 0.1 AU. This means the comet passes within about 10 million miles of Earth and as a result the magnitude shoots up to near 0, i.e. about the same as the star Arcturus! This last week of March will be an interesting time, the comet will be overhead at the time it is brightest and will reach declination +86 on 27th. At the time of closest approach the comet will move at about 17 degrees per day, i.e. the diameter of the moon in just 45 minutes. Because we see the comet side on it is expected that the tail could be as much as 90 degrees long.

Having zipped past the Earth in only a few days the comet plunges towards the Sun. As it recedes from us it gets fainter but then the effect of its reduced solar distance takes over and it brightens again. Some very optimistic estimates (by experienced observers) put its magnitude at -10 near perihelion at the end of April. By that time it is extremely close to the Sun in the sky and will probably not be visible although the tail may be seen stretching above the horizon before sunrise.

PROGRAMME FOR MARCH

The Moon will interrupt observations at the end of March but on 3-4 April there is a total eclipse of the Moon which will give an extra hour of darkness when the comet is near its brightest and highest.

All of the above speculation on brightness is highly uncertain but the positions are now quite accurate.

Comet C/1995 O1, Hale-Bopp.

The comet that most people have now heard of, Hale-Bopp, has been recovered after its solar conjunction and it is still looking very promising for next year. Although it is still about as far away as Jupiter observers in Australia report that it is about magnitude 9 with a coma diameter of 4 arc minutes and a tail 8 arc minutes long as seen in a 10 inch telescope.

It is currently quite close to the sun in the sky but visibility should improve in April and May. Its position over the coming months is given below:

$$\text{magnitude} = -1.5 + 5.0 \log R + 10.0 \log r$$

Date	RA	declination	r	R
5 Mar	19h 32m	-21 25'	5.109	5.628
15 Mar	19h 37m	-20 45'	5.012	5.386
25 Mar	19h 40m	-20 03'	4.914	5.132
4 Apr	19h 43m	-19 20'	4.815	4.869
14 Apr	19h 44m	-18 36'	4.716	4.601
24 Apr	19h 44m	-17 50'	4.616	4.334
4 May	19h 43m	-17 03'	4.515	4.070
14 May	19h 39m	-16 14'	4.413	3.817
24 May	19h 34m	-15 23'	4.310	3.579

The comet is currently in Sagittarius moving slowly north in a short arc and is about magnitude 8.

The magnitude equation reveals the important feature of Hale-Bopp that sets it apart from the other two comets. Because the first term is actually negative, -1.5, the comet is intrinsically very bright and in fact it is amongst the brightest ever seen. This means that although it will not come closer than 1.2AU to the Earth it could still be about magnitude -1 or -2 in March 1997.

Any reports on observations of these comets would be very welcome.

Acknowledgements

Positions for 1996 B1 and 1996 B2 were taken from *The Astronomer* electronic circulars and the ephemeris for 1995 O1 was calculated using Guide 4.0 software.

<i>Mondays from 7.30pm</i> <i>No Directors available for this night</i>	GENERAL OBSERVATION SECTION
<i>Tuesdays from 7.30pm</i> <i>Mr D Barnard</i>	GENERAL OBSERVATION SECTION daytime only
<i>Wednesdays from 7.45pm</i> <i>Mr M Cook</i>	NEBULA & FAINT OBJECTS SECTION <i>Mr D Payne</i>
<i>Thursdays from 7.30pm</i> <i>Mr P Richards</i>	OBSERVATORY VISITS FROM OUTSIDE GROUPS
<i>Fridays from 7.30pm</i> 1st - 15th - 29th <i>Mr J Hood</i>	DOUBLE STARS <i>Mr M Barritt</i>

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

Lectures and other events:

COMMITTEE MEETING ----- On Saturday 20th April at 7.30pm in the club room at the observatory. All members are welcome to attend.

LECTURE MEETING ----- At Friends Meeting House Fonnereau Road Ipswich on March 1st at 7.30pm by Ron McArthur.

VISITS ----- March 26th 28th & 29th.

e-mail enquires to oasiengq@btbcs.bt.co.uk

WWW url <http://www.ast.cam.ac.uk:80/~ipswich/>

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