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THE INTERNATIONAL COMET QUARTERLY

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FROM THE EDITORS

For the past several years THE COMET QUARTERLY, initially known as THE COMET, has been a newspaper-journal concentrating on the publication of observations and of articles relating to comets. During the past few months, there has been a considerable change in the format of THE COMET QUARTERLY.

We heartily welcome Charles S. Morris, of Harvard, Massachusetts, a well-known comet observer, to the staff of this publication.

The scope and circulation of THE COMET QUARTERLY is now being expanded. In the past, most of the observations reported have been from the United States; In the future, THE COMET QUARTERLY will attempt to publish all photometric cometary observations. To our knowledge, this is the first attempt to really unite the world's comet observations. Included with this change of direction is a change of name. Hence, this issue inaugurates the journal as THE INTERNATIONAL COMET QUARTERLY (ICQ).

The need for a central "clearinghouse" to publish in one place all useful physical (i.e., other than astrometric) observational data is obvious. Currently much data is published in various forms by many astronomical groups in individual countries throughout the world, and a large number of observations are never published at all. The ICQ will ~~satisfy~~ satisfy toward fulfilling this need. The Editors have begun contacting groups and individuals around the world; the response to date is encouraging.

It is important to point out, however, that it is not the purpose of the ICQ to take over that function of local comet groups of publishing detailed reports and analyses of their observations. The primary purpose of the ICQ is rather to make

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each group's observations conveniently available to other interested parties, especially professional astronomers.

The ICQ will continue to provide its readers with articles relating to comets and their observation. Also, limited analyses of observations will occasionally be presented to give readers an indication of the behavior of a given comet.

Along with the changes mentioned above, there are several changes which directly affect contributors. All observational data should be sent to Charles Morris (address below). All articles, subscriptions, and inquiries should be sent to Daniel Green.

The Editors would like to thank Dr. Brian G. Marsden, Smithsonian Astrophysical Observatory, for his strong support of this project (see letter page 2). We hope, with the efforts of our staff and the support of observers around the world, to reach our proposed goals.

Daniel W.E. Green
Charles S. Morris
Thomas L. Rokoske

THE INTERNATIONAL COMET QUARTERLY

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Daniel W.E. Green.....Editor
Charles S. Morris...Assoc. Editor
Thomas L. Rokoske...Assoc. Editor

LETTERS TO THE EDITOR

"Until now, the only truly international source for comet observations (both astrometric and photometric) has been the IAU Circulars. Space has always been a constraint, however, and a recent change in the publication policy for the IAU Circulars will probably mean that even less space for amateur observations will be available in the future. I propose to pass on to the ICQ Editors observations I receive, although some may still be used on the IAU Circulars also.

"The ICQ project is a non-profit one and is involved with no single group; it is independent; although it has been sponsored by the Physics Department of Appalachian State University in Boone, North Carolina. The objective is to make the comet observations readily available internationally to any interested individuals and groups at as low a cost as possible.

"I highly urge readers to give support to this project. It is a large undertaking, but with your help, the outcome should be very effective."

Brian G. Marsden
Director, Central Bureau
for Astronomical Telegrams
International Astronomical
Union

"I heartily agree that publication of cometary observations in one international journal would serve a long-felt need, and am arranging to subscribe to your COMET QUARTERLY right away."

Jack Bennett
Pretoria, South Africa

"This certainly seems to be a worthwhile publication. My colleagues and I have been showing it to our interested students in hope of generating some subscriptions for you."

Robert J. Dukes
Assistant Professor of Physics
The College Of Charleston
Charleston, South Carolina

REPORTING OF OBSERVATIONS

Because of the large amount of observational data involved, it is necessary to outline what data will be published. The Editors have concluded that the most important data is that dealing with the magnitudes, or brightnesses, of comets. The total visual magnitude (m_1) will be published to tenths of a magnitude (e.g., 10.3).

(continued on p. 4)

REPORTING OF OBSERVATIONS

(Cont. from page 3) However, the estimated magnitudes of the nuclear magnitude (m_2) are very observer- and instrument-dependent, and being of little value, will not be included in the ICQ tabulations. Tail information is best obtained photographically, and this material will not be tabulated; unusual tail activity will be noted in analyses paragraphs. Visual observations of coma detail is useful, but only coma diameter and perhaps degree of condensation will be tabulated. All observations must have the following observing conditions to make the observations useful: (1) Date and time in Universal Time; tabulations will include figures to the hundredth of a day (E.g., Dec. 14.76 UT); (2) Instrument used for observations: need a) type (e.g., refractor, reflector, binoculars, Cassegrainian, etc.), b) aperture (mirror or lens diameter in centimeters), c) focal ratio of lens or mirror, and d) power of magnification used. Also needed for tabulation is the observer's name and his observing location (and affiliated group, if any). The reference used for the magnitude estimate is urged, but not necessary, for the tabulating. For further questions, contact Associate Editor Charles S. Morris; Prospect Hill Road; Harvard, MA 01451.

In the near future, the Editors of the ICQ plan to put the observational data on computer cards for publication in this journal, and for accessibility for interested individuals and/or groups who need certain data for a given comet, who may write to the ICQ for listings of the data on cards.

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NEWS OF RECENT COMETS

During September and October 1978 there were a considerable number of comets which were discovered or recovered.

On Sept. 1.52 UT, Toshio Haneda (Haranomachi, Fukushima, Japan) discovered a 10th-magnitude comet in the southern constellation Microscopium. Hours later, Jose da Silva Campos of Durban, South Africa, found the same comet independently. This comet is a newly-discovered periodic comet with a period of just under 6 years. Periodic Comet Haneda-Campos 1978j was at perihelion on October 9; the elements of its orbit can be found on IAU Circular No. 3271.

Periodic Comet Giclas 1978k was discovered by Henry L. Giclas of Lowell Observatory on September 8 in Cetus at $m_1 = 15.6$. Although perihelion was on Nov. 21, this comet decreased in brightness as it moved away from the earth. It has a period of 6.68 years (IAU Circular No. 3280).

Don E. Machholz of Los Gatos, California, discovered Comet 1978l on Sept. 12.51 UT at 11th magnitude in Canis Major, not far from the bright star Sirius. This comet was closest to the sun on Aug. 13 at a distance of 1.771 AU. (IAU Circular No. 3282).

David A.J. Seargent of The Entrance, New South Wales, Australia (cont. on p. 5)

NEWS OF RECENT COMETS

(cont. from p. 4) 11a, discovered a 5th-magnitude comet with a 0.5-tail on Oct. 1.77 UT. Initially in the constellation Centaurus when discovered, Comet 1978m moved rapidly southward and faded in brightness; Comet Seargent reached perihelion around Sept. 14 (IAU Circular 3291).

Comet 1978n was discovered by Shigehisa Fujikawa on Oct. 9.81 UT at magnitude 11 in Sextans. As the comet moved northward into Leo and more observations became available, Dr. Brian Marsden noted close similarities between this comet and Comet Denning 1881V. Periodic Comet Denning-Fujikawa has an orbital period of about 9 years, and this past year, it reached perihelion around Oct. 2. (Elements on IAU Circular No. 3300.)

William A. Bradfield of Dernancourt, near Adelaide, Australia, has discovered yet another comet, Comet Bradfield 1978o. He found it at 9th magnitude on Oct. 10.78 UT in the constellation Crater. This comet passed perihelion on Sept. 29, and by early January, it will be about 16th magnitude. (IAU Circular No. 3297.)

T. Seki recovered Periodic Comet Tsuchinshan 2 on Oct. 29.82 at Geisel, Japan. Designated Comet 1978p, this object was then an 18th-magnitude object in Leo. (IAU Circular 3302)

Charles Kowal recovered Periodic Comet Jackson-Neujmin at Palomar Observatory from plates taken Nov. 28 and 29. Designated Comet 1978q, the 19.5-magnitude comet was located in Capricornus (IAU Circular 3311).

This makes 17 comets that have been discovered or recovered in 1978, as of early December.

Observations of magnitudes of these and other comets are tabulated in the final pages of this issue.

VISUAL MAGNITUDE ESTIMATES AND SECULAR FADING OF COMETS

by David A.J. Seargent
The Entrance, N.S.W., Australia

The question of secular fading of short period comets has again been raised by the recent recovery of Periodic Comet Taylor (hence known as P/Taylor) and the favourable returns of P/D'Arrest, P/Grigg-Skjellerup, and P/Arend-Rigaux.

Their relatively high intrinsic brightness (indeed, even the continued existence of P/Taylor) seems hardly consistent with the thesis that such objects have lifetimes measured (as Vsekhsvyatskii maintained) "in terms of centuries of even decades." Especially embarrassing is the high brightness of P/D'Arrest -- this comet seems brighter now than it did 100 years ago!

Such observations suggest to some people that the "fading" of cometary magnitudes has been caused, not by intrinsic fading of the comet itself, but by systematically higher estimates in the past, presumably resulting from differences in the type of telescope employed in earlier times.

If this alternate thesis is correct, there should be some indication that the magnitudes of long period comets will show a similarly-exaggerated absolute magnitude a century ago. Of course, we cannot compare the individual comets in these cases, but we should be able to trace such an effect (if, indeed, one exists) in the average derived magnitudes of 19th- and 20th-century comets.

Professor Edgar Everhart found that since 1840 the average (cont. on next page)

VISUAL MAGNITUDE ESTIMATES AND SECULAR FADING OF COMETS

(cont. from page 5); yearly discovery rate of bright (i.e., visually discoverable) comets has remained fairly constant.¹

Furthermore, the discovery magnitude has remained about 8 to 10; both facts indicate that visual discoveries of comets today are not yielding appreciably more objects of lower luminosity than visual searches of the last century. In other words, one would expect the average intrinsic brightness of a sample of 19th-century comets to be about the same as that for a sample of 20th-century comets. One would also expect the distribution of absolute magnitudes to be essentially the same. Any obvious discrepancy would, presumably, indicate exaggerated values for one set of magnitudes.

To test this, the following table has been prepared using samples of comets from 1840-1899 inclusive and 1900-1960 inclusive. The samples were taken from Everhart's list² (absolute magnitudes originally supplied by Vsekhsvyatskii) and include only those objects observed visually from mid-northern latitudes, thus reducing selection effects as far as possible.

1840-1899		1900-1960	
Estimated H_0	Percentage of comets observed	Est. H_0	Percentage of comets observed
0-5.9	35.70	0-5.9	26.60
6-6.9	20.28	6-6.9	17.02
7-7.9	17.47	7-7.9	11.70
8-8.9	13.28	8-8.9	17.02
9-9.9	9.09	9-9.9	17.02
10-10.9	2.09	10-10.9	7.45
11-11.9	2.09	11-11.9	3.19

The two samples contained approximately the same number of comets.

These figures show that the second sample contains relatively higher percentages of objects of 8th-magnitude and fainter and reveals a more even distribution, indicative of generally lower estimates of absolute magnitude (H_0). This appears to support the contention that a significant proportion of the first magnitude estimates are exaggerated. (Remember, too, that we are only dealing with absolute magnitudes here and, depending upon geocentric and heliocentric distance, an intrinsically-faint comet may not have a low apparent brightness. Thus, the above table cannot simply indicate a greater likelihood to discover fainter comets today -- a contention which is denied by Everhart's statistics.)

These results, I believe, provide further indication that absolute magnitudes derived for comets of last century are systematically exaggerated in comparison with contemporary observations and, consequently, the alleged secular fading of comets of short period observed several times throughout the period under consideration, is more likely to be a manifestation of this general observational phenomenon than a reflection of genuine cometary decay.

References: ¹E. Everhart, "Comet Discoveries and Observational Selection", *Astron. J.* 72, p. 717. ²E. Everhart, "Intrinsic Distribution of Comet Perihelia and Magnitudes," *Astron. J.* 72, pp. 1004-1005.

OBSERVATIONS OF RECENT COMETS

The Editors of the ICQ are still working with a computer program by which we can catalog all of the observations that we receive. This should be in working order for the next issue.

Following are observations of recent comets which have been received by the Editors of the ICQ and by the Central Telegram Bureau of the IAU in Cambridge, Mass. Listed are: (1) Universal time of observation to 0.01 of a day when possible; (2) total visual magnitude of comet as estimated by observer; (3) aperture of instrument used in centimeters; (4) type of instrument used [B=binoculars, L=reflecting telescope, R=refractor, C=Cassegrainian]; (5) observer (see key at end of this issue).

COMET MEIER 1978f

<u>Date (1978 UT)</u>	<u>m₁</u>	<u>Aperture</u>	<u>Instr.</u> <u>type</u>	<u>Observer</u>	<u>Comments</u>
July 1.18	8.7	11x80	B	PLC	10' tail
Nov. 4.74	6			DHD	
5.84	6	33	R	MPC	
7.73	6	15x80	B	DAS	
9.09	6.0	12	R	JCB	

PERIODIC COMET ASHBROOK-JACKSON 1977g

Sept. 2.14	11.4	10	R	AHA	
3.23	11.4	10	R	AHA	
5.31	11.6	32	L	JEB	3' tail
7.27	11.9	20	L	PLC	
9.31	12.0	20	L	PLC	
10.18	11.5	10	R	AHA	tail c. 1'
10.25	11.3	15	L	CSM	5' tail
10.26	11.3	20x80	B	CSM	
10.31	11.7	32	L	JEB	10' tail
23.50	11.9	20	L	CES	
24.11	11.6	32	L	JEB	
24.23	11.3	15	L	CSM	
25.14	11.3	15	L	CSM	
25.97	11.2	20.3	L	GSK	
26.07	11.5	32	L	JEB	
27.33	11.9	20	L	PLC	
29.11	11.7	32	L	JEB	
29.35	11.6	20	L	PLC	
30.11	11.6	32	L	JEB	
Oct. 1.92	11.3	20.3	L	GSK	
3.10	11.5	32	L	JEB	
3.92	c. 11	20.3	L	GSK	
7.13	11.6	32	L	JEB	
8.16	11.5	41	L	AHA	
9.14	11.6	32	L	JEB	
21.03	11.9	41	L	AHA	
25.05	11.8	32	L	JEB	
Nov. 1.11	11.7	32	L	JEB	

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COMET DISCOVERIES

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The most urgent information is also relayed by IAU TELEGRAM. Learn of a new comet or nova by mailgram (in North America) for only \$2.00 per message. TWX/telex and regular telegram service are also available.

Somewhat less urgent cometary data are now being published at monthly intervals in the MPC's. The MPC's, short for MINOR PLANET CIRCULARS or MINOR PLANETS AND COMETS, also contain a wealth of data on minor planets, including observations, orbital elements and ephemerides, new designations and new assignments of names. A special rate of only 5¢ per issue is available to amateurs.

For further information contact

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Smithsonian Astrophysical Observatory
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Cambridge, MA 02138 U.S.A.

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OBSERVATIONS OF RECENT COMETS

COMET HANEDA-CAMPOS 1978j

Date (1978 UT)	m_1	Aperture	Instr. type	Observer	Comments
Aug. 10.33	13-14	46	Schmidt	EHN, SJB	pre-disc.
Sept. 1.52	10	8.5	R	THA	discovery
1.88	9			JSC	discovery
2.14	9			REM	
2.40	10	31	L	DHD	
2.57	10			MPC	tail $< 1^\circ$
2.65	c. 9.5	20.3	C	BSU	
3.16	9			REM	diffuse
4.47	c. 10	20.3	C	BSU	
4.52	10			JJO	
5.10	11.2	32	L	JEB	
5.42	c. 9.8	15x80	B	DAS	
5.45	10			DHD	
6.51	10.8	20.3	C	BSU	
6.77	9.8	20x80	B	NBR	
7.22	10.2	20	L	PLC	
7.31	10.4	25	L	DEM	
7.42	c. 9.8	15x80	B	DAS	
8.21	11.5	40	L	RME	diffuse
9.3	10.4	25	L	DEM	
10.16	10.3	10	R	AHA	
Oct. 11.86	11			MPC	

COMET MACHHOLZ 1978i

Sept. 12.51	11	25	L	DEM	discovery
13.47	10.7	25	L	DEM	
14.33	11			HES	
14.44	11			EEV	
14.49	10.7	25	L	DEM	
16.82	11			TSE	
19.51	10.5	25	L	DEM	
21.51	10.8	25	L	DEM	
23.52	10.6	25	L	DEM	
25.39	10.1	32	L	JEB	
27.36	10.5	41	L	AHA	
28.49	10.8	25	L	DEM	
29.40	c. 10.5	32	L	JEB	
29.50	c. 10.0	20	L	PLC	
29.52	10.6	25	L	DEM	
30.51	10.6	25	L	DEM	
Oct. 1.53	10.7	25	L	DEM	
3.53	10.7	25	L	DEM	
4.51	c. 10.8	25	L	DEM	
5.53	10.6	25	L	DEM	
6.52	10.5	25	L	DEM	
7.51	10.7	25	L	DEM	
8.53	10.7	25	L	DEM	
9.52	10.7	25	L	DEM	
11.53	10.5	25	L	DEM	

OBSERVATIONS OF RECENT COMETS

COMET SEARGENT 1978m

<u>Date (1978 UT)</u>	<u>m₁</u>	<u>Aperture</u>	<u>Instr.</u> <u>type</u>	<u>Observer</u>	<u>Comments</u>
Oct. 1.77	5			DAS	discovery
2.71	6	12x50	B	DGO	
2.76	5-5.5	31	L	DHD	0.5 tail
2.86	5			AVE	tail 1°
3.84	6.4	9x65	B	BSU	tail 2°
6.72	6	10x50	B	TBT	
9.72	6.5	10x50	B	TBT	wide 0.5 tail
11.75	7	10x50	B	TBT	
22.95	7.5	10x70	B	VAN	
25.90	7.8	31	L	VAN	coma dia. 12'
#####	#####	#####	#####	#####	#####

OBSERVER KEY

JCB	Jack C. Bennett (Pretoria, S. Africa)	DAS	David A.J. Seargent
JEB	John E. Bortle (Stormville, N.Y.)		(The Entrance, N.S.W.,
NBR	N. Brown (Perth, W.A., Australia)		Australia)
SJB	S.J. Bus (Palomar Mtn. Observatory)	TSE	T. Seki (Kochi Obs.,
MPC	Michael P. Candy (Perth Obs., Bickley, Australia)		Geisei Sta., Japan)
PLC	Peter L. Collins (Mount Hopkins Obs., Arizona)		
EEV	E. Everhart (Denver, CO)	CES	C.E. Spratt (Victoria,
DGO	D. Goodman (Wellington, New Zealand)		British Columbia)
AHA	Alan Hale (Annapolis, MD)	BSU	B. Sumner (Perth, W.A.,
THA	Toshio Haneda (Haranomachi, Fukishina, Japan)		Australia)
EHN	E. Helin (Palomar Mtn. Observatory)	TBT	T.B. Tregaskis (Mount
DHD	D. Herald (Kambah, near Canberra, Australia)		Eliza, Victoria)
JJO	J. Johnson (Perth Obs., Bickley, Australia)		
GSK	G.S. Keitch (Wrington, Avon, England)	AVE	A. Verveer (Perth Obs.,
DEM	Don E. Machholz (Los Gatos, Calif.)		Bickley, Australia)
REM	R.E. McCrosky (Harvard College Obs.)		
RME	Rolf Meier (Ottawa, Ontario)		
CSM	Charles S. Morris (Harvard, Mass.)		
VAN	V.F. de Assis Neto (Sao Francisco de Oliveira, Brazil)		
HES	Hans-Emil Schuster (European Southern Obs.)		

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