

BAA COMET SECTION NEWSLETTER

Issue Number: 1

Date: 23/1/89

FROM THE DIRECTOR:

This is the first issue of the BAA Comet Section Newsletter. The Newsletter does not necessarily signal the end of our six monthly Bulletin (Istimirant Stella). If resources permit, we will continue with its publication as an outlet for reports and short articles. At present, we have a more urgent requirement to publish observational information on a rapid and frequent basis and it is for this reason that I have introduced the Newsletter.

The primary objective is to encourage Section members to secure comet observations of all types. The Newsletter will contain detailed ephemerides and other information to aid the observer and details of actual observations. Observers should report their results to the undermentioned on a monthly basis please.

Visual: Graham Keitch, 2 South Meadows, Wrington, Avon BS18 7PF

Photographic: Harold Ridley, Eastfield Lodge, Eastfield Lane, East Chircock, Yeovil, Somerset BA22 9EP

Astrumatic: Mike Hendrie, Overbury, 33 Lexden Rd, West Bergholt, Colchester, Essex CO6 3BX

Any other brief items of interest or notices should also be sent to me at Wrington. In particular, I would like to hear from our comet hunters so that we can collate statistics on this activity.

The Comet Section Newsletter will appear as frequently as is necessary (probably every four to six weeks). Regular communications and prompt reporting of observations within the Section will leave us better placed to report summaries of our work to the rest of the Association (via the Journal and at meetings) and to other agencies such as the IOQ.

Now the dust has settled after Halley, I would like to carry out a review of the Section's membership. A form is enclosed for your completion and return to assist me in establishing a new set of records. Finally, best wishes and good luck to you all in 1989.

IN BRIEF:

The Halley results - we are currently discussing the relative merits of publishing the BAA Halley results in the Journal or a memoir. Meanwhile, Mike Hendrie is putting the text together and we are very grateful for his assistance with this major task.

David Keedy Award - this award is given annually to a member of the Section by David in recognition of valuable contributions to our observing programme. Jonathan Shanklin was the recipient last session. Congratulations Jonathan and thank you David.

Prospects in 1989 - Harold Ridley has researched into the prospects of observing this year's periodic comets. His notes are attached and we thank him for this very useful contribution.

Cambridge Meeting Feb 25 - a joint meeting involving the BAA Comet, Asteroid and Remote Planets and Meteor Sections will be held at the Institute of Astronomy in Cambridge on Saturday February 25. The meeting commences at 1100h and there will be a small admission fee. Further details can be obtained from Jonathan Shanklin, 11 City Rd., Cambridge CB1 1DP (tel 0223 61188 -work or 0223 64778 - home).

April Bamberg Meeting - I hope to represent us at this international 'Comets in the post-Halley era' conference. Are any other members planning to attend?

IOQ Contributions - our contributions to the IOQ have slipped badly. This Newsletter initiative should encourage members to report their results to me more frequently which will assist in the collation of data for the IOQ. The attached form will also enable me to establish which members send their results direct to the IOQ.

OBSERVERS AND TELESCOPES:

Could the recent arrival of the two new Yanaka comets be anything to do with the fact that Harold Ridley had just put his instruments out of action for an overhaul? (Spode's Law). We look forward to Harold returning to action again soon. A new 0.5 f/4.2 reflector for visual comet studies will be installed at Wrington some time in the next few months to replace the 0.6m f/5.3 reflector. The massive 0.6m instrument was acquired to extend my post-perihelion set of Halley observations but it is too cumbersome for routine use. George Alcock is very impressed with the latest double glazing which has been installed in his home which will enable him to conduct his nova and comet searches entirely from indoors. Good luck George.

COMET NEWS

Recent discoveries and recoveries. Comet Yanaka 1989a was found at mag 9 in 15cm binoculars only days after the same observer discovered 1988r. An ephemeris is attached. On Jan 2 Helin, Roman and Crockett discovered 15th mag 1989b with the 0.46m Palomar Schmidt and a few days later, Bill Bradfield located his 14th new comet (1989c). This 12th mag object is not accessible from the UK. The Mt Palomar 1.5m reflector was used by Gibson to recover the very faint P/Russell 3 which has been designated 1989d while 1989e was discovered at mag 13 by Shoemaker on Jan 13. A provisional ephemeris is also attached for this particular object.

Recent BAA results:

1988r Yanaka. This object has slipped low into the morning twilight and is no longer accessible. It was glimpsed from Wrington in 20X80B on Jan 13.

1989a Yanaka. The 0.3m f/5 reflector X62 at Wrington showed this comet as a quite large (2'.5) diffuse and illdefined object at mag 10.6 - 10.7 on Jan 11 and 13. A few days later on Jan 18 before moonlight interfered, the comet appeared somewhat fainter and was quite a difficult object. It has been photographed successfully by Shanklin, Manning and Bucznski.

YANAKA (1989a)

T 1988 Nov 1.13600

Peri 351.78400!

Node 156.45900!-1950.0

q 1.8989200 A.U.

Inc 52.47800!

DATE	R.A. (1950.0) Dec.				\triangle	r	Rv	Elong	Mag ₁
1989	h	m	°	'					
Jan 28	14	33.53	+19	5.1	1.830	2.186	287.7	97.3	+10.7
Jan 29	14	35.14	+19	30.6	1.827	2.192	288.0	97.9	+10.7
Jan 30	14	36.73	+19	56.2	1.824	2.198	288.3	98.5	+10.7
Jan 31	14	38.30	+20	22.0	1.822	2.204	288.6	99.1	+10.7
Feb 1	14	39.85	+20	47.9	1.819	2.210	288.9	99.7	+10.7
Feb 2	14	41.37	+21	14.0	1.816	2.216	289.2	100.3	+10.8
Feb 3	14	42.87	+21	40.3	1.814	2.223	289.6	100.9	+10.8
Feb 4	14	44.35	+22	6.7	1.812	2.229	289.9	101.5	+10.8
Feb 5	14	45.80	+22	33.2	1.810	2.235	290.3	102.1	+10.8
Feb 6	14	47.23	+22	59.8	1.808	2.241	290.6	102.6	+10.8
Feb 7	14	48.63	+23	26.6	1.807	2.248	291.0	103.2	+10.8
Feb 8	14	50.01	+23	53.5	1.805	2.254	291.4	103.8	+10.8
Feb 9	14	51.36	+24	20.4	1.804	2.261	291.8	104.3	+10.8
Feb 10	14	52.69	+24	47.4	1.803	2.267	292.3	104.9	+10.8
Feb 11	14	53.99	+25	14.5	1.802	2.274	292.7	105.4	+10.8

$$\text{Mag}_1 = 6 + 5 \log \triangle + 10 \log r$$

SHOEMAKER (1989a)

T 1989 Feb 15.67000

Peri 15.70000!

Node 136.44000!-1950.0

q 2.6595000 A.U.

Inc 96.39000!

DATE	R.A. (1950.0) Dec.				\triangle	r	Rv	Elong	Mag ₁
1989	h	m	°	'					
Jan 25	9	56.35	+26	55.6	1.731	2.669	294.9	158.1	+11.5
Jan 26	9	54.67	+27	38.1	1.726	2.668	298.4	159.0	+11.4
Jan 27	9	52.94	+28	20.6	1.722	2.668	302.3	159.8	+11.4
Jan 28	9	51.17	+29	3.2	1.718	2.667	306.4	160.5	+11.4
Jan 29	9	49.36	+29	45.7	1.715	2.666	310.9	161.1	+11.4
Jan 30	9	47.50	+30	28.2	1.713	2.665	315.7	161.5	+11.4
Jan 31	9	45.59	+31	10.5	1.711	2.665	320.7	161.8	+11.4
Feb 1	9	43.65	+31	52.7	1.710	2.664	325.7	161.9	+11.4
Feb 2	9	41.66	+32	34.7	1.709	2.663	330.8	161.9	+11.4
Feb 3	9	39.64	+33	16.5	1.709	2.663	335.9	161.6	+11.4
Feb 4	9	37.57	+33	57.9	1.710	2.662	340.8	161.3	+11.4
Feb 5	9	35.47	+34	39.0	1.711	2.662	345.4	160.8	+11.4
Feb 6	9	33.33	+35	19.7	1.713	2.661	349.8	160.2	+11.4
Feb 7	9	31.16	+35	59.9	1.715	2.661	353.8	159.4	+11.4
Feb 8	9	28.96	+36	39.7	1.718	2.661	357.5	158.5	+11.4

$$\text{Mag}_1 = 6 + 5 \log \triangle + 10 \log r$$

BRITISH ASTRONOMICAL ASSOCIATION - COMET SECTION

Prospects for 1989

The past six months have been barren of even moderately bright comets, and it looks as though 1988 will leave us with no legacy. Of the comets known to be appearing in 1989, only P/Brorsen-Metcalf will achieve a respectable magnitude, and we must wait for that till the summer months. We must hope that the comet-seekers will find something for us to observe before then, but at least we have a breathing space in which to catch up on the arrears of desk-work and to refurbish our equipment. The following notes give some indication of what to expect from each comet, but we can always hope for surprises.

P/Tempel 1, 1987e₁ When discovered in 1867, this comet was making a more favourable apparition than has occurred since, and attained a magnitude of $8\frac{1}{2}$ - 9. The two subsequent returns were observed at mag. 10 - 11, but a Jupiter encounter in 1881 put the comet into a larger orbit and it was lost for the next 13 returns. As a result of computations by Marsden and Schubart, taking account of perturbations in 1941 and 1953, Roemer recovered the comet in 1967, but only a single observation was made and the identification had to wait until confirmed by the recovery in 1972 - hence the designation 1967VII when it was actually the first comet at perihelion in that year. The comet is now in a fairly stable orbit, librating around the $1/2$ resonance with Jupiter, and will remain so for the next century and a half. Its present period of $5\frac{1}{2}$ years means that perihelia alternate between January and July, the former being very unfavourable. The January perihelion this time means that the magnitude is unlikely to become brighter than 17. The comet was recovered in 1987 October when it was 21st magnitude.

P/D'Arrest, 1987k This interesting comet excelled itself in 1976, making its closest-ever (0.15 a.u.) approach to the Earth, and, indulging in its customary post-perihelion flare, achieved naked-eye brightness at 5th magnitude. The 1982 return was less favourable but still produced a good 8th mag. However, every third return is usually poor, and this time we have the least favourable apparition ever, perihelion coinciding with superior conjunction. The comet has already (April 24) been at its nearest to us (2.17 a.u.) and from October till 1989 May the elongation is too small for observations to be feasible. The comet was recovered in 1987 at the extraordinary magnitude (CCD) of 23, and the brightness is unlikely to exceed 20th for the rest of the apparition. We may console ourselves with the thought that the next appearance (1995) will be one of the best possible.

P/Perrine-Mrkos When discovered in 1896 this comet was 8th magnitude, with 30' of tail, but although the next-but-one return was slightly more favourable, it only reached 13th mag. It was then lost for the next six returns, being rediscovered in 1955 at 9th magnitude. It was much fainter at the next two returns, and has not been seen since 1968. It seems that the comet is subject to occasional outbursts, remaining very faint most of the time. It may well be in its death-throes, like a spent candle, and it is possible that we have seen the last of it. The present apparition is less favourable than any of those when it has actually been observed; closest approach to the Earth occurred on 1988 Aug. 17, when the magnitude was probably not brighter than 20. Barring an unexpected outburst leading to recovery, this return may be written off.

P/Tempel-Swift Not having been seen for 80 years, this comet may be considered to be well and truly lost, and it is unlikely that anything other than an accidental rediscovery will restore it. Frequent approaches to Jupiter have increased the size of the original orbit, which is also subject to non-gravitational forces not well determinable from the four observed apparitions; there may also have been some intrinsic fading. Even at its 1908 level of brightness, the current apparition is unlikely to yield better than 18-19 magnitude. Having already passed its perigee, (1988 Aug. 24) without being observed, the chances of recovery this time are very remote.

P/Churyumov-Gerasimenko, 1988i This comet will be as difficult to observe in 1989 as its name is to pronounce. A comparative newcomer to the list of short-period comets, it was discovered photographically in 1969 by chance. Its discovery was made possible by a drastic perturbation by Jupiter in 1959, which reduced q from 2.74 to 1.28, i from 27° to 7° , and increased e from 0.36 to 0.63. The present orbit will remain stable for as long as we shall be concerned with it. An optimum apparition in 1982 enabled the comet to reach 9th magnitude with a 10' tail, but once again this year things could hardly be worse with perihelion occurring near superior conjunction. Perhaps 14-15th magnitude will be reached in the autumn, but that is the best we can hope for. The comet was recovered on 1988 July 6 at about 19th mag.

P/Pons-Winnecke Only two other comets, P/Encke (54) and P/Halley (30) have exceeded the 19 observed apparitions of this object. Discovered in 1819 by the indefatigable Pons, it was promptly lost again until its rediscovery by Winnecke in 1858, since when it has been missed at very few returns. Initially, the small q and low inclination made close approaches to us possible; at discovery the separation was only 0.13 a.u. at which the comet was 6th magnitude. However, the orbit involves frequent encounters with Jupiter, the resulting perturbations causing both q and i to increase to their present values of 1.26 a.u. and 22° respectively. While q was close to 1.0, very close passages of the Earth were possible, and in 1927 the comet missed us by a mere 0.04 a.u., one of the closest approaches of a comet ever recorded. The brightness reached $3\frac{1}{2}$ magnitude and a 1° tail was observed. Since the $6\frac{1}{2}$ mag. of 1939, the rest has been anticlimax, with magnitudes in the range of 12 - 20. This year's return is only moderately favourable, and the brightest the comet is likely to be is 11 - 13th mag., in August, when it goes south of the equator. In 1916 a strong display of meteors was seen (the June Draconids), and was subsequently shown to be associated with this comet. Weaker displays occurred in 1921 and 1927, since when no strong recurrence has been observed.

P/Gunn This is one of four comets (the others are P/Encke, P/Smirnova - Chernykh and P/Schwassmann-Wachmann 1) that can be observed all round their orbits, and are not given provisional designations. P/Gunn was discovered in 1970 after a perturbation by Jupiter in 1965 had reduced q , but two pre-discovery images were found on Palomar plates of 1956. Until the mid-XVIIIth century the orbit was confined to the Jupiter - Saturn region, but a long slow encounter with the former during 1868 - 1884 resulted in temporary capture into a satellite orbit, followed by a return to heliocentric motion in the Mars - Jupiter zone. The orbit is somewhat chaotic and the comet will return to the Jupiter-Saturn region in the XXIIIrd century. Because of the low eccentricity (0.314) perihelion only produces a modest increase in brightness, and this apparition is similar to the previous ones, with maximum brightness in the 14 - 15 mag. range.

P/Brorsen-Metcalf At last we have a comet that might reach a decent brightness. Discovered in 1847, the comet was recorded at $6\frac{1}{2}$ magnitude, with a 15' tail. It was found to have a direct orbit with a period of about 70 years, and at its second apparition in 1919 it passed close to the Earth (0.2 a.u.) and reached $4\frac{1}{2}$ mag., with a tail $1\frac{1}{2}^{\circ}$ long. The tail was straight and narrow, of Type 1, and a remarkable disconnection event was recorded in late October. Visible to the naked eye in September and October, the coma diameter was 15'.

The orbit is very stable, no encounters with major planets occurring during the 500 years from discovery to 2450. The present apparition is quite a good one and the comet will be well placed for observation from mid-northern latitudes. In late September the brightness should reach at least 5th magnitude, though by then the comet will be in Leo, in the twilight of the dawn sky. From July to September the comet moves from Pisces through Pegasus and Triangulum into Perseus and Auriga, becoming just circumpolar from U.K. near the end of August, after which it goes rapidly south and sunwards as perihelion is approached. On September 21st when at its brightest, the elongation from the Sun will be only 30° .

P/Lovas 1 This is an undistinguished comet, intrinsically faint and pursuing an undisturbed orbit of moderate size. Although this is a more favourable apparition than the previous one at which it was discovered, the comet is unlikely to be brighter than 15 - 16th magnitude.

P/DuToit-Neujmin-Delporte Perturbations by Jupiter in 1872 & 1884 reduced q from 1.7 to 1.3 a.u., making possible closer approaches to the Sun and the Earth, but it was not until 1941 that the comet was actually discovered. On this occasion there was an exactly perihelic opposition, and the Earth-distance of 0.3 a.u. was the least possible in the 200-year interval from 1800 to 2000. It is likely that a perihelic outburst enhanced the brightness to its observed $9\frac{1}{2}$ magnitude, for on subsequent returns it has been much fainter than expected. Further perturbations in 1954 and 1966 restored q to its previous value, and it was not until 1970 that the comet was observed again - this time at $18\frac{1}{2}$ mag., and the next return in 1983 produced no better than $16\frac{1}{2}$. The present apparition, if observed, will probably yield no greater brightness than 18 - 19 mag.

P/Schwassmann-Wachmann 1 Because of the near-circularity of its orbit, ($e = 0.045$) perihelion makes very little difference to the brightness of this comet, revolving around the Sun about 0.8 a.u. beyond the orbit of Jupiter. Perturbations by that planet are effective because of the low relative velocity, but the orbit remains fairly stable and will not experience major changes in the next 500 years. The basic magnitude of 17+ to 19 would make this comet of mainly academic interest to us were it not for the fairly frequent (about two per year) outbursts which raise the brightness to 12 - 14th magnitude. These outbursts are quite unpredictable, and constant monitoring is needed to ensure that none are missed. Several authors have investigated the problem, arriving at different conclusions, but no statistically sound correlations have been found either with position in the orbit or the level of solar activity. It seems that internal forces must be responsible for the outbursts, unless one accepts the suggestion that they are caused by collisions with interplanetary boulders. What is needed is close surveillance over a long period of time, and we can contribute to this by keeping an eye on the comet's position, making a quick check whenever conditions permit.

P/Gehrels 2 This rather distant comet requires a fairly large aperture for its observation, its brightness not having exceeded 15th magnitude on its two previous apparitions. The orbit is pretty stable at present, but will change dramatically in 2031, when a deep slow encounter with Jupiter will more than double q and halve e . As a result, it will be even fainter than it is now, and may well be lost. The current apparition is quite favourable, but even so the comet is not likely to be brighter than its normal 15 - 16th magnitude.

P/Clark Owing to its 5½-year period, perihelia of this comet alternate between May and November, the former being favourable, the latter very unfavourable. We are out of luck this time, the apparition being almost an exact repeat of that of 1978, when the brightness did not exceed 18th magnitude. By contrast, the previous return in 1984 yielded visual magnitudes of 10½ - 11. No great orbital changes are due to occur during the next 100 years, the comet librating gently around the 1/2 resonance with Jupiter.

H.B.Ridley,
Eastfield Observatory,
1988, December 14

Sources

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Comets in 1989

<u>P/Comet</u>	<u>Prov. desig.</u>	<u>T 1989</u>	<u>Brightest</u>			<u>Moon</u>	
			<u>Mag.</u>	<u>Month</u>	<u>Elong.</u>	<u>New</u>	<u>Full</u>
Tempel 1	1987e1	Jan. 4.4	17	Feb.	34W	Jan. 7	Jan. 21
D'Arrest	1987k	Feb. 4.2	20	June	38W	Feb. 6	Feb. 20
Perrine-Mrkos		Mar. 2	-	-	-	Mar. 7	Mar. 22
Tempel-Swift		Mar. 14	-	-	-	Apr. 6	Apr. 21
Churyumov-Gerasimenko	1988i	June 18.4	14-15	Oct.	40W	May 5	May 20
Pons-Winnecke		Aug. 19.9	11-13	Aug.	71E	June 3	June 19
Gunn	-	Sep. 25.0	14-15	May	170E	July 3	July 18
Brorsen-Metcalf		Sep. 27.6	5	Sep.	34W	Aug. 1	Aug. 17
Lovas 1		Oct. 10.7	15-16	Nov.	130W	Aug. 31	Sep. 15
DuToit-Neujmin-Delporte		Oct. 18.4	18-19	July	117E	Sep. 29	Oct. 14
Schwassmann-Wachmann 1	-	Oct. 26.7	18(12)	-	-	Oct. 29	Nov. 13
Gehrels 2		Nov. 3.1	15-16	Oct.	158W	Nov. 28	Dec. 12
Clark		Nov. 28.4	18	Aug.	50E	Dec. 28	

Short-Period Comets at Perihelion in 1990

<u>P/Comet</u>	<u>T 1990</u>	<u>P yrs</u>	<u>q a.u.</u>	<u>N</u>	<u>Previous Apparitions</u>	
					<u>First</u>	<u>Last</u>
Kopff, 1988k	Jan. 20.4	6.46	1.585	12	1906IV	1983XIII
Tuttle-Giacobini-Kresak	Feb. 8.2	5.46	1.068	6	1858III	1978XXV
Sanguin	Apr. 2.6	12.50	1.814	1	1977XII	-
Russell 3	May 18.1	7.50	2.517	1	1982IX	-
Schwassmann-Wachmann 3	May 19.3	5.35	0.936	2	1930VI	1979VIII
Peters-Hartley	June 21.6	8.13	1.626	2	1846VI	1982III
Tritton	July 7.2	6.35	1.439	1	1977XIII	-
Russell 4	July 7.5	6.57	2.223	1	1984I	-
Honda-Mrkos-Pajdusakova	Sep. 12.7	5.30	0.542	7	1948XII	1985III
Encke	Oct. 28.5	3.28	0.331	54	1786I	1987
Johnson	Nov. 19.0	6.97	2.313	6	1949II	1983XVIII
Kearns-Kwee	Nov. 22.7	8.96	2.215	3	1963VIII	1981XX
Wild 2	Dec. 16.9	6.37	1.578	2	1978XI	1984XIV
Taylor	Dec. 30.2	6.99	1.961	3	1916I	1984II

BAA COMET SECTION

I am a current member of the BAA and wish to be considered a member of the Comet Section.

Signed: _____ Date: _____

Name: _____

Address: _____

Tel/Telex/Fax/E-Mail Nos: _____

Main Interests (please tick)

Visual ___ / Photography ___ / Astrometry ___ / Seeking ___ / Computing ___ / Historical ___
/ Space Missions ___ / Others (please give brief details):

Main Instruments/Facilities (include computer and operating system)

Describe observing location and conditions. Give latitude, longitude and height above sea level if known:

Which of the following do you report your results to? (Please tick)

JAS ___ / TA ___ / ICQ ___ / Others (please give details)

Do you wish to receive the Newsletter or other Comet Section publications? YES / NO

(If YES please supply 10 first class stamps - not SAE)

Please return to:

Graham Keitch, Director BAA Comet Section, 2 South Meadows, Wroughton, Avon BS18 7PF

BAA COMET SECTION NEWSLETTER

Issue Number: 2

Date 5/7/89

Director: Graham Keitch, 2 South Meadows, Wroughton, Avon, BS18 7PF
Tel 0272 278658 (day), 0934 862924 (evenings)

FROM THE DIRECTOR:

When the BAA Comet Section Newsletter was launched last January, I envisaged a regular issue appearing once every 4-6 weeks (or perhaps more frequently) depending on the level of observational activity and news. As it happens, the past 6 months have been the most barren and disappointing I can recall and consequently, there has been very little to report. Nevertheless, I have decided to issue Newsletter No 2 to break the long period of silence.

I would like to thank all members who returned the membership forms issued with the last Newsletter. In the aftermath of Halley, I thought it would be a good idea to establish new membership records. The initial effect of an exercise like this is for a dramatic fall to occur in membership as all those who have lost interest are weeded out! It will probably take a while (and a good comet!) to rebuild a healthy and revitalised membership and for the reasons explained below, this is going to be quite a challenge.

In recent years, our membership has been dominated by visual observers with a very small number of extremely capable and dedicated astronomic and photographic workers. The small band of the latter continue to carry out their excellent work (which is internationally acclaimed) and generally continue to improve their facilities to achieve even higher standards. For the visual observer whose coma diameter, mag estimate and tail length data are particularly sensitive to sky condition, the situation has become serious in recent years with the appalling deterioration of our skies due to light pollution. Furthermore, the visual observer cannot fight back with larger apertures or more sophisticated technology as there is no substitute for using a small low power instrument in good skies if one is to perceive the fullest extent of coma and obtain the best magnitude data. At the time of the Halley return I could reach cometary objects of mag $13\frac{1}{2}$ with the 0.3m reflector at Wroughton; a few years on, I am struggling to reach mag 12. Observers in this situation - most of us I suspect - will need to make every effort to shield their instruments from light interference and where possible, transport portable equipment to darker sites. Large Dobsonians (eg a 0.5m) can open up new possibilities for tracking very faint small objects and possibly recording coma structure in some of the brighter comets. I would encourage experiments with such apertures although I am doubtful of their suitability for collecting realistic mv and coma size data for objects brighter than mag 12. I would welcome readers comments and views on the subject of 'light pollution and the visual comet observer' and in particular, any thoughts on how we might minimise the difficulties.

IN BRIEF:

Cambridge meeting - This joint meeting which involved the BAA Comet, Asteroid and Remote Planets and Meteor Sections was a great success and we thank Jonathan Shanklin for organising the event. A report will appear in the Journal.

'Prospects in 1989' paper - For completeness, Harold Ridley has asked me to mention Comet Shoemaker-Holt-Rodriguez (1988h) which passed perihelion in June but was omitted in his paper. The comet reached mag $11\frac{1}{2}$ in early June for our colleagues in the southern hemisphere.

Exhibition meeting - I apologise for not representing the Section at this year's Exhibition. Unfortunately, I was unable to attend due to a serious fire at work a few days prior to the event. We will make a special effort in 1990!

OBSERVERS AND TELESCOPES:

Comet hunting - Roy Panther (of 1980u fame) provides the following details of searches from Walgrave, Northampton:

1986	total 73.2h	(77 nights)	
1987	53.7h	(62 nights)	
1988	46.2h	(63 nights)	Well done Roy!

COMET NEWS:

The following objects have received preliminary designations so far this year:

1989a Yanaka (11m)	1989h P/Clark (20m)
b Helin-Roman-Crockett (15.5m)	i Parker-Hartley (16.5m)
c Bradfield (12m)	j Shoemaker-Holt (13m)
d P/Russell 3 (20m)	k P/West-Hartley (17.5m)
e Shoemaker (13m)	l P/du Toit-Neujmin-Delporte (18.5m)
f Shoemaker (16m)	m SMM 8 (0m)
g P/Pons-Winnecke (20.5m)	n P/Gehrels 2 (19m)

P/Brorsen-Metcalf: Unfortunately, this comet is conspicuous by its absence from the above list although it has been poorly placed for recovery of late.

P/Schwassman-Wachmann 1: An ephemeris from an orbit by T Kobayashi is attached for this object to encourage observers to monitor for outbursts. Any positive sightings should be communicated to the Director without delay while summaries of negative results should be sent to Peter Stanley (8 Emberwood, Maiden Lane, Langley Green, Nr Crawley, West Sussex) who has offered to collate the statistics.

P/Gunn: Observers abroad have recently noted this comet at mag 12-13. An ephemeris is attached.

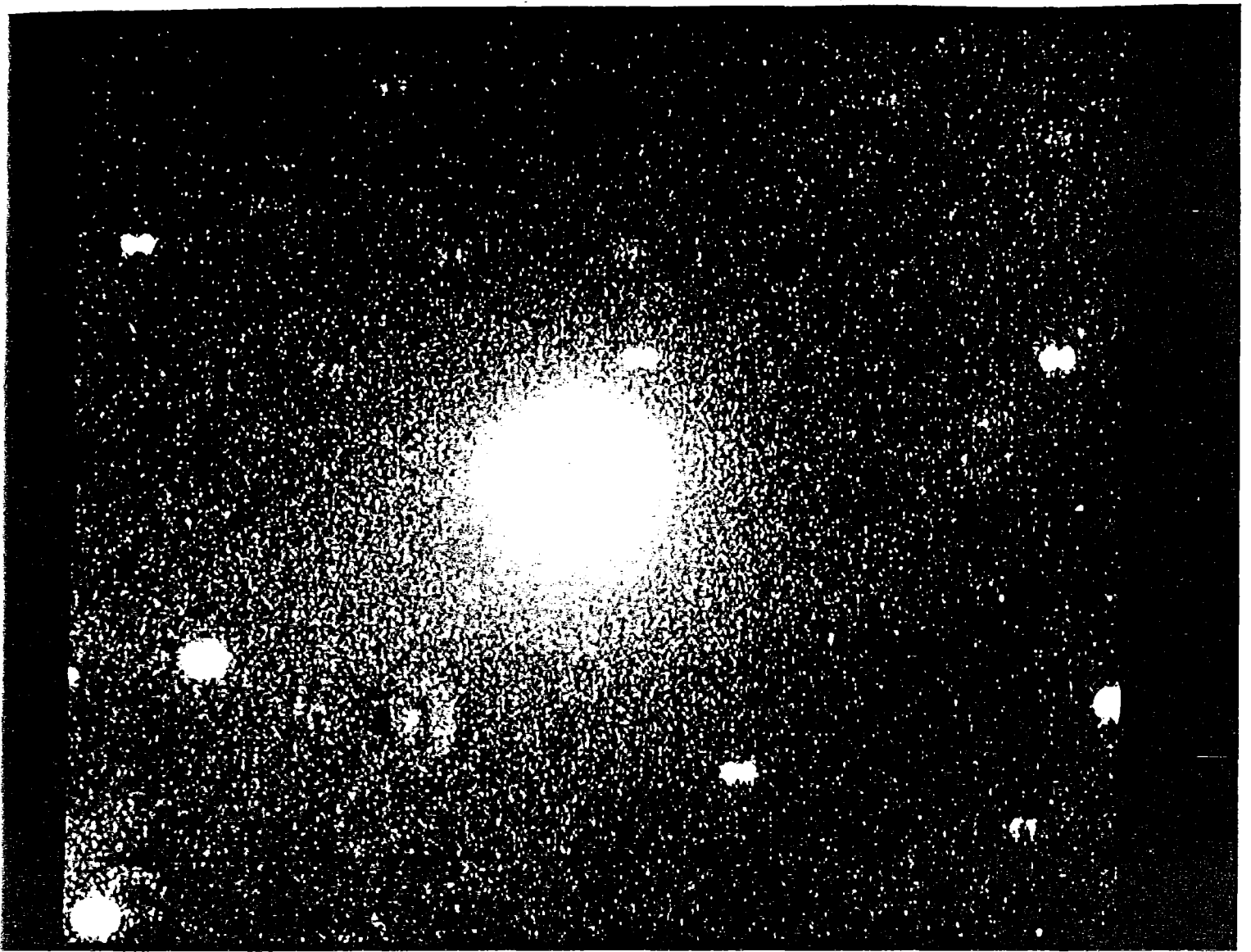
2060 Chiron: On April 10, Meech and Belton recorded a coma around Chiron with the KPNO 4m at the CCD prime focus. The long suspected cometary nature of this object is now confirmed. (IAUC4770)

BAA results: (see attached photos)

A) Comet Helin-Roman-Crockett (1989b), 1989 Jan 28.868. A 20m exposure taken by Martin Mobberley (Cockfield, Bury St Edmunds) with a 0.3m f/5 reflector. The coma is estimated to be $\text{mag} = 14\frac{1}{2}$ and $0'.8$ dia. The elliptical object just below centre is NGC2577.

B) Comet P/Gunn, May 16.156. A CCD image with red filter obtained by Mark Kidger with the 1m JKT on La Palma. The field is $2'.2 \times 3'.5$.

Acknowledgement: The software for the ephemeris calculations was kindly provided by Stan Milbourn.



8



9

T 1989 Oct 26.72550 TDT.

Epoch 1989 Nov 10.0

Peri 49° 89710
 Node 312.12290 -1950.0
 Inc 9.36730
 q 5.7717590 A.U.

e 0.0446630
 a 6.0415948 A.U.
 n 0.06637075
 P 14.850 yrs

DATE	R.A. (1950.0) Dec.			Δ	r	Rv	Elong
1989	h	m	°				
Jun 10	23	56.12	+ 5 56.8	5.916	5.776	271.1	77.1
Jun 11	23	56.48	+ 6 0.7	5.901	5.776	271.5	78.0
Jun 12	23	56.82	+ 6 4.5	5.886	5.775	271.9	78.8
Jun 13	23	57.16	+ 6 8.3	5.870	5.775	272.3	79.7
Jun 14	23	57.48	+ 6 12.0	5.855	5.775	272.7	80.5
Jun 15	23	57.80	+ 6 15.7	5.839	5.775	273.1	81.4
Jun 16	23	58.12	+ 6 19.3	5.824	5.775	273.6	82.2
Jun 17	23	58.42	+ 6 22.9	5.809	5.775	274.0	83.1
Jun 18	23	58.71	+ 6 26.5	5.793	5.775	274.4	84.0
Jun 19	23	59.00	+ 6 30.0	5.778	5.775	274.9	84.8
Jun 20	23	59.27	+ 6 33.5	5.762	5.775	275.3	85.7
Jun 21	23	59.54	+ 6 36.9	5.746	5.775	275.7	86.5
Jun 22	23	59.80	+ 6 40.2	5.731	5.775	276.1	87.4
Jun 23	0	0.05	+ 6 43.5	5.715	5.775	276.6	88.3
Jun 24	0	0.29	+ 6 46.8	5.700	5.775	277.0	89.2
Jun 25	0	0.52	+ 6 50.0	5.684	5.775	277.5	90.0
Jun 26	0	0.74	+ 6 53.2	5.669	5.775	277.9	90.9
Jun 27	0	0.95	+ 6 56.3	5.653	5.775	278.3	91.8
Jun 28	0	1.15	+ 6 59.3	5.637	5.775	278.8	92.7
Jun 29	0	1.35	+ 7 2.3	5.622	5.775	279.2	93.5
Jun 30	0	1.53	+ 7 5.3	5.606	5.775	279.7	94.4
Jul 1	0	1.71	+ 7 8.2	5.591	5.775	280.1	95.3
Jul 2	0	1.87	+ 7 11.0	5.575	5.774	280.6	96.2
Jul 3	0	2.02	+ 7 13.8	5.560	5.774	281.0	97.1
Jul 4	0	2.17	+ 7 16.5	5.544	5.774	281.4	98.0
Jul 5	0	2.30	+ 7 19.2	5.529	5.774	281.9	98.9
Jul 6	0	2.43	+ 7 21.8	5.514	5.774	282.3	99.8
Jul 7	0	2.54	+ 7 24.3	5.498	5.774	282.8	100.7
Jul 8	0	2.65	+ 7 26.8	5.483	5.774	283.2	101.6
Jul 9	0	2.74	+ 7 29.2	5.468	5.774	283.7	102.5
Jul 10	0	2.82	+ 7 31.6	5.453	5.774	284.1	103.4
Jul 11	0	2.90	+ 7 33.9	5.438	5.774	284.5	104.3
Jul 12	0	2.96	+ 7 36.1	5.423	5.774	285.0	105.3
Jul 13	0	3.02	+ 7 38.3	5.408	5.774	285.4	106.2
Jul 14	0	3.06	+ 7 40.4	5.393	5.774	285.9	107.1
Jul 15	0	3.09	+ 7 42.5	5.378	5.774	286.3	108.0
Jul 16	0	3.12	+ 7 44.5	5.363	5.774	286.8	109.0
Jul 17	0	3.13	+ 7 46.4	5.349	5.774	287.2	109.9
Jul 18	0	3.13	+ 7 48.2	5.334	5.774	287.6	110.8
Jul 19	0	3.12	+ 7 50.0	5.320	5.774	288.1	111.7
Jul 20	0	3.10	+ 7 51.8	5.305	5.774	288.5	112.7
Jul 21	0	3.07	+ 7 53.4	5.291	5.774	289.0	113.6
Jul 22	0	3.04	+ 7 55.0	5.277	5.774	289.4	114.6
Jul 23	0	2.99	+ 7 56.5	5.263	5.774	289.8	115.5
Jul 24	0	2.93	+ 7 58.0	5.249	5.774	290.3	116.5
Jul 25	0	2 86	+ 7 59 4	5.235	5.774	290.7	117.4

Jul 26	0	2.78	+ 8	0.7	5.221	5.773	291.1	118.4
Jul 27	0	2.68	+ 8	1.9	5.208	5.773	291.6	119.3
Jul 28	0	2.58	+ 8	3.1	5.194	5.773	292.0	120.3
Jul 29	0	2.47	+ 8	4.2	5.181	5.773	292.4	121.2
Jul 30	0	2.35	+ 8	5.3	5.168	5.773	292.9	122.2
Jul 31	0	2.22	+ 8	6.2	5.155	5.773	293.3	123.2
Aug 1	0	2.07	+ 8	7.1	5.142	5.773	293.8	124.1
Aug 2	0	1.92	+ 8	7.9	5.129	5.773	294.2	125.1
Aug 3	0	1.76	+ 8	8.7	5.117	5.773	294.6	126.1
Aug 4	0	1.59	+ 8	9.4	5.105	5.773	295.1	127.1
Aug 5	0	1.40	+ 8	10.0	5.092	5.773	295.5	128.1
Aug 6	0	1.21	+ 8	10.5	5.080	5.773	296.0	129.0
Aug 7	0	1.01	+ 8	11.0	5.068	5.773	296.4	130.0
Aug 8	0	0.80	+ 8	11.3	5.057	5.773	296.9	131.0
Aug 9	0	0.58	+ 8	11.7	5.045	5.773	297.3	132.0
Aug 10	0	0.35	+ 8	11.9	5.034	5.773	297.8	133.0
Aug 11	0	0.11	+ 8	12.1	5.023	5.773	298.3	134.0
Aug 12	23	59.86	+ 8	12.2	5.012	5.773	298.7	135.0
Aug 13	23	59.60	+ 8	12.2	5.001	5.773	299.2	136.0
Aug 14	23	59.33	+ 8	12.1	4.991	5.773	299.7	137.0
Aug 15	23	59.06	+ 8	12.0	4.981	5.773	300.2	138.0
Aug 16	23	58.77	+ 8	11.8	4.971	5.773	300.7	139.0
Aug 17	23	58.48	+ 8	11.6	4.961	5.773	301.2	140.0
Aug 18	23	58.18	+ 8	11.2	4.951	5.773	301.7	141.0
Aug 19	23	57.87	+ 8	10.8	4.942	5.773	302.2	142.0
Aug 20	23	57.55	+ 8	10.4	4.932	5.773	302.8	143.0
Aug 21	23	57.22	+ 8	9.8	4.923	5.773	303.3	144.0
Aug 22	23	56.89	+ 8	9.2	4.915	5.773	303.9	145.0
Aug 23	23	56.55	+ 8	8.5	4.906	5.773	304.5	146.0
Aug 24	23	56.20	+ 8	7.8	4.898	5.773	305.1	147.0
Aug 25	23	55.85	+ 8	6.9	4.890	5.773	305.8	148.0
Aug 26	23	55.48	+ 8	6.0	4.882	5.773	306.4	149.1
Aug 27	23	55.11	+ 8	5.1	4.875	5.772	307.1	150.1
Aug 28	23	54.74	+ 8	4.1	4.868	5.772	307.9	151.1
Aug 29	23	54.36	+ 8	3.0	4.861	5.772	308.6	152.1
Aug 30	23	53.97	+ 8	1.8	4.854	5.772	309.4	153.1
Aug 31	23	53.57	+ 8	0.6	4.847	5.772	310.3	154.1
Sep 1	23	53.17	+ 7	59.3	4.841	5.772	311.2	155.1
Sep 2	23	52.77	+ 7	58.0	4.835	5.772	312.2	156.1
Sep 3	23	52.36	+ 7	56.6	4.830	5.772	313.2	157.1
Sep 4	23	51.94	+ 7	55.1	4.824	5.772	314.4	158.1
Sep 5	23	51.52	+ 7	53.6	4.819	5.772	315.6	159.1
Sep 6	23	51.10	+ 7	52.0	4.814	5.772	316.9	160.1
Sep 7	23	50.67	+ 7	50.4	4.810	5.772	318.4	161.0
Sep 8	23	50.24	+ 7	48.7	4.806	5.772	319.9	162.0
Sep 9	23	49.81	+ 7	46.9	4.802	5.772	321.7	162.9
Sep 10	23	49.37	+ 7	45.1	4.798	5.772	323.6	163.9
Sep 11	23	48.93	+ 7	43.3	4.795	5.772	325.8	164.8
Sep 12	23	48.48	+ 7	41.4	4.792	5.772	328.2	165.7
Sep 13	23	48.04	+ 7	39.4	4.789	5.772	331.0	166.6
Sep 14	23	47.59	+ 7	37.5	4.786	5.772	334.1	167.4
Sep 15	23	47.14	+ 7	35.4	4.784	5.772	337.6	168.2
Sep 16	23	46.69	+ 7	33.3	4.782	5.772	341.6	168.9
Sep 17	23	46.24	+ 7	31.2	4.781	5.772	346.1	169.6
Sep 18	23	45.79	+ 7	29.1	4.779	5.772	351.3	170.2
Sep 19	23	45.33	+ 7	26.9	4.778	5.772	357.0	170.7
Sep 20	23	44.88	+ 7	24.6	4.778	5.772	3.4	171.2
Sep 21	23	44.43	+ 7	22.4	4.777	5.772	10.4	171.5

T 1989 Sep 24.97985 TDT.

Epoch 1989 Oct 1.0

Peri 196°937781

e 0.3143992

Node 67.867661-1950.0

a 3.6049318 A.U.

Inc 10.372471

n 0.14399868

q 2.4715441 A.U.

P 6.845 yrs

DATE	R.A. (1950.0) Dec.				Δ	r	Rv	Elong
1989	h	m	°	'			°	°
Jul 1	14	33.80	-13	5.8	1.840	2.527	91.5	121.6
Jul 2	14	33.96	-13	11.5	1.849	2.525	92.0	120.8
Jul 3	14	34.14	-13	17.3	1.859	2.524	92.5	119.9
Jul 4	14	34.36	-13	23.2	1.868	2.523	93.0	119.0
Jul 5	14	34.59	-13	29.1	1.877	2.522	93.5	118.1
Jul 6	14	34.86	-13	35.2	1.887	2.520	94.0	117.3
Jul 7	14	35.15	-13	41.3	1.897	2.519	94.5	116.4
Jul 8	14	35.46	-13	47.5	1.906	2.518	95.0	115.6
Jul 9	14	35.80	-13	53.7	1.916	2.517	95.5	114.7
Jul 10	14	36.17	-14	0.0	1.926	2.516	96.0	113.9
Jul 11	14	36.56	-14	6.4	1.936	2.515	96.4	113.1
Jul 12	14	36.97	-14	12.9	1.946	2.514	96.9	112.2
Jul 13	14	37.41	-14	19.5	1.956	2.513	97.4	111.4
Jul 14	14	37.88	-14	26.1	1.966	2.511	97.8	110.6
Jul 15	14	38.37	-14	32.7	1.977	2.510	98.3	109.8
Jul 16	14	38.88	-14	39.5	1.987	2.509	98.7	109.0
Jul 17	14	39.41	-14	46.2	1.997	2.508	99.2	108.2
Jul 18	14	39.97	-14	53.1	2.008	2.507	99.6	107.4
Jul 19	14	40.56	-15	0.0	2.018	2.506	100.1	106.6
Jul 20	14	41.16	-15	7.0	2.029	2.505	100.5	105.9
Jul 21	14	41.79	-15	14.0	2.040	2.504	100.9	105.1
Jul 22	14	42.44	-15	21.0	2.050	2.503	101.3	104.3
Jul 23	14	43.11	-15	28.1	2.061	2.502	101.7	103.5
Jul 24	14	43.81	-15	35.3	2.072	2.501	102.2	102.8
Jul 25	14	44.52	-15	42.5	2.083	2.500	102.6	102.0
Jul 26	14	45.26	-15	49.8	2.094	2.500	103.0	101.3
Jul 27	14	46.02	-15	57.1	2.105	2.499	103.3	100.5
Jul 28	14	46.80	-16	4.4	2.116	2.498	103.7	99.8
Jul 29	14	47.60	-16	11.8	2.127	2.497	104.1	99.1
Jul 30	14	48.43	-16	19.2	2.138	2.496	104.5	98.3
Jul 31	14	49.27	-16	26.7	2.149	2.495	104.9	97.6
Aug 1	14	50.14	-16	34.1	2.160	2.494	105.2	96.9
Aug 2	14	51.02	-16	41.7	2.171	2.494	105.6	96.2
Aug 3	14	51.93	-16	49.2	2.182	2.493	105.9	95.5
Aug 4	14	52.85	-16	56.8	2.194	2.492	106.3	94.7
Aug 5	14	53.80	-17	4.4	2.205	2.491	106.6	94.0
Aug 6	14	54.76	-17	12.1	2.216	2.490	107.0	93.3
Aug 7	14	55.75	-17	19.7	2.227	2.490	107.3	92.6
Aug 8	14	56.75	-17	27.4	2.239	2.489	107.6	92.0
Aug 9	14	57.77	-17	35.1	2.250	2.488	107.9	91.3
Aug 10	14	58.81	-17	42.8	2.261	2.488	108.3	90.6
Aug 11	14	59.87	-17	50.6	2.273	2.487	108.6	89.9
Aug 12	15	0.95	-17	58.3	2.284	2.486	108.9	89.2
Aug 13	15	2.04	-18	6.1	2.296	2.486	109.2	88.5
Aug 14	15	3.15	-18	13.9	2.307	2.485	109.5	87.9

Aug 15	15	4.28	-18 21.7	2.318	2.484	109.7	87.2
Aug 16	15	5.43	-18 29.5	2.330	2.484	110.0	86.5
Aug 17	15	6.60	-18 37.3	2.341	2.483	110.3	85.9
Aug 18	15	7.78	-18 45.1	2.352	2.482	110.6	85.2
Aug 19	15	8.97	-18 52.9	2.364	2.482	110.8	84.6
Aug 20	15	10.19	-19 0.7	2.375	2.481	111.1	83.9
Aug 21	15	11.42	-19 8.5	2.387	2.481	111.3	83.3
Aug 22	15	12.67	-19 16.3	2.398	2.480	111.6	82.6
Aug 23	15	13.93	-19 24.1	2.409	2.480	111.8	82.0
Aug 24	15	15.21	-19 31.9	2.421	2.479	112.1	81.4
Aug 25	15	16.50	-19 39.7	2.432	2.479	112.3	80.7
Aug 26	15	17.82	-19 47.5	2.444	2.478	112.5	80.1
Aug 27	15	19.14	-19 55.3	2.455	2.478	112.7	79.5
Aug 28	15	20.48	-20 3.0	2.466	2.477	112.9	78.8
Aug 29	15	21.84	-20 10.8	2.478	2.477	113.1	78.2
Aug 30	15	23.21	-20 18.5	2.489	2.477	113.3	77.6
Aug 31	15	24.60	-20 26.2	2.500	2.476	113.5	77.0
Sep 1	15	26.00	-20 33.9	2.512	2.476	113.7	76.3
Sep 2	15	27.42	-20 41.6	2.523	2.476	113.9	75.7
Sep 3	15	28.85	-20 49.3	2.534	2.475	114.1	75.1
Sep 4	15	30.29	-20 56.9	2.545	2.475	114.2	74.5
Sep 5	15	31.75	-21 4.5	2.557	2.475	114.4	73.9
Sep 6	15	33.23	-21 12.1	2.568	2.474	114.6	73.3
Sep 7	15	34.71	-21 19.7	2.579	2.474	114.7	72.7
Sep 8	15	36.21	-21 27.2	2.590	2.474	114.9	72.1
Sep 9	15	37.73	-21 34.7	2.601	2.473	115.0	71.5
Sep 10	15	39.26	-21 42.2	2.612	2.473	115.1	70.9
Sep 11	15	40.80	-21 49.6	2.623	2.473	115.3	70.3
Sep 12	15	42.35	-21 57.0	2.634	2.473	115.4	69.7
Sep 13	15	43.92	-22 4.3	2.646	2.473	115.5	69.1
Sep 14	15	45.49	-22 11.7	2.656	2.472	115.6	68.5
Sep 15	15	47.09	-22 18.9	2.667	2.472	115.7	67.9
Sep 16	15	48.69	-22 26.2	2.678	2.472	115.8	67.4
Sep 17	15	50.30	-22 33.4	2.689	2.472	115.9	66.8
Sep 18	15	51.93	-22 40.5	2.700	2.472	116.0	66.2
Sep 19	15	53.57	-22 47.6	2.711	2.472	116.1	65.6
Sep 20	15	55.22	-22 54.7	2.722	2.472	116.2	65.0
Sep 21	15	56.89	-23 1.7	2.732	2.472	116.2	64.5
Sep 22	15	58.56	-23 8.6	2.743	2.472	116.3	63.9
Sep 23	16	0.25	-23 15.5	2.754	2.472	116.4	63.3
Sep 24	16	1.95	-23 22.4	2.764	2.472	116.4	62.7
Sep 25	16	3.66	-23 29.2	2.775	2.472	116.5	62.2
Sep 26	16	5.38	-23 35.9	2.786	2.472	116.5	61.6
Sep 27	16	7.11	-23 42.6	2.796	2.472	116.6	61.0
Sep 28	16	8.86	-23 49.2	2.807	2.472	116.6	60.5
Sep 29	16	10.61	-23 55.7	2.817	2.472	116.6	59.9
Sep 30	16	12.38	-24 2.2	2.827	2.472	116.6	59.3
Oct 1	16	14.15	-24 8.7	2.838	2.472	116.6	58.8
Oct 2	16	15.94	-24 15.0	2.848	2.472	116.7	58.2
Oct 3	16	17.74	-24 21.3	2.858	2.472	116.7	57.7

BAA COMET SECTION NEWSLETTER

Issue Number: 3

Date 25/7/89

Director: Graham Keitch, 2 South Meadows, Wrington, Avon, BS18 7PF
Tel 0272 278658 (day), 0934 862924 (evenings)

FROM THE DIRECTOR:

Comet P/Brorsen-Metcalf is with us at last! It was photographed by Helin with the Mt Palomar 0.46m Schmidt on July 4.3 and has been designated 1989o. The comet was considerably off-track and perihelion will occur some 15.6 days earlier than anticipated. Following the recovery announcement, Jekabsons (Perth) was able to locate a pre-recovery image on plates exposed on July 3.8. These initial photographic detections showed the comet to be a rather diffuse and faint object at mag 15 although subsequent visual sightings by A Hale and C Morris in the USA were more encouraging. Morris found the coma to be 5' across and mag 10.4 in his 0.5m reflector on July 7.44 and this same observer's 20X80B gave values of mag 9.6 and 9' dia a few days later on July 8.45. J Bortle (USA) saw the comet at mag 8.1 with 10X50B on July 13.32 which indicates quite a rapid brightening.

Harold Ridley (our photographic coordinator) obtained a successful result with his 17cm lens at Eastfield Observatory on July 12.05. Harold describes the photographic coma as being very faint and diffuse with a small central condensation. This 30 minute exposure was secured in good conditions with the comet at a low altitude. I was unable to locate the object around this time with my 20X80B from Wrington due to low altitude and twilight although George Alcock (Peterborough) succeeded with his 25X105B a few days later on July 15.05. George confirms that visually, the comet is very large and diffuse (9' dia).

Professional results from the Lick and Lowell observatories reported in IAU 4810 (July 13) indicate a high gas to dust ratio. The molecular emissions due to CN, C₂, CH, C₂ and NH₂ are particularly strong while the dust continuum is relatively weak. This partly accounts for the comet's diffuse appearance. A paper by Rob van de Weg in the Dutch Comet Section Newsletter speculates that a significant 15° plasma tail should be in evidence by the first week of September when the mag 4 (?) comet should provide good opportunities for photographers. The dust tail will be less dramatic and should be more easily seen later that month. Rob draws attention to the fact that any deviations in the direction of the plasma feature from the orbital plane should be particularly evident during the first week of August when the earth passes the orbital plane of the comet although anti-tails are not anticipated. According to Harold Ridley, a September perihelion passage is generally less favourable than one occurring in October. On the plus side however, it will enable us to observe more of the post-perihelion phase when we might expect the comet to be more active.

A daily ephemeris is provided although the magnitudes are probably a little pessimistic.

OTHER NEWS IN BRIEF

The P/Schwassmann-Wachmann 1 ephemeris published in the last Newsletter was very timely as news has just reached me of another outburst! Observers in Japan and USA recorded the comet at mag 11-13 during the first two weeks of July. Did any of our members succeed in recording anything? I would like our photographers and large instrument users to keep a close watch on this one please.

Two more discoveries have been made of late as follows:

- 1989p P/Lovas 1 was recovered by T Seki (Japan) on July 7 at mag 17
- 1989q SMM9 was discovered by the Solar Max Mission spacecraft at mag -2 on July 8.6.

The latest news on P/Brorsen-Metcalf:

Observation by the Director from Wroughton - 1989 July 27.10UT

Mag 7.0 in 10X50B (AAVSO), coma at least 8' dia. Mag 7.2 in 20X80B (AAVSO), basically circular diffuse disc at least 6' dia with tiny weak central condensation, DC2-3. Several narrow tails and spikes suspected. Crescent moon nearby but comet quite easily seen.

T 1989 Sep 11.93950 TDT.

Epoch 1989 Oct 1.0ET

Peri 129.62560
 Node 310.87610 } -1950.0
 Inc 19.33060
 q 0.4787444 A.U.

e 0.9719700
 a 17.0797160 A.U.
 n 0.01396314
 P 70.586 yrs

DATE	R.A. (1950.0) Dec.				Δ	r	Rv	Elong	Mag ₁
1989	h	m	s	°					
Jul 8	0	36.60	+13	35.3	0.998	1.443	285.4	91.5	+9.6
Jul 9	0	40.28	+14	17.9	0.978	1.427	286.1	91.3	+9.5
Jul 10	0	44.11	+15	1.7	0.958	1.411	286.8	91.1	+9.4
Jul 11	0	48.07	+15	46.8	0.939	1.395	287.5	90.9	+9.3
Jul 12	0	52.19	+16	33.3	0.920	1.378	288.2	90.6	+9.2
Jul 13	0	56.48	+17	21.2	0.901	1.362	288.9	90.3	+9.1
Jul 14	1	0.94	+18	10.4	0.883	1.346	289.6	89.9	+9.0
Jul 15	1	5.60	+19	1.0	0.865	1.329	290.3	89.5	+8.9
Jul 16	1	10.45	+19	53.1	0.848	1.313	291.0	89.1	+8.8
Jul 17	1	15.53	+20	46.5	0.831	1.296	291.8	88.6	+8.7
Jul 18	1	20.83	+21	41.3	0.814	1.280	292.5	88.0	+8.6
Jul 19	1	26.39	+22	37.4	0.798	1.263	293.3	87.4	+8.5
Jul 20	1	32.21	+23	34.9	0.782	1.246	294.0	86.7	+8.4
Jul 21	1	38.31	+24	33.5	0.767	1.230	294.8	86.0	+8.3
Jul 22	1	44.71	+25	33.3	0.753	1.213	295.5	85.2	+8.2
Jul 23	1	51.43	+26	34.0	0.739	1.196	296.3	84.4	+8.1
Jul 24	1	58.50	+27	35.6	0.726	1.179	297.0	83.5	+8.0
Jul 25	2	5.92	+28	37.9	0.713	1.163	297.8	82.5	+7.9
Jul 26	2	13.72	+29	40.5	0.701	1.146	298.6	81.5	+7.8
Jul 27	2	21.92	+30	43.2	0.690	1.129	299.3	80.4	+7.7
Jul 28	2	30.54	+31	45.8	0.680	1.112	300.1	79.3	+7.6
Jul 29	2	39.59	+32	47.9	0.670	1.095	300.9	78.1	+7.5
Jul 30	2	49.09	+33	49.0	0.661	1.078	301.6	76.8	+7.4
Jul 31	2	59.05	+34	48.7	0.653	1.061	302.4	75.5	+7.3
Aug 1	3	9.46	+35	46.5	0.646	1.043	303.1	74.1	+7.2
Aug 2	3	20.34	+36	42.0	0.640	1.026	303.9	72.7	+7.1
Aug 3	3	31.66	+37	34.5	0.635	1.009	304.6	71.2	+7.1
Aug 4	3	43.42	+38	23.5	0.631	0.992	305.3	69.7	+7.0
Aug 5	3	55.59	+39	8.6	0.627	0.975	306.0	68.2	+6.9
Aug 6	4	8.14	+39	49.2	0.625	0.958	306.7	66.7	+6.8
Aug 7	4	21.01	+40	24.8	0.624	0.940	307.4	65.1	+6.7
Aug 8	4	34.15	+40	55.0	0.624	0.923	308.0	63.5	+6.6
Aug 9	4	47.50	+41	19.4	0.625	0.906	308.7	61.9	+6.5
Aug 10	5	0.98	+41	37.9	0.627	0.889	309.3	60.3	+6.5
Aug 11	5	14.53	+41	50.3	0.629	0.872	309.9	58.7	+6.4
Aug 12	5	28.06	+41	56.5	0.633	0.855	310.5	57.1	+6.3
Aug 13	5	41.50	+41	56.6	0.638	0.837	311.0	55.5	+6.3
Aug 14	5	54.78	+41	50.7	0.645	0.820	311.5	53.9	+6.2
Aug 15	6	7.82	+41	39.2	0.652	0.803	312.0	52.4	+6.1
Aug 16	6	20.58	+41	22.2	0.659	0.787	312.5	50.9	+6.1
Aug 17	6	33.00	+41	0.2	0.668	0.770	312.9	49.5	+6.0
Aug 18	6	45.05	+40	33.5	0.678	0.753	313.2	48.1	+5.9
Aug 19	6	56.69	+40	2.6	0.689	0.737	313.6	46.7	+5.9
Aug 20	7	7.92	+39	27.9	0.701	0.720	313.9	45.4	+5.8
Aug 21	7	18.72	+38	49.8	0.713	0.704	314.1	44.1	+5.7
Aug 22	7	29.65	+38	8.8	0.724	0.688	314.3	42.8	+5.7

Aug 23	7	39.02	+37	25.1	0.741	0.672	314.5	41.6	+5.6
Aug 24	7	48.55	+36	39.2	0.755	0.657	314.6	40.5	+5.6
Aug 25	7	57.67	+35	51.3	0.771	0.641	314.7	39.4	+5.5
Aug 26	8	6.42	+35	1.8	0.787	0.627	314.7	38.3	+5.5
Aug 27	8	14.79	+34	10.8	0.804	0.612	314.7	37.3	+5.4
Aug 28	8	22.83	+33	18.6	0.822	0.598	314.6	36.3	+5.3
Aug 29	8	30.55	+32	25.4	0.840	0.584	314.5	35.3	+5.3
Aug 30	8	37.97	+31	31.2	0.859	0.571	314.3	34.4	+5.2
Aug 31	8	45.12	+30	36.3	0.878	0.559	314.1	33.5	+5.2
Sep 1	8	52.01	+29	40.7	0.898	0.547	313.8	32.7	+5.1
Sep 2	8	58.67	+28	44.5	0.919	0.536	313.5	31.9	+5.1
Sep 3	9	5.13	+27	47.8	0.940	0.526	313.1	31.1	+5.1
Sep 4	9	11.39	+26	50.7	0.961	0.516	312.7	30.3	+5.0
Sep 5	9	17.47	+25	53.2	0.983	0.508	312.3	29.5	+5.0
Sep 6	9	23.40	+24	55.3	1.005	0.500	311.8	28.8	+5.0
Sep 7	9	29.18	+23	57.2	1.027	0.494	311.2	28.1	+5.0
Sep 8	9	34.83	+22	58.8	1.050	0.488	310.6	27.4	+5.0
Sep 9	9	40.37	+22	0.3	1.072	0.484	310.0	26.7	+5.0
Sep 10	9	45.79	+21	1.7	1.095	0.481	309.3	26.0	+5.0
Sep 11	9	51.11	+20	3.0	1.118	0.479	308.6	25.4	+5.0
Sep 12	9	56.33	+19	4.4	1.141	0.479	307.8	24.8	+5.1
Sep 13	10	1.47	+18	5.9	1.164	0.479	307.0	24.1	+5.1
Sep 14	10	6.52	+17	7.7	1.187	0.481	306.1	23.6	+5.2
Sep 15	10	11.48	+16	9.7	1.210	0.485	305.2	23.0	+5.3
Sep 16	10	16.37	+15	12.1	1.232	0.489	304.3	22.4	+5.3
Sep 17	10	21.17	+14	15.0	1.255	0.494	303.3	21.9	+5.4
Sep 18	10	25.90	+13	18.4	1.277	0.501	302.3	21.4	+5.5
Sep 19	10	30.55	+12	22.5	1.299	0.509	301.2	20.9	+5.6
Sep 20	10	35.13	+11	27.2	1.321	0.517	300.1	20.5	+5.7
Sep 21	10	39.62	+10	32.6	1.342	0.527	299.0	20.0	+5.9
Sep 22	10	44.04	+ 9	38.9	1.363	0.537	297.9	19.6	+6.0
Sep 23	10	48.39	+ 8	45.9	1.384	0.548	296.7	19.3	+6.1
Sep 24	10	52.66	+ 7	53.9	1.405	0.560	295.6	18.9	+6.2
Sep 25	10	56.86	+ 7	2.7	1.426	0.573	294.4	18.6	+6.4
Sep 26	11	0.98	+ 6	12.5	1.446	0.586	293.1	18.3	+6.5
Sep 27	11	5.04	+ 5	23.2	1.466	0.600	291.9	18.1	+6.6
Sep 28	11	9.02	+ 4	34.8	1.486	0.614	290.7	17.8	+6.7
Sep 29	11	12.93	+ 3	47.3	1.505	0.628	289.5	17.6	+6.9
Sep 30	11	16.78	+ 3	0.8	1.524	0.643	288.3	17.4	+7.0
Oct 1	11	20.56	+ 2	15.3	1.543	0.658	287.1	17.3	+7.1
Oct 2	11	24.27	+ 1	30.6	1.562	0.674	285.9	17.2	+7.3
Oct 3	11	27.92	+ 0	46.9	1.581	0.690	284.7	17.1	+7.4
Oct 4	11	31.52	+ 0	4.1	1.599	0.706	283.6	17.0	+7.5
Oct 5	11	35.05	- 0	37.9	1.617	0.722	282.5	16.9	+7.6
Oct 6	11	38.52	- 1	19.0	1.635	0.738	281.4	16.9	+7.9
Oct 7	11	41.94	- 1	59.2	1.653	0.755	280.3	16.9	+7.9
Oct 8	11	45.30	- 2	38.6	1.671	0.772	279.3	16.9	+8.0
Oct 9	11	48.61	- 3	17.1	1.688	0.788	278.3	16.9	+8.1
Oct 10	11	51.87	- 3	54.9	1.706	0.805	277.4	17.0	+8.2
Oct 11	11	55.08	- 4	31.9	1.723	0.822	276.5	17.1	+8.3
Oct 12	11	58.23	- 5	8.1	1.740	0.839	275.6	17.1	+8.4
Oct 13	12	1.35	- 5	43.6	1.757	0.856	274.8	17.2	+8.5
Oct 14	12	4.41	- 6	18.4	1.773	0.873	274.0	17.4	+8.7
Oct 15	12	7.43	- 6	52.5	1.790	0.891	273.2	17.5	+8.8

$$\text{Mag}_1 = 8 + 5 \log \triangle + 10 \log r$$

BAA COMET SECTION NEWSLETTER

Issue Number: 4

Date 16/9/89

Director: Graham Keitch, 2 South Meadows, Wrington, Avon, BS18 7PF
Tel 0272 278658 (day), 0934 862924 (evenings)

FROM THE DIRECTOR:

The past few weeks have provided comet observers with a much welcomed increased level of activity. During August, Comet P/Brorsen-Metcalf 1989o became a bright well condensed object of mag 6 and by the first week of September, the plasma tail had become a fine feature for both visual and photographic observation. Excellent photographic results have been obtained by Harold Ridley (Photographic Co-ordinator), Martin Mobberley, Denis Buczynski and others and some good visual results have been secured by George Alcock, Roy Panther, Mike Hendrie (Assistant Director), Melvyn Taylor and Peter Stanley. A very interesting set of CCD images was obtained by Mark Kidger who used the 1m JKT on La Palma on several subsequent mornings around mid August. These show changes in the tail structure near the head. These, and several other reproductions of BAA photographs appear in this issue although I am unable to do justice to the fine original quality of the images.

At the time of writing, the comet has only just been lost from view low in the eastern morning sky and some observers are still in the process of reducing their results. The good weather during August enabled me to secure a fairly long run of observations from Wrington. The comet appears to have peaked at around mag 5½ during the first few days of September when I was able to see 3 deg of tail in small binoculars. Charles Morris in the States was able to see up to 8 deg on occasions!

I have not included a detailed account of our observations of the comet in this particular issue as I shall be preparing a proper report for the Journal very soon. I would be most grateful to receive any outstanding reports as soon as possible please and I would particularly welcome details from our astrometric observers. The astrometric data has to be processed quickly for publication in the IAU Circulars and we have tended to overlook these valuable contributions in the past when preparing reports of our work sometime after the event. I would very much like to correct this to ensure that this particular field is recognised as a vital part of the Section's observing program.

The main purpose of this issue is to provide details of two recent discoveries, one of which (1989r below) may become a naked eye object in November.

NEW COMET OKAZAKI-LEVY-RUDENKO (1989r):

This comet was independently discovered by David Levy, USA (0.4m reflector) and Michael Rudenko, USA (0.15m refractor) on Aug 25 and 26. The comet was also photographed on Aug 24 by Kiyomi Okazaki, Japan and therefore carries the name of all three observers. Initial reports placed the object at mag 10-11. Over the next few days a good number of astrometric

results were obtained by Jonathan Shanklin, Brian Manning and Denis Buczynski. The comet was well placed in Corona Borealis although, photographically, it appeared rather vague and diffuse according to Harold Ridley.

I observed 1989r with the 0.3m reflector at Wrington on Aug 31.93 when it was not too difficult visually at 9m.7. The coma was quite large (approx 3') and rather diffuse and I was able to glimpse it in 20X80B. On Sep 1.89, I estimated the brightness to be 9m.5 (0.3m reflector X62) and on Sep 6.89 it was 9m.3 in the large binoculars. Around this time, Mark Kidger was able to locate it with a 12 x 50B from the Canary Islands.

The comet will be at perihelion on Nov 11 when it may well reach mag 4. It is difficult to predict at this stage whether it will become a spectacular object or not. Much will depend on whether the coma remains large and diffuse. Good luck to all observers who will be helping to chart it's progress - I look forward to seeing the results. A daily ephemeris is provided in this issue to help locate it.

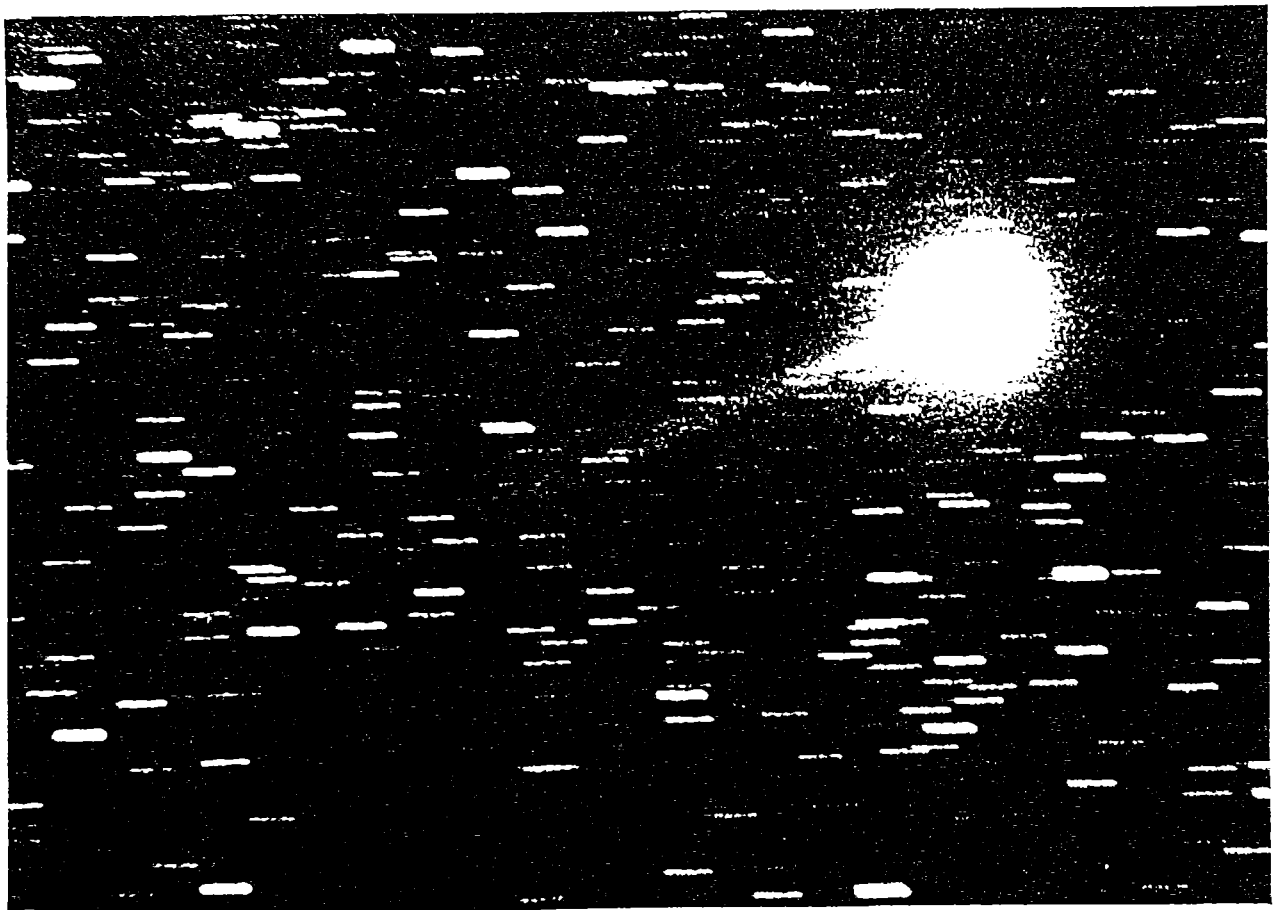
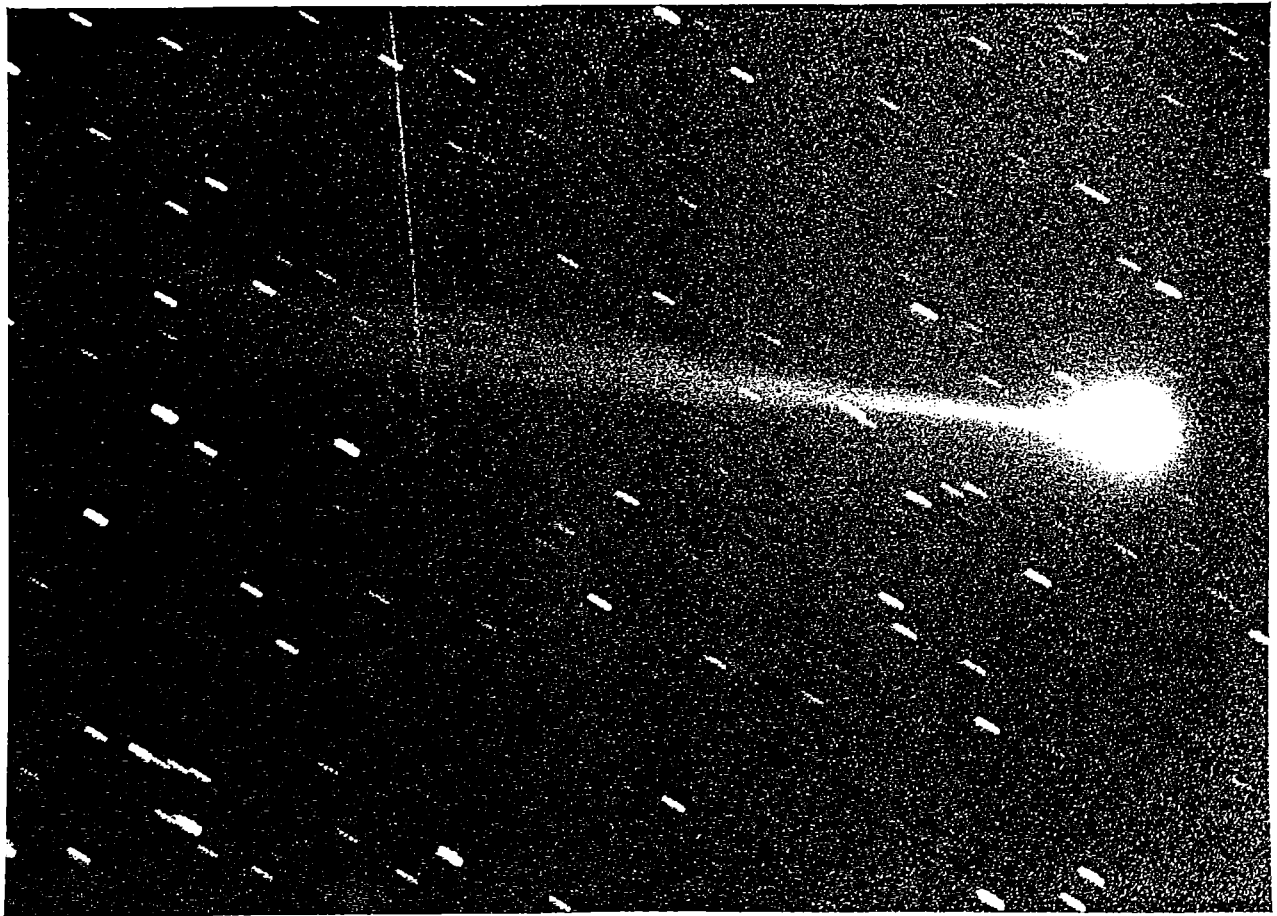
NEW COMET HELIN-ROMAN (1989s):

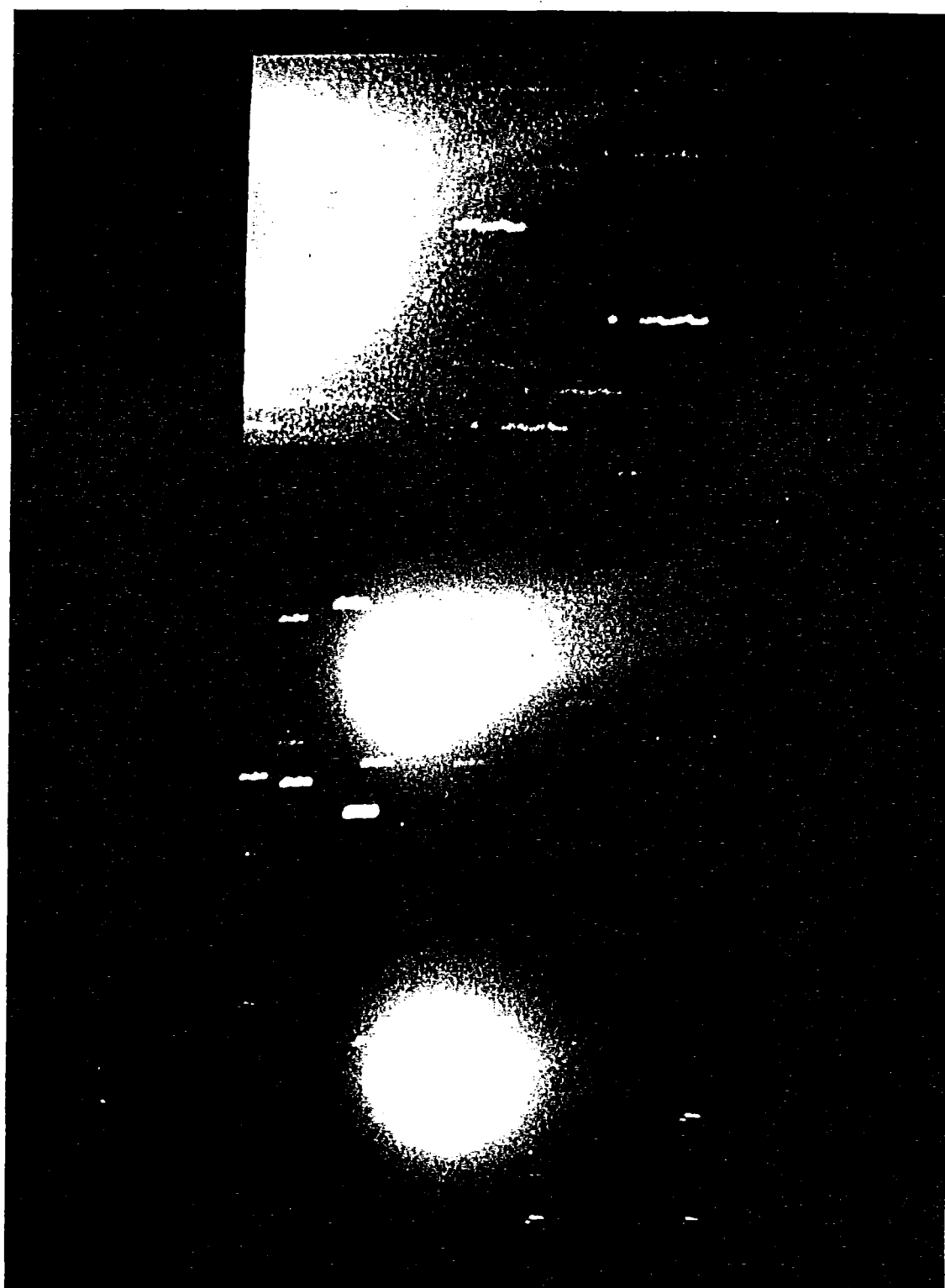
Eleanor Helin and Brian Roman discovered a new comet on Sep 5 with the photographic 0.46m Palomar Schmidt. They were assisted by R Crockett. The comet was first reported at mag 14 although subsequent visual sightings put it nearer mag 12-13. A daily ephemeris is provided although the comet is fading.

IMAGES OF P/BRORSEN-METCALF:

- a) Aug 28. Denis Buczynski, 0.55m f/5 spec.
- b) Aug 13. Martin Mobberley, 0.36m f/5 spec.
- c) Aug 28. Martin Mobberley, 0.36m f/5 spec.
- d) CCD images by Mark Kidger. 1m JKT, La Palma.
 - top - Aug 14 V filter
 - middle - Aug 15 R filter
 - bottom - Aug 16 R filter







OKAZAKI-LEVY-RUDENKO 1989r

T 1989 Nov 11.82600 TDT.

Peri 150.66300

Node 274.73500 -1950.0

q 0.6406000 A.U.

Inc 90.04400

DATE	R.A. (1950.0) Dec.			Δ	r	Rv	Elong
1989	h	m	s				
Sep 19	14	52.65	+31 52.5	1.541	1.245	50.8	53.7
Sep 20	14	51.56	+31 47.0	1.537	1.230	50.1	53.0
Sep 21	14	50.50	+31 41.4	1.533	1.215	49.5	52.3
Sep 22	14	49.44	+31 35.9	1.528	1.200	48.7	51.7
Sep 23	14	48.39	+31 30.5	1.523	1.185	48.0	51.0
Sep 24	14	47.35	+31 25.1	1.518	1.169	47.2	50.4
Sep 25	14	46.32	+31 19.6	1.512	1.154	46.4	49.7
Sep 26	14	45.30	+31 14.3	1.506	1.139	45.6	49.1
Sep 27	14	44.28	+31 8.9	1.500	1.124	44.7	48.5
Sep 28	14	43.26	+31 3.5	1.493	1.109	43.8	48.0
Sep 29	14	42.25	+30 58.2	1.486	1.094	42.8	47.4
Sep 30	14	41.23	+30 52.8	1.479	1.079	41.9	46.9
Oct 1	14	40.21	+30 47.4	1.471	1.064	40.8	46.3
Oct 2	14	39.19	+30 42.0	1.463	1.049	39.8	45.8
Oct 3	14	38.16	+30 36.5	1.455	1.035	38.7	45.3
Oct 4	14	37.13	+30 31.0	1.446	1.020	37.5	44.8
Oct 5	14	36.08	+30 25.4	1.437	1.005	36.4	44.4
Oct 6	14	35.03	+30 19.7	1.427	0.991	35.2	43.9
Oct 7	14	33.96	+30 13.8	1.417	0.976	33.9	43.5
Oct 8	14	32.87	+30 7.9	1.407	0.962	32.6	43.1
Oct 9	14	31.77	+30 1.7	1.396	0.947	31.3	42.7
Oct 10	14	30.65	+29 55.4	1.385	0.933	29.9	42.4
Oct 11	14	29.50	+29 48.8	1.373	0.919	28.5	42.0
Oct 12	14	28.34	+29 42.0	1.361	0.905	27.1	41.7
Oct 13	14	27.14	+29 34.8	1.348	0.892	25.6	41.4
Oct 14	14	25.92	+29 27.3	1.335	0.878	24.1	41.1
Oct 15	14	24.67	+29 19.4	1.322	0.865	22.5	40.8
Oct 16	14	23.39	+29 11.0	1.308	0.851	20.9	40.6
Oct 17	14	22.07	+29 2.1	1.294	0.838	19.3	40.4
Oct 18	14	20.72	+28 52.7	1.279	0.826	17.7	40.2

HELIN-ROMAN 1989s

T 1989 Aug 20.86500 TDT.

Peri 135.48000

Node 127.92000 -1950.0

q 1.3271300 A.U.

Inc 127.85000

DATE	R.A. (1950.0)		Dec.	Δ	r	Rv	Elong
1989	h	m	° ' "				
Sep 19	17	21.97	-24 22.2	1.045	1.396	114.6	85.9
Sep 20	17	20.82	-25 10.3	1.074	1.401	115.4	84.7
Sep 21	17	19.76	-25 55.8	1.103	1.405	116.2	83.5
Sep 22	17	18.78	-26 39.0	1.133	1.410	117.0	82.4
Sep 23	17	17.88	-27 20.0	1.162	1.415	117.7	81.3
Sep 24	17	17.06	-27 58.9	1.192	1.421	118.4	80.2
Sep 25	17	16.31	-28 36.1	1.221	1.426	119.1	79.1
Sep 26	17	15.63	-29 11.5	1.251	1.431	119.7	78.0
Sep 27	17	15.00	-29 45.3	1.280	1.437	120.3	77.0
Sep 28	17	14.44	-30 17.7	1.310	1.442	120.9	75.9
Sep 29	17	13.94	-30 48.7	1.339	1.448	121.4	74.9
Sep 30	17	13.49	-31 18.4	1.368	1.454	121.9	73.9
Oct 1	17	13.09	-31 46.9	1.397	1.460	122.4	72.9
Oct 2	17	12.74	-32 14.3	1.426	1.466	122.9	71.9
Oct 3	17	12.43	-32 40.6	1.455	1.473	123.4	70.9
Oct 4	17	12.17	-33 6.0	1.484	1.479	123.8	70.0
Oct 5	17	11.95	-33 30.5	1.513	1.485	124.3	69.0
Oct 6	17	11.78	-33 54.2	1.542	1.492	124.7	68.1
Oct 7	17	11.64	-34 17.0	1.570	1.499	125.1	67.2
Oct 8	17	11.53	-34 39.1	1.598	1.505	125.5	66.2
Oct 9	17	11.46	-35 0.6	1.627	1.512	125.9	65.3
Oct 10	17	11.43	-35 21.3	1.655	1.519	126.3	64.4
Oct 11	17	11.43	-35 41.5	1.682	1.526	126.7	63.5
Oct 12	17	11.46	-36 1.1	1.710	1.533	127.1	62.6
Oct 13	17	11.52	-36 20.1	1.737	1.541	127.4	61.8
Oct 14	17	11.60	-36 38.6	1.765	1.548	127.8	60.9
Oct 15	17	11.72	-36 56.6	1.792	1.555	128.2	60.0
Oct 16	17	11.86	-37 14.2	1.819	1.563	128.5	59.2
Oct 17	17	12.02	-37 31.4	1.845	1.571	128.8	58.3
Oct 18	17	12.22	-37 48.1	1.872	1.578	129.2	57.5