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## Telescope Codes for Variable Star

Observing

99 - other

0 - unaided eye

1 - Penelope

2 - Miranda

21 - Europa  
22 - Callisto

3 - Minerva

4 - Pegasus

## Discovery of New comets

1987a \*\*\* 7312M

Confirmed  
③③③ 7314M

1987y \*\*\* 7536E

③③③ 7537E

1988e \* 7680M2

③③③ 7684M2

## Comet Search Codes

CN3 December 17, 1965

CN3F } \*7910AN

CN3a wide field finder

CN3g } Dec 17, 1988

CN3b 1973 larger telescope

F = photog. + CCD  
g = with other programs

CN3c 1977 catalog of masqueraders.

CN3d 1981 Sept 11 - Miranda used for search.

CN3e December 17, 1986 TV Corvi, nova \*7292E.



LOG 15.

7209E Thursday, Aug 14/15 | 2255-2330 | 3-F | Le Fort, RASC /  
Peter, Dianne, Alister | Moon, Jupiter.

7210EM Friday, 15/16 | 2355-0030 ~ | 2-F | McGill | - | - | moon.

7211EM Saturday, 16/17 | 2300 - 0100 | 3-4-F | RASC | 14 | Alister,  
Constantine | Jupiter. Seeing 6 1/2. at 0345 UT.

14" Celestron



7212M2 0130-0200 | 2-4-F | Westmount High.

7213MP ~ Friday 22/23 | 0130 ~ ~ 0140 | Craycroft exit I-10.

7214EP Saturday, 23/24 | 1930-1940 | Some forest service rd. near Nogales/IF.

7215E Sunday ~ Wednesday 28/29 | 1930-2200 | Image Pt / Gary +  
Terri | 8" f1 / Mars, Jupiter.

7216E Thurs 29/30 | 2000-2200 | 2-F | 6" | Steve, Dr. Leach.

7217EM Sat 30/31 | 2100-0100 | 10-F | 6" | Steve.



721842 0300-0400/3-F/JM4/Miranda/-/Wilson, CN3 0h12mE.

7219EM Sun 3/1/1 Yep - Comet Wilson (1986d) is real...

(JIM WUZ HEAR WITH COMET WILLLLSON - 9/1/86 UT)

Sept 2100-2~~300~~<sup>0</sup>00/3-F/JM4/Miranda/-Jim/Comet Wilson.

\*7220AN. Mon 1/2/ SEPTEMBER/2000-0530/10-F/~~3A~~ Mt Bigelow/  
61"/Tapie, Steve / Comet Wilson. <sup>61" Finder.</sup> CN3 3h00mE.

7221AN Tues 2/3/ 2000-0530/10-F/Mt Bigelow/61"/Steve, Gary/Pandra  
/ Comet Wilson. Mars, Jupiter, M15. CN3 1h00mE w/Miranda

7222E Wed 3/4/ 2000-0000/10-F/JM4/Miranda/-/CN3  
1h W.

Saw Comet Wilson, Andromeda Galaxy,  
& MGC something. Am going back  
'for the Crab Nebula.

Ed Severson - Sept. 3, 1986  
Charlie left

7223<sup>P</sup><sub>A</sub> 0510-0520/10-F/JM4/Miranda.

7224M Thurs. 4/5/ ~~200~~ 0100-0500/10-F/JM4/Miranda/-/  
CN3 3h00mE.

7225<sup>M</sup><sub>A</sub> Fri 5/6/ 2230-0500/10-F/JM4/Miranda/Michael, Jim/  
CN3 2h20mE.

7226AN Sat 6/7/ 2000-0500/10-3-F/~~3A~~ Empire Ranch, JM4/  
TAAA/Pegasus, Miranda, 10", 13", ff.  
CN3 4h35mE.

7227E Sun <sup>7/8</sup> 2200-0000/~~2310~~ F/JM4/Miranda.

No Luck, windy, cloudy, going to sleep after  
looking at Jupiter + ~~4~~ moons Uri.



7228M <sup>Mon</sup> Tues 8/10/ 0350-0430/10-F/SM4/Miranda/-0.3<sup>h</sup>E

7229M Wed 10/11/ 0350-0450/10-F/SM4/Miranda/0.6<sup>h</sup>E

7230<sup>F</sup> Thu 11/12/ 2000+ 2100/T-F/ Image Point/ <sup>104</sup>Gray/MARS

7231M2 0300-0500/10-F/SM4/Miranda/-/ CN3 <sup>3</sup>5/-/  
~~Gr~~ 1<sup>h</sup>30<sup>m</sup>E.

7232E Fri 12/13/ 2200-2215/7-Fm/SM4/Miranda/-/ Jupiter.

7233M2 0345-0445/10-3-F/SM4/Miranda/-/ CN3 0<sup>h</sup>30<sup>m</sup>ES.

? 7234M Sat 13/14/ 0330-0430/Pegasus/SMF/ CN3 0<sup>h</sup>30<sup>m</sup>E.

7235E ~~Sun~~ Tues. 16/17/ 1900-2000/7-Fm/Grates Pass W/  
Maia/-/ CN3 0<sup>h</sup>30<sup>m</sup>W.

7236E Wed 17/18/ 1930-2300/7-Fm/Grates P. W/ Ophelia/  
-/ CN3 0<sup>h</sup>30<sup>m</sup>W.

7237E Thu 18/19/ 1935-2000/7-Fm/Grates P. W/ Ophelia/  
CN3 0<sup>h</sup>30<sup>m</sup>W. (See next page)  $\rightarrow$

\*7240E ~~7237E~~ Fri Wed 24/25/ 1930-2100/10-F/ ~~SM4~~ Kitt Peak  $\rightarrow$  Minerva/-/  
CN3 1<sup>h</sup>00<sup>m</sup>W. / Brian Marsden, Tom Gehrels.

7241E ~~7239ME~~ Fri 25/26/ 1930-2200/10-F/SM4/Miranda/-/  
CN3 2<sup>h</sup>00<sup>m</sup>W.

7242E. Fri 26/27/ ~~2000~~ 1930-2100/10-F/SM4/Miranda/  
CN3 0<sup>h</sup>50<sup>m</sup>W.

7243M2 0000-0015/9-F/SM4/Miranda/ CN3 0<sup>h</sup>10<sup>m</sup>W.

7244E Sat 27/28/ 2300-0100/9-3-F/SM4/Miranda/-/  
CN3 1<sup>h</sup>05<sup>m</sup>W, E.



1158EM. 19/20 Sept, 1986. See Log 19. with Clyde 19" at  
250x1 Jupiter:

\*7238S. 22/23/1600-1640/3-F/SM4/Miranda. /

Sept 22 1986 23<sup>h</sup>37<sup>m</sup> UT observed telescope observed 1984t

BR

Lanny Baker

Jim Scotti

Peter Collins

- GREAT TELESCOPE OBSERVING SESSION!

Brian Marsden, Lanny Baker, Jim Scotti, Peter Collins / telescopes

7239E2 1930-2030/4-F/SM4/Miranda / - / CN3 0<sup>h</sup>40<sup>m</sup> W.

now see previous page for \*7240E - 7244E.

7245E (should be before 7244) / 27/28/2130-2230/3-F/  
Tumamoc Hill / Tom, Angie Gliras / 20" refl.

7246~~E~~<sup>E</sup> Sun 21/2 28/29 1930-2330/10-F/SM4 / - / Miranda / - /  
CN3: 2<sup>h</sup>

7247~~E~~<sup>AN</sup> Mon 29/30/1900-0530/10-F/ ~~SM~~ 61" / Steve,  
Tom, Angie / - / ~~E~~ Comet Wilson, etc.

7248<sup>AN</sup> Tues 30/1/1900-0530/10-F/61" / Steve / Comet Wilson.  
Larry Wilson came to fix the drive. CN3 0<sup>h</sup>15<sup>m</sup> W. ~~Miranda~~  
Minerva

7249<sup>M</sup> wed 1/2/0300-0500/10-F/SM4/Miranda / - / CN3 2<sup>h</sup>

\*7249<sup>SB</sup> Oct 3 - Partial Eclipse of the Sun.

7250<sup>M</sup> Thu Fri 3/4/0300-0500/10-F/SM4/Miranda / - /  
CN3 2<sup>h</sup>

7251<sup>E</sup> Sat 4/5/0300-05-23 1930-2045/10-3-F/Empire  
Ranch / - / CN3 2<sup>h</sup>20<sup>m</sup> W. Pegasus etc.

7252<sup>M2</sup> 0430-0530/7-F/SMF/Pegasus / - / CN3 0<sup>h</sup>15<sup>m</sup> E



72535.

Sunday, Oct 5 1986. Rene Y. Lhwaan  
Rick Rotramel  
" " Chris Schum ☺

1200-1300 / 3-F / JMB / Miranda / ↑ / .

7254E Mon Oct 6/7 / 2330-0000 / 7-F / Steve & Ken  
Charles' House / - / comparison of conditions.  
~~Heat~~ 4 at Steve's; 8 at Charles'.

7255E Tues Oct 7/8 / 2030-2105 / 1-F / Santa Monica  
Beach / - .

Michael Magee - 3 Draconids: Wow, what a storm!  
James Krolli Observing a non-shower in a  
Peter Krause real shower! - 1 Draconid, 1 Sporadic,  
1 N. Piscid, 3 Satellites and 1 Baseball  
Game. (Not necessarily in that order).  
A dust sighting of the Cassiopeia Flasher.



Mike Walter 10-10-11-86 Littleton Ma 01460  
Rick Lynch 10-11-86 Greenhill, R.I.

7256E Oct 10/11/ 2000-2300/1-F/ JMY/ ♂/

7257E Oct 19/20/ 1900-2000/ South site/ CN3 0h 15m?

7258E Oct 19/20/21?/ ~1900-~1945/ JMY/ CN3 1h 50m

7259M Nov <sup>21/22</sup> Oct ~~22/23~~ Tues/ 0100-0200/ 3-F/ Summit  
Walk + LCP-818/14/ Orionids.

7260E Oct <sup>21/25</sup> ~~23/24~~ Wed. 1 2000-2240/ 7-F/ Belgium  
Johann Gisenbergs, Steve Edberg - others/ 8" refractor.

7261E Nov ~~3/4~~ <sup>Sun</sup> 2/3 Mon. 2130-2200/ 7-F/  
Heppenheim, W. Germany/ -/-/ general.

7262E (before 7261) <sup>Oct</sup> Oct. 1 2100-2215- / Mother, Steve Dattler/ Heidelberg Castle

7263E Fri 7/8/ 1930-1930/ 1-F/ Observatoire de  
Meudon/ -/-/ Mother, Rene Boyer, Don Davis.

7264E P Sunday, 9/10/ 2330-2340/ South Shore/ 3-F/ Maia, Mira-2/ Carl/  
Jupiter, Orion region.

7265E M2 0015-0035- / 3-F/ McGill/ -/-/

7266E Mon 10/11/ 2130-2305/ 3-F/ WHS-LCP(818)/ -/-/

7267E Wed. 19/20/ 1830-1940/ 10-f/ South site/ Pegasus/ -/  
CN3 1h 00m W.

7268E Thu 20/21/ 1830-2000/ 10-f/ JMY/ Miranda/ 8"/ Peter Collins/  
CN3 1h 00m W.



- 7269E Friday, 21/22/1845-2200/10-F/JM4/Miranda/-/  
CN3 2<sup>h</sup>00<sup>m</sup>W.
- 7270E Sat 22/23/1815-2300/10-F/JM4/Miranda/  
Jim Scotti and Tom/. CN3 2<sup>h</sup>20<sup>m</sup>W. Comet Sorrells, <sup>Wilson</sup>
- 7271E Sun 23/24/1830-0000/10-F/JM4/Miranda, 8-inch. / Peter C.  
Comet Sorrells / CN3, 1<sup>h</sup> W.
- 7274M ~~At~~ Tues 25/26/0100-0200/10-F/JM4/~~at~~ Miranda/  
-/ CN3 0<sup>h</sup>15<sup>m</sup>E.
- 7272E ~~a)~~ (should be after 7271E) Monday, 24/25/1900-~~1915~~/7-F/  
near Valencia + I-19/ ~~at~~ Ophelia / - / CN3 0<sup>h</sup>10<sup>m</sup>W.
- 7273E ~~b)~~ 2000-2030/2000-2030/9-F/JM4/Miranda/-/  
CN3 0<sup>h</sup>15<sup>m</sup>W, c/Wilson.
- 7275M Wed 26/27/0230-0300/10-F/JM4/Miranda/-/  
CN3 0<sup>h</sup>15<sup>m</sup>E.
- \*7276AN Thu 27/28/1800-0600/10-F/JM4 Bigelow/ 61", Pegasus/  
Steve Larson. CN3 0<sup>h</sup>10<sup>m</sup>ES. & P/Schwassmann-  
Wachmann II
- \*7277AN Fri 28/29/1800-0600/10-F/JM4 Bigelow/  
61", Pegasus. CN3 0<sup>h</sup>10<sup>m</sup>E. & c/Urata-Nijima
- 7278E Sat 29/30/1900-1845-1925/3-F/W. of Buckeye, AZ/  
Pegasus/- / CN3 0<sup>h</sup>15<sup>m</sup>W.
- 7279E Sun 30/31/1800-1830 PST/3-F/Charles "Morris" House/  
Charles, Terry Lovejoy.
- 7280MP2 0300-0310/3-F/CSM.'s house/sky check.
- 7281M Mon ~~31/32~~ DECEMBER 1/2/0340-0540/10-F/  
Morgan Site/Pegasus/- / CN3 0<sup>h</sup>45<sup>m</sup>E.
- \*7282E Tues 2/3/2000-2140/10-F/Polaris Observatory/  
Pegasus, cameras/ Steve Edberg/ CN3 1<sup>h</sup>11<sup>m</sup>W,N.  
C/Sorrells, w/ Pegasus.
- \*7283M2 0330-0530/10-F/Little Rock Site/Pegasus/  
Charles/ CN3 1<sup>h</sup>00<sup>m</sup>. P/Halley.
- 7284M Sat 6/7/0300-0330/3-2-F/Charles house/ clouded over.



- 7225E Sunday, Dec 7/8/1900-1920/7-F/Cliff Holmes' house/Pegasus/  
Cliff/Moon, Jupiter, Mars in triangle.
- 7226M Mon 8/9/0430-0600/10-F/JM4/Miranda/-/CN3 1<sup>h</sup>00<sup>m</sup>E
- 7227M Wed 10/11/0330-0600/10-F/JM4/Miranda/-/CN3 2<sup>h</sup>00<sup>m</sup>E
- 7228M Thu 11/12/0430-0600/10-F/JM4/Miranda/-/CN3 0<sup>h</sup>52<sup>48</sup><sup>m</sup>E
- \*7229M Fri 12/13/0430-0630 10-F after moonset/-/Peter Collins.  
Geminids  
PC saw 50 Geminids + 14 others  
Peter Collins
- DL saw 56 Geminids, 10 others, 5-6 am.
- \*7290M Sat 13/14/0150-0310/7-Fm/South site walk/-/-/  
Geminids: 43 betw 0200 + 0300, almost full moon.  
+ 1 -2 meteor (Geminid) at 0305  
+ 2 non shower meteors.
- \*7291E Sun 14/15/0200-2130/3-F/JM4/Miranda/-/Nova  
Andromedae 1986.
- \*7292E Friday, Wed. Dec 17/18/1840-1940/3-2-F/South site/  
Pegasus/-/Start of CN3e for Schwassmann-Wachmann I  
+ Sungrazer Group. CN3 0<sup>h</sup>30<sup>m</sup>W.
- \*7293M2 0000-0230/000 3-8-Fm/JMF+south site/Pegasus/-/CN3 10<sup>m</sup>  
around Canopus for Sungrazer - 50 perihelion.
- 7294E Fri 18/19/20/1845-1930/10-F/JM4/Miranda/-/CN3 0<sup>h</sup>1<sup>h</sup>00<sup>m</sup>.
- 7295E2 Sun 20/21/22/3-F/JM4/Miranda/-/CN3 0<sup>h</sup>30<sup>m</sup>E.  
1<sup>h</sup>00<sup>m</sup>W. (should be after 7296S)



Marcia Levy - Dear Uncle David. I had a GREAT time! Thank for every thing! I love ya - love Marcia..

Jeff Levy - Dear Uncle David, What a vacation and all because you were here. Thanks for the wonderful trips up the mountain I hope to do it again soon. Bye.  
Love  
Jeff.

Richard Levy. Dear David, Thanks for showing up a wonderful week in a lively town. Thanks for the chance to look back and for all your precious time. See you soon love  
Richard.

7296S. Dec 21/22 | 1100-1200 | 3-F | JMB | Miranda | Richard, Jeffrey, Marcy | Sun.

7297E. Tues 23/24 | 2300-0000 | 10-F | JMB | Miranda | - | CN3 Oh 20ms.

7298ES. Wed 24/25 | ~~1830~~ #1500-1600 | 3-F | Mt Bigelow | 61"/, CN5 SVcn.  
Jeff Levy

7299EM2. 2330-0030 | 3-F | JMB | Miranda | Richard, Jeff, Marcia | M42, M31.

Jeff Levy  
So my favourite middle brother. Keep on looking up love Richard

Marcia - Thank-you for the observing session! You're the best astronomer I know!

7300E. (before 7298) Tues 23/24 | 2000-2230 | 3-F | Tomanoc | 20 | Jeff | Jupiter



- 7301E Thyr 25/26/1930-2230 / 10-F/3M4/Miranda/-/  
 Larry Stunkelman Heaven on Earth (Tonight we were  
 outside the atmosphere here.)
- 7302E Fri 26/27/1930-1945/~~10~~ 3-F/3M4/3MB/Miranda/  
 Saturn / Jupiter.
- 7303E Sat 27/28/1940-2300/10-F/3M4/Miranda/M31, ~~2, 3, 4~~, M42, M1.  
 Vernice Mink TIFFANY CAN'T COMPARE.  
 Eric Mink Especially liked M79  
 Julie Seeger Thank you! It's thrilling.
- 7304M Sun 28/29/ <sup>0430-0630</sup> ~~0300-0415~~ / 10-F / 3M4 / Miranda / CN3 / 1<sup>h</sup> E.
- 7305M Mon 29/30/ 0300-0415 / 10-F / 3M4 / Miranda / - / CN3 / 1<sup>h</sup> E.
- 7306M Tues 30/31/ ~~03~~ 0000-0100 / 10-F / 3M4 / Miranda / - / CN3 / 1<sup>h</sup> S.
- 7307MPZ 0300-0310 / 3-F / 3MF / virus morning in.
- 7308EM Wed 31/32 / 1920-0300 / 3-F / 3M4 /

New Year's Eve Party

Happy New Year - Having a great time Jerri

Jennifer Scott

James + Harrianna

Peter & Ed

Houli

Mika Hiki  
 Scott

Hou

Another day, another comet  
 recovery

♂ Gary Rosenhars ♂



New Year's Eve party, Last entry of 1986. ←

One minute to go.....

Thirty seconds..... 20..... 15..... 10.....

← This mark was made as the new year (1897<sup>3</sup>) was ushered in amidst good Friends, good music, some observing, and, to you, David, good wishes for the next year to be the best ever!

P.S. → Thanks to Jim Scotti  
for providing timings ± 1<sup>s</sup>.

affectionately,

Michael Bakich



1987

7309 AN Jan 1/2 / 1700-0800 / 3-F / 6" / Steve / P/Halley, C/Sonnelle.

\*7310 AN 2/3 / 1700-0600 / 3-F / 6" / Steve, Santiago / P/Halley, P/Comas-Solaz / C/Sonnelle. MI.

7311 M 3/4 0540-0600 / 7-F / <sup>south side ophelia</sup> JM4 / ~~Miranda~~ / CN3 0h10m E.

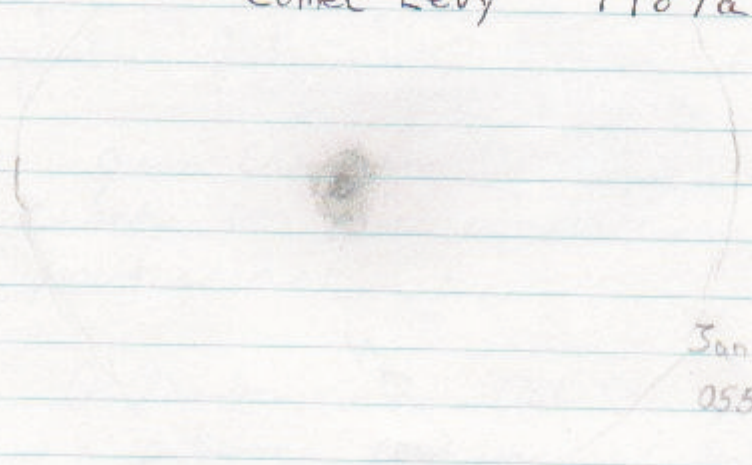
\*\*\*7312 M 4/5 / 0515-0715 / 10-2-F / JM4 / Miranda / - / CN3 0h40m E.  
Possible comet in Ophiuchus.

7313 M 5/6 / 0530-0600 / 2-F / JM4 / Miranda / - / clouds.

~~7314 M~~ 6/7 / 0430-0700 / 10-F / JM4 / Miranda / - / CN3 0h15m E.  
Confirmed new comet 17h17m.0  
+ 90.50m.

7315 M 7/8 / 0000-0100 / 3-F / south walk / - / - / -

7316 M2 0530-0610 / 3-2-F / JM-4 / Miranda / - / Comet Levy 1987a.



Jan 7/8 1986  
0550 MST



8/9/ 1830-2230/10-F/3M4/Miranda.

7317E.

Ruel R. Robles KVOA TV. Four

Sandy R. H. H. - channel 4

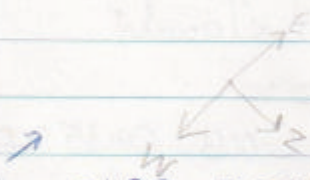
But ~~TS~~ - I need you to discover one in April. It will grow to be big and bright.

David - This is a very special day and we are delighted to be a part of the celebration.

Hooray for you! You're down from 900 hours to 200 hours - see what practice can do! ☺

Best love, Valerie 8 Jan 87

Jan 9 1987



CN3 0°15' E.

7318MR 0400-0630/10-F/3M4/Miranda/Mike B. -/-/ GA Comet Levy.

7319M Jan 9/10/ 0400-0630/10-F/3M4/Miranda/CN3 0°40' E.

Comet Levy 1987a.

Mike Bakich.

↓

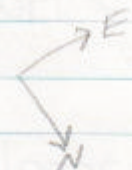
DC=2

M<sub>1</sub> = 11.0





7320 M. Jan 10/11/0430-0630/10-F/JM4/Miranda/Mi Khael Magee, Peter Collins. Comet Levy.



1"  
DC=2  
M<sub>1</sub>=11.3



1"  
DC=3  
M<sub>1</sub>=11.1

7321 S. <sup>14</sup> Jan 11/12/0230-0400/10-F/JM4/Channel 9 reporters/Miranda, Minerva  
7322 M2 0535-0630/10-F/JM4/Miranda/-/Comet Levy.

7323 MS Mon 12/13/0550-0830/7-Fm/JM4/JM4/Miranda/-  
no 1987a due to moonlight. Saw Regulus till 20 min before sunrise + Venus until sunrise. At 7:45 spoke with Brian Marsden to close (at least) the problem of the Jan. Opposition. (\*\*7312M).

Jim Erickson Arizona Daily Star  
Thanks for your cooperation. Good luck with your search.

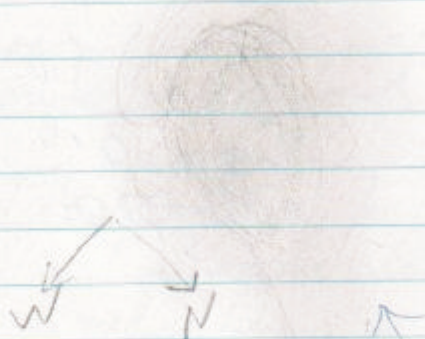
Os Sander Arizona Daily Star - photog. - thanks for your patience - these are great pictures - (I hope) - I've learned a lot and thank you for everything.



- 7324EM. Fri 16/17/ 0100-0230 / 3-F / snow on ground / South walk.
- 735 E Sun <sup>18/19</sup>~~17/18~~ 1900-2000 / 3-F / SM4 / Miranda / - / CN3 1<sup>h</sup>00<sup>m</sup> W.
- 7326E <sup>Tues 19/20/21</sup>~~Mon 18/19~~ 1900-2000 / 10-F / SM4 / Miranda / - / CN3 1<sup>h</sup> W,
- \*7327E <sup>wed 21/22</sup>~~Tues 19/20~~ 1900-2100 / 10-F / SM4 / Miranda / CN3 1<sup>h</sup> W.  
Comet N-T-T 1987c. 2.9; tail  $2/3^\circ$  OPA fanning to  $50^\circ$ .
- \*7328EM2 2315-0030 / 10-F / SM4 / Miranda / - / after some search, Comet Wiseman-Skiff (1987b), M.  $\approx 14.5!$   
(Just before moonrise.) Com. Possibly elongated.
- 7329ME, <sup>Thurs 22/23</sup>~~Thurs 23~~ 1830-1900 / 10-F / SM4 / Miranda / Jim Scott / pictures, Comet NTT. Faded somewhat.  
Another day, another comet - Jim.
- 7330EM2 2230-0100 / 3-F / SM4 / Miranda / - / Comet Wiseman-Skiff. CN3 0<sup>h</sup>45<sup>m</sup> N, S.
- 7331M <sup>23/24</sup>~~Fri 24/25~~ 0000-0200 / Miranda / - / CN3 1<sup>h</sup>00<sup>m</sup> S, E.
- 7332S Sat 24/25 / 1230-1330 / Miranda / Jim / Photos.  
Plaque ceremony event for 1987 on Miranda.  
No comets are visible this afternoon - Jim
- 7333EM 2 1930-0230 / 3-F / SM4 / Miranda / Torrey Lovejoy / CN3 ~~to~~ 1<sup>h</sup>30<sup>m</sup> W, S, E. Comet 1987c, 1987b, Sorrells.



2-3' diam



7334E. Sun 25/26/1900 - 2000 / ~~10~~ 3-F / JMY / Miranda / Terry Lovejoy / Comet 1987c.

7335EMR 2330-0530 / 10-F / JMY / Miranda / Terry Lovejoy / <sup>05-30m</sup> CN3 ~~WSE~~ P/Halley. Comet Levy. M13, A M81, 82.

Congratulations on a very successful comet discovery!  
Terry Lovejoy

Hope they start sending cheques soon. Love the house, you should come visit me back in Nashville.

E.E. Barnard.

Mon 26/27 1800-1820  
 \* 7336AN 1800-0630 / 7-10-F / JMY South Tucson after sunset, then <sup>1840-1855</sup> E JMY, then South site, then <sup>1900-2000</sup> JMY again. <sup>2015-0630</sup> First: Observation of Comet Terasako 1987d.  
 1987 Jan 27 10:1 UT M1=6.9 Coma diffuse with strong condensation and a faint sunward elongation toward 250-270 degrees PA; length about 10 minutes.  
 CN3 6h 07m W, E. Comet Levy 1987a  
 Drum 2-3"  
 MV 11.5:



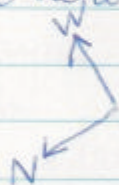


7337M <sup>wed</sup> Tues 28/29 / 0300-0630 / 10-F / JM4 / Fine night  
CN3 2<sup>h</sup>00<sup>m</sup> E.  
Comet Levy 1987a.

Diam 2'  
M<sub>v</sub> = 12.0:



7338AE Thurs 29/30 / 1800-2100 / 9-7-F / South Tucson,  
then JM4, then South side, then JM, then S. Tucson.  
Dinner with Comet Terawako 1987d. Observation  
as follows:



Sunward protrusion ~ 10'.

Jan 30.09

Comet Terawako 1987d: M<sub>v</sub> = 8.8 (D. Levy,  
Tucson, Az, 0.20m L). Diffuse with condensation;  
faint sunward elongation toward 260° PA; length  
10 minutes. A This feature was ~~more defined~~ sharper  
tonight than on 27 UT.

7339EM. <sup>Sat 31/32</sup> Fri 30/31 2300-0800 / 10-F / JM4 / John Griseo (others?)  
CN3 3<sup>h</sup>00<sup>m</sup> E. <sup>miranda.</sup> Comet Levy. M<sub>v</sub> = 11.9.



Alta Jackson - who enjoyed seeing  
Comet Levy, and meeting John & Peter.  
I hope everyone -- including Comet Levy --  
enjoyed breakfast.

David assures me that the fuzzy spot in the eyepiece is his  
comet. I admire such faith! I wish I knew the night  
sky as well as he. Our universe need such friends as these  
greg bar

Chromatic aberration, nothing more - actually, there seems to be good  
evidence that such beasts exists in the high sky, would that this  
creature, 1987c, be as well received as Comet Bennett, 1970, my  
first!! ~~Wolf Jones~~ 2/1/87

- <sup>40</sup>  
7339M 3/22/ Feb 11/2 | 0530-0610/10-F | JM4 | Miranda |  
Comet Levy. Mv 12.1
- 7341AN 2/3 | 1830-0630 | 3-10-F | JM4 | Miranda | - | KPND | 36" |  
CA Asteroid Geodesy. S. S. Weidenschilling, J. Griese,  
photographers, S. Africano.
- 7342M. 3/4 | 0300-0440-0630 | ~~10~~F 3-2-F | Mt Bigelow | 61" |  
S. Tapia, J. Griese, attempt to find Comet Levy.
- 7343AN 4/5 | 1800-0630 | 0-10-F | KPND | 2-36 | Michael  
Magee



(7343AN)

(16 45 05.4 00 31 51.0.

(Notes from  
7342)

Time 12 18 18 CCD Red Comet Levy.)

7343AN ↓

Object List

16 Psyche

354 Eleonora

419 Avelia.

201 Penelope.

1987a Levy

3 arc min diam

1987a

Feb 4 UT

12 55 UT

36-inch

At same time,

Santiago Tapia imaged 87a

Night began with snow,

with 61" and CCD.

later sky began to clear and we started

observing at 2:45 after computer problems.

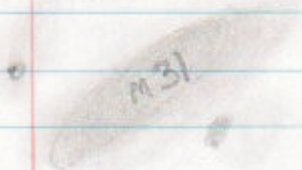
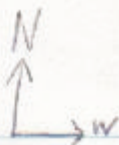
COMET LEVY GRACEFULLY MOVES THROUGH

THE FIELD OF THE 2-36" TELESCOPE.

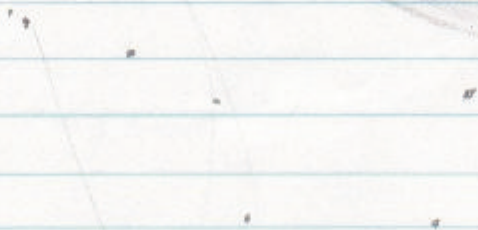
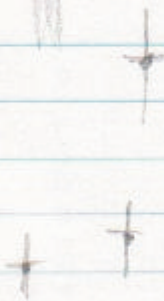
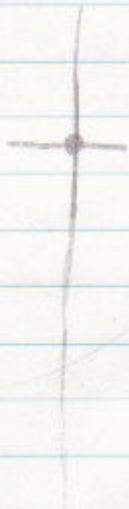




(7343 AN)



M13





7344A Thu 5/6 / 1800-0530 / 10-f / high winds / JMA KPNO /  
2-36, Minerva, Asteroid Geodesy, 107, 87, 43, 419,  
201, 354, 16. CN3 0h 08m E. 50mph E wind.





Feb 11, 1987

John W. Griesé, III

I had a great time here and return home richer than when I came. David, you are a gentle, kind person, filled with more wisdom than you may know. As we AAUSters say "GOOD OBSERVING and I'll see you in San Francisco. Thanks for everything.

Love, John

Cheers!

Tom Gehrels

Photo by J.V. Scotti removed  
Levy 1987a

7345 EM

2100-0100/195 7-fm / JMB/

John, Peter Collins. Moon.



Enjoyed meeting you and seeing  
your telescopes. Good luck on  
the next comet.  
Susan Chamberlain

THANK YOU FOR SHARING YOURSELF, YOUR TELESCOPES  
AND YOUR SKY.

JERRY FOOTE 2/14/87

A visit to your home is a great  
experience for an amateur astronomer from  
Salt Lake City. Thank you very much.

Charles Green  
961 W. Montague  
Salt Lake City, Ut. 84104

7346E.

Saturday, Feb 14 | 2000-2330 | 7-F | 5M4 |  
above 3, + Gary Rosenbaum + Terri Lappin.

7347E 18/17? Mon. | 1900-2300 | 10-F | 5M4 | Saint Sike / Minerva,  
then Miranda / And, CN3 0<sup>h</sup>30<sup>m</sup>; <sup>Minerva</sup> 0<sup>h</sup>30<sup>m</sup> Miranda, W-

~~7350~~ E.M 2/25/87 | 2330-0300 | 0-F | 5M4 |

see next page.

7348 E.M. Feb 22 | Sun. | 2300-0200 | on Rt 5 | 10" |  
Charles Morris | P/Halley, M<sub>v</sub> = 12.5.

7349 M. Feb 23 | Mon | 0300-0400 | 3-F | 5M4 |  
Miranda | CN3 0<sup>h</sup>30<sup>m</sup> E.

~~7350E~~



2/3 Mar 87 - Ah, finally! Tonight was the last night Bob Victor would be here on his visit, and it was really worth the wait. It was a superb night! We began our observations with the moon, Jupiter, and some ill-defined corpuscular rays as we were finishing a hike at the Speedway trailhead of the Saguaro National Monument East. Then, after dinner (a good one, which Bob prepared) we traveled to David Levy's, arriving at about 9:15 p.m., just before moonset.

7355 F.M.

We began the evening using Miranda, David's 16-inch telescope, to survey some of the more prominent objects. M42, M46, M1, M51 (we noted no supernova in the interspace between the galaxy regions, as had been rumored), and M104 all looked great. Then David inserted a nebular filter and we all had a look at the horsehead (Ray arrived at about this time). The horsehead was unmistakably clear, although still quite faint. Nice to see this object again.

Then someone (could it have been me?) asked David if we could try to see pHalley. He obtained the coordinates via modem, plotted its position three separate times, and set to work trying to find it. It wasn't long before he had the field within the eyepiece. Seeing the comet would not prove to be lying below the faint star. I later learned that the apparent motion I had observed was northward (I didn't know the telescope orientation well enough to tell independantly). This is the direction that pHalley is moving in the sky.

At the end of the session, somewhat after 1 a.m., we viewed M13, which, as you might guess, was marvelous. The structure of this cluster is something to behold in David's fine 16-inch. We also saw the faint galaxy near to this cluster. It was about the same magnitude as Halley, but was not spread out over an area of 2 arcminutes.

In summary, I had a blast! I hadn't tried for an object that faint in ten years - make that 12! The thrill of the hunt, the good friends, the fervor and love of the sky which was in evidence - all these contributed to a very satisfying experience, one that I won't soon forget. And to pHalley, the "object" that I probably, almost surely, possibly, nearly certainly, not quite absolutely, maybe, somewhat positively, 95% saw: you've been brighter, but never been more fun!

73  
734  
734  
735  
735  
735  
2/31

2-3 March 1987 Thank you again for allowing us to observe with you. It was worth the time trying to make sure we saw Halley. And the sky was very beautiful here. Very enjoyable! Bob Victor



13mm Nöglar, the sighting was, in my opinion, very probable, but not

Tauri

7354

7354

absolutely definite. And the only reason that I say not absolutely definite is that on his last attempt, Bob could not see the comet, though he pondered the field for a very long time. He had noticed something there earlier, but he didn't see it the last time. Everything else that was said, every description that was made, seemed to confirm the fact that I did, indeed, see Halley's comet on this date. However, Bob is the finest, most careful observer I have ever known and if he didn't see it the last time, I am given to caution. What I saw, I will now describe.

2/31

2-3

I was not familiar with the field stars, the limiting magnitude of the telescope, or the field of view of the 13mm eyepiece, so, obviously, I was at somewhat of a disadvantage. The field, as it pertained to our observations, consisted of six stars. Two of the stars formed a short, horizontal line, and we used the leftmost of these as the center of a clockface. The rightmost, then, by this method, would lie at 3 o'clock. There was a double star at 8:30 at about one and a half times the distance between the two, and a single star at 6 o'clock about two and one half times the same distance. Also, a very faint star was in the field. If a right triangle were made with the central "clock" star at one of the three points and the double being at another, this faint star would be at the right angle point. It was here, initially, that I noted the diffuse "object." As a side note, all the other stars showed on David's star map, but this faint one was not shown.

In four separate viewings, I saw the "object" each time, although not consistently. It faded in and out of view, mainly out. If ever there was an object at the limit of visibility, this was it! The second of my four viewings was the best. I saw the "object" four times, the longest duration of sighting being 4-5 seconds. In addition, and after several hours, I noted some motion in comparing the first sighting with the last. Initially, the "object" was superimposed over the faint star described above, but during my last viewing I noted that they were totally separate, with the "object" lying below the faint star. I later learned that the apparent motion I had observed was northward (I didn't know the telescope orientation well enough to tell independently). This is the direction that pHalley is moving in the sky.

At the end of the session, somewhat after 1 a.m., we viewed M13, which, as you might guess, was marvelous. The structure of this cluster is something to behold in David's fine 16-inch. We also saw the faint galaxy near to this cluster. It was about the same magnitude as Halley, but was not spread out over an area of 2 arcminutes.

In summary, I had a blast! I hadn't tried for an object that faint in ten years - make that 12! The thrill of the hunt, the good friends, the fervor and love of the sky which was in evidence - all these contributed to a very satisfying experience, one that I won't soon forget. And to pHalley, the "object" that I probably, almost surely, possibly, nearly certainly, not quite solutely, maybe, somewhat positively, 95% saw: you've been brighter, but never been more fun!



7356A/M2. 0415-0600 / 10-F / 5M4 / Miranda / - / CN3 0<sup>h</sup>30<sup>m</sup>;  
Comet Levy, 12.9.

7357AN 3/4/ 1800-0630 / 10-F / Bigelow / 61" / U. Fink,  
Kent Waks / P / Halley, Pluto, Hubble's Var. Neb.

7358E Thu 4/5/6/ 2000-2200 / - / 1-F / S. Tucson / - / - /  
Moon occasionally visible, didn't see Pleiades  
occultation.

7359S Sat / Fri 7/8/ 1100-1200 / 7-F / Houston Ast. Soc.  
Observatory / Stewart Amelia Gottlieb site Tour.

7360M Sun 8/9/ 0115-0130 / 5-F / Aunt Beulah & Uncle Jack's  
house / - / - / Northern sky over Lake Ponchartrain.

7361M. <sup>Wed 11/12</sup>  
~~Fri 10/11~~ / 0430-0530 / 10-F / 5M4 / Miranda /  
- / CN3 0<sup>h</sup>30<sup>m</sup>E.

7362M. Thurs 12/13/ 0000-0530 / 7-10-F / 5M4 / Miranda,  
Pegasus / CN3. 0<sup>h</sup>15<sup>m</sup>E, New 20mm  
Nagler.

\*\*7363E Tuesday 17/18/ 1930-2130 / 7-3-2-F / ACAPULCO,  
MEXICO / Minerva, 6" F / 4 / Steve Edberg, Charles  
Oostdyk / <sup>Pretty</sup> ~~Almost~~ definite sighting of Tarantula  
and SN 1987A.



My longshot horizon scan with 10x50 binoculars produced two stars just below the cumulus layer and approximately correct alt-az and Canopus-wise in position. I found the stars in Charlie O's 6" RFT and also saw a faint blob. A nebular filter darkened the sky but not the blob. Assuming the brighter star was the SN and the nebula was the Tarantula, then ignoring the fact that the SN was already past meridian, telescope movement showed the candidate was south and west of the nebula. Checking the AAVSO atlas chart, the positions match nicely for the Tarantula, SN, and a 6.0 binary if a slight correction for in RA is made (to allow for being past meridian). Thus I conclude that the brighter star closer to the nebula was SN 1987A.

Steve Elberg  
ITHW Supernova Expedition

I saw Tarantula Nebula and conclude that nearby star is SN 1987A that I saw.



#1364E Wed 18/19/ <sup>1900-1930</sup> ~~1930-2000~~ / 3-F / Site A in Mountains near El Rincon, Mexico / Steve Edberg, Charlie Oostdyk, guide + driver / Attempt at SN 19817A and which was just below mountain / Minerva, 6" refl.

#1365E2 2015-2230 / 3-F / Site B in Mtns <sup>Sid of El</sup> near Ocotitlan / We saw a site at the top of "Mt. Illegal" but had to go on to private property. The guide couldn't find the owner and sort of suggested we walk up and leave the car. We left the car and opened the first fence. Steve had cameras, binoculars etc. Charlie brought binocs + camera. I brought Minerva as taken telescope. We walked along a sandy path which got steeper + steeper until it was going down, so we chose another path that went to a second barbed wire fence that we had to go through very carefully. After that it was straight up - very steep hill and one rock, at the top of which we got a good site. Although the SN was (as we expected) again below a distant mountain, we looked at Eta Carinae nebula through Minerva. I thought of Bart Bok and the years since I last saw him, and enjoyed seeing him and Priscilla in their favorite nebula. We also saw Gamma Velorum, Zeta Puppis + Sirius through Minerva through Steve's spectrum eyepiece. Also M42. <sup>NGC 3932</sup> <sub>Orion's Nebula</sub>  
We then ~~our~~ packed up and carefully went down.

7366M3

~0100-0140 ~ 3-F / Acapulco / Steve, Charlie / Cru. C



\*\*7367E

~~7366E~~

Site A: Puerto Morelos

19/20, ~~W~~ Thursday / 1845 - 2/30 CST / 7-f / Excentric  
(Lookout), Acapulco, Mexico / Steve, Charles,  
Minerva, 7.50b, 6" F/4. RFT refl., 300mm F15.6 lens, 50mm Finder.

SN 1987A M<sub>v</sub> 4.7 at 20:00; 0200 UT

M42

M46

Steve 4.4; 0227 U.T.

SN observation from Tuxtepec was correct. Confirmed with full field of star hopping stars. Distinctly red when nearby stars (about a couple of degrees higher) were not nearly as red. Spectrum eyepiece produced visible reddish spectrum but too faint to easily distinguish structure, ~~which~~ though hints of absorption lines were there. Passing virus and cumulus made observing difficult but

WE SEEN IT!!

Steve Edberg

Moonshaper Expeditions triumphs again, this time for the IHW Supernova Expedition 1987

About 01:30 UT 20 MAR 87, after arriving at the observation point overlooking Puerto Morenos, just a few kilometers south of Acapulco on the road back to the airport, David rapidly set up "Minerva" and



and began scanning for the ~~supernova~~ stars leading to the supernova as the sky slowly began to darken. Steve and I spent a few minutes observing with binoculars. Then Steve began to setup his photo tripod and I began to setup my 6" RFT. Anticipation of being able to see the supernova was running high as the sky continued to darken and remained relatively cloud free. Shortly,  $\delta$  Doradus and  $\epsilon$  Doradus were found, then  $\theta$  Doradus and now, the supernova could be found. David was scanning with his 6" and was very sure he had found it. Then Steve, using my 6", believed he had also found it. By using his nebula filter, Steve was able to identify the Tarantula Nebula in the field of view with the supernova above it, a fainter star below the nebula, and the 6th magnitude star at the left of the field ~~in~~ in a 24mm wide field eyepiece. Finally, we had the confirmed ~~sighting~~ sighting we had gone south to obtain. Spirits were running high as we continued to observe the supernova. We noted its strong red color, obviously enhanced by its  $3^\circ$  elevation above the horizon. Steve's Bausch + Lomb Spectroscopic Eyepiece showed a very nice spectrum, but we couldn't quite confirm absorption or emission lines. Finally, Steve and I started taking piggyback photos while David continued his process of estimating the brightness of the supernova. Steve was also able to make a magnitude estimate while taking his photos. After many photos and much observing, the supernova eventually set at 02:45 UT leaving



us all with the satisfied feeling of a successful expedition and a job well done. Now it was time to return to town and have a nice dinner to celebrate!

Charlie Oustdyk <sup>20MA287</sup> 18:48 PST

7368M <sup>20</sup>1230-0045 / 21/22 / 10-F / airplane over California to Tucson etc. - / Omega Cen.

Sat 21/22 → this is the last phase 8 P/Halley session  
7369EM 1930-0130 / 10-F / JM4 / Miranda / - / CN3 3h37<sup>m</sup> W, E.

P/Halley 13.4, seen clearly with " and 20mm eyepiece <sup>R4 Leo 0.7</sup>

7370EM Sun 22/23 / 10-F / JM4 / Miranda / CN3 2h30<sup>m</sup> E

### P/Halley Phase 9

7371ME Tues 24/25 / 1930-2015 / 3-2-F / W of Deming, NM / Ophelial - / CN3 0h30<sup>m</sup> W, N.

7372M2 . 0200-0300 / 3-F / JM4 / Miranda / - / CN3 0h30<sup>m</sup> E

7373AN Wed 25/26 / 2000-0515 13-10-F / JM4 / Miranda / - / CN3 04h25<sup>m</sup> W, E. (break from DO 20-0330)

7377SP Thu 26/27 / 1800-1600-1615 / 10-F / Mt Lemmon / CN5 Sun Ven.

7  
First Phase 9 Session

7374AN2 1800-0530 10-F / Bigelow 6 / U. Fink /

Notes: Set to set parameters

EX expose

DP display profile

61"; Pegasus /

CN3 0h15<sup>m</sup> W, E,

P/Halley train

Very cold; working in dome

all right

154428 RCrB 6.0



P/Halley Phase 9

27/28 Fri

7375AN

1800-0530

3-  
10-F/Mt Bigelow

61", Pegasus / U. Fink / P/Halleykins.

Very cold + highwinds. Working in Dome.

Session began with one of the best calls to Grandma yet. "It's always better to have someone to be married to, instead of living alone. I am so happy for your mother, ... I hope know you'll make a wonderful husband someday."

Then call to Johnny Kushner, then Jack. to reach mother to tell her my thoughts with her this Mar 27th.

Then went up to dome to join Uwe and P/Halleykins. and standards

ON 3 On 40<sup>m</sup> E with Pegasus. MZR 2.

28/29 Sat

7376AN

1845-0615

10-F/Mt Bigelow, 61, Pegasus / Uwe Fink / P/Halleykins.

Very cold. Working all night in Dome.

Extremely cold 19° or less.

CN 3 On 20<sup>m</sup> E with Pegasus.

7377SP (before 7374AN) (see previous page)

7378S

29/30 Sun

1030-1630 / 10-F/EA Bigelow 61 and NASA 60

Loading all the heavy equipment for transfer to the 60". This ends the coldest 3 nights I've ever spent. Even this morning it was 22° and



P/Halley Phase 9

very windy. CN V Sun Ven

7379EM2	1830-0200	110-F/Mt Lemmon	NASA 60" /
	Focus	09 03 41.6	+18 20 05
	101-281	9 56 26 <sup>34.3</sup>	-00 37 32.9
	G 162-66	10 33 05.3	-11 36 32
	101-57	9 56 48	-0 54 11

ALWAYS WRITE HOUR ANGLE, <sup>(hr:min), not second!</sup> for Air Mass Calc. and correct UT. For each ex.

For Apertures, use 10, 30, 40. P/Halley

60" f/16.

with U. Fink + W. Wieszewski.

7380 M3 ~~Mon 30/31~~ Sun 29/30 0430-0630 110-F/Mt Lemmon / NASA 60", Pegasus / - / CN3 0<sup>h</sup>20<sup>m</sup>E, FFs.

738 MEM Mon 30/31 1830-0215 110-F/Mt Lemmon / NASA 60", Pegasus / Wieslaw / P/Halleykins. Fine session.

7382 M2 0425-0515 / 10-F/JM4 / Miranda / - / CN3 0<sup>h</sup>35<sup>m</sup>.

7383 EM Tues 31/32 1830- 110-F/Mt Lemmon / NASA 60", Pegasus / Wieslaw / P/Halleykins.

APRIL

7384 S Wed 1/2 94.5 FM KOOL Plays oldies = 1500-1630 / 10-F/60 Mt Lemmon / - / CN5 Sun Ven.

\*7385 AN 2 - - 1900-0530 110-F/JNT Lemmon 60" / Wieslaw / 60", Pegasus. P/Halleykins. Also, 1602 Indiana with photometer. FR87G 104 the best! CN3 4:15-4:55 0<sup>h</sup>35<sup>m</sup>NE.



P/Halley Phase 9

7386M Saturday 4/5 / 0300-0330 / 4-F / JM1 - / Jim Scotti.  
R.G.B 6.0

7387EM Sun 5/6 / 1915-020 / 10-9-F / Mt Lemmon / 60", Pegasus /  
Wieslaw / P/Halley project.

7388M2 0400-0500 / 10-F / JM4 / Miranda / - / CN3 0h45m E.  
R.G.B 6.0

7389M~~EM~~ Monday 6/7 / 1800-0200 / 7-F / Mt Lemmon / - / COMET  
HALLEYKINS. Couldn't find it then found it.  
Success! 60", Pegasus

7390M2 Tuesday 7/8 ~~a~~ 0430-0500 / 10-F / JM4 /  
Miranda / - / CN3 0h20m E

7391M Tues 7/8 / 0430-0500 / 10-F / JM4 / Miranda  
CN3 0h15m E

7392M Wed. 8/9 / ?0330-0500? / 10-F / JM4 / Miranda /  
CN3 0h45m E. ~~R.G.B 6.0~~

7393M Thu 9/10 / 0430-0500 / 10-F / JM4 / Miranda /  
CN3 0h15m E R.G.B 6.0

7394M Fri 10/11 / 0430-0500 / 10-F / JM4 / Miranda / CN3 0h25m E  
R.G.B 6.0

7395M ~~Fri~~ Sat 11/12 / 0330-0500 / 10-F / JM4 / R.G.B 6.0

7396M Sun 12/13 / 0500-0515 / ~~10~~-7-F / JM4 / 7x50 / R.G.B.

\*7397E Mon 13/14 / 1900-2030 / ~~10~~-F / Tucson to JMF /  
Penelope / - / Penumbral Lunar Eclipse. Passover.  
Eclipsed moon beautiful - rising over Rincons.  
At home, used binoculars + old Ramadan  
Telescope.



P/Halley Phase 9

- 7398M2 0355-0410 / 7-fm / JMF / Penelope / - / RGB 6.2
- 7399EM Tues 14/15 / 1800-0145 / 7-fm / Mt Lemmon 160",  
Pegasus / - Tek, Bob Peterson / P/Halleykins -  
maybe. Moonlight. 5 images + standard  
+ seder with Halleykins.
- 7400M2 0330-0345 / 7-fm / JMF / Penelope / - / G. VSO-I  
RGB V2 Cam W Cgg.
- 7401E Wed 15/16 / 1830-2030 / 3-F / Mt Lemmon 160,  
Pegasus / P/Halley? field at least.
- 7402M2 0355-0410 / 3-F / JMF / Penelope / - / RGB 6.1 & Cas 2.6.
- 7403E Thu 16/17 / 1930-2245 / <sup>9-3</sup>8-F / JMF / Miranda / - / CN3 2h 30m W.
- 7404M2 0330-0400 / 7-fm / <sup>JMF</sup>JMF / Miranda / VSO-I RGB  
6.5.9, SSCg 12.2, TGB 10.0.
- 7405EM Fri 17/18 / 1900-0115 / 3-F / Mt Lemmon / 60, Pegasus /  
P/Halleykins.
- 7406EM<sup>P</sup> 0425-0435 / 3-F / JMF, B / Penelope / - / RGB.  
6.5.9.
- 7407EM Sun 19/20 / 1800-0200 / 3-10-F / Mt Lemmon / 60" /  
P/Halley photometry.
- 7408M2 0345-0355 / 7-F / JMF / Penelope / RGB 5.9



P/Halley Phase 9 Lemmon

-7409 ~~M2E~~ Mon 20/21/1830-2200/ ~~10-F~~ / Mt Bigelow /  
60", Pegasus. Computer Problem. No  
Halley. Wislaw, Steve.

7410 ~~E~~ 2330-0000 / 3-F / Mt Bigelow / 61" / - /  
RGB (unaided eye) 6.0.

7411 E Tues 21/22 / 1900-2230 / 2-1-0-F / Mt Lemmon / - /  
Wislaw. Attempt at P/Halley.

7412 M2 0125-0320 / 10-9-F / JMF, JMF / Miranda, Minerva /  
CN3 1<sup>h</sup> 10<sup>m</sup> E. VSO-I. SSCyg 12.2, TAB 9.9,  
RGB 6.0.

\*7413 EM Wed 22/23 / 1850-0230 / 10-F / Mt Lemmon / Wislaw /  
60" / P/Halley<sup>3</sup>line. At first we couldn't find  
the faint comet, checking back to the Crisp standard for  
position. We did see a bright object which we thought  
might be a galaxy until I looked at it visually. Comet  
Halley is in a major outburst tonight.

7414 M2 0415-0430 / TAB 10.1 RGB 6.1 SS Cyg 12.2  
9-F / JMF / Minerva / - / VSO-I.

\*7415 EM Thu 23/24 / 1850-0315 / 10-F / Mt Lemmon, Az /  
60", Pegasus / Wislaw / P/Halley<sup>3</sup>line. Faded  
from last night. Jim Scotti + Mike Bakich  
observing at Jernac with Miranda.

This is an interesting outburst. We at  
first could not identify the comet, <sup>last night</sup> but did a  
profile that might be a galaxy. We went



## P/Halley Phase 9.

back to the G162-66 standard to check the position and then back to the P/Halley field. The fuzzy object was almost saturating. I decided to look through the eyepiece and, with only 5 min. dark adapting, saw the comet.

We took another image and saw motion from the first image.

Tonight the comet had faded somewhat. Wislaw

went down to 61" and I finished the night myself, taking images in R, B, and I, and Grease, +

flat fields, and a blank sky field. I sent the

note to the circulars after checking it with Wislaw, +

it was published at right in Circular 4372. Also got comet at  $M_1 = 13.1$  with Pegasus, SS Cyg = 12.2.

7416M2

0415 - 0440 / 10-9 - F / SM4, 3MF  
Miranda / - / CN3. SWI not seen. RGB 6.2.

7417E

Fri 24/25 / 1940 - 2315 / 3 - F / Mt.

Lemmon / 60", Pegasus / P/Halley.  
slightly fainter - Wislaw thinks my ability to focus visually

### PERIODIC COMET HALLEY (19821)

W. Wisniewski, D. Levy, and U. Fink, Lunar and Planetary Laboratory, report that on Apr. 23.19 UT, P/Halley was at  $m_1 = 13.77$  (1.5-m reflector, Mt. Lemmon, red filter, aperture 16"), compared with  $m_1 = 15.15$  on Apr. 20.17 (an increase of 1.38 mag in red), confirming the outburst indicated on IAUC 4371. Some fading was noticed on Apr. 24.20. Total visual magnitude estimates: Apr. 24.17, 13.1 (Levy, 0.2-m reflector); 24.23, 12.6 (A. Hale, Las Cruces, NM, 0.20-m reflector).



P/Halley Phase 9.

has given us the ability to get better focusing the first try than we ever could get using CCD. Good session. Jim + Mike Bakel at SM4.

7418M2 0030-0400 int / 3-F / SM4 / - / Miranda, Penelope. RGB 6.2.

7419M Sat 25/26 / 0315-0330 / 3-F / SMF / Penelope, Miranda / - / USO-I. RGB SS Cyg TGB.

7420M2 0430-0445 / 9-F / ~~SM~~ South site / ~~the~~ Ophelia / - / CN3 0h10m.

7421S Sun 26/27 / 1400-1630 / 7-F / Jarnac / Miranda.

Thanks for the tour of Tucson's World Famous House of Telescopes - the highlight of my vacation. All my amateur astronomer friends back in Jackson will be so jealous! Love, Debbie Smith

7422E Tues. 28/29 / ~ 1830-2300 / 7-F / Mt Lemmon / 60" / Wislaw / - / P/Halley.

7423E2 2340-0000 / 3-F / Mt L. Highway / - / RGB 6.2.

7424M3 0345-0415 / 7-F / SM4 / Miranda / CN3 0h15m E. TGB 10.0 SS Cyg 12.0.

7425EM Wed 29/30 / 1800-0530 / 12-F / Mt Bigelow / 61 / Steve / -.



P/Halley phase 9.

- 7426AN Thurs 30/31/ 1830-0600/ 10-3-F/ JMA Mt Bigelow  
 then Mt Lemmon (1930-2115) then Bigelow/ 61, 60, then  
 61 again/ Wislaw, Steve/ 61: Forgoing, 60. P/Halley,  
 61. P/Halley, Sorrells, RGB search for circumstellar  
 cloud. RGB 6.2.
- 7427E May 1/2/ 1830-2300/ 2-F/Mt Lemmon/ 60/ W. Wisniewski.
- 7428M2 May 1, Friday/ 0345-0430/ 3-F/ JM4/Miranda/ -/  
 CN3 0h20m E.
- 7429E 2/3/ Sat/ 1955-2300/ Mt L/ 60/ Wislaw, Bob Martialis/  
 P/Halley. Sky mostly cloudy w/ cirrus.
- 7430M2 0345-0420/ 3-F/ JM4/Miranda/ -/ CN3 0h35m <sup>RGB 6.1</sup>  
<sup>SSC 6.1</sup>
- 7431M3 0455-0530/ 3-F/ S. Tucson, Tucson/ -/ -/ Venus  
 and Jupiter in brightening sky, in conjunction  
 and close to each other.
- 7432MP Sun 10/4/ 0415-0420/ 3-F/ JMF/ Penelope/ -/ -/  
 RGB 6.0.
- 7433MP Mon 14/2/ 0400-0410/ 3-F/ JMF/ Penelope/ -/ RGB 6.0
- 7434AN Should be after 7431M3.  
 3/4/ 1800-0530/ 10-F/ Wislaw Wisniewski/  
 60", Pegasus/ P/Halleykins/ CN3 0h55m E.  
 Asteroid work. RGB 6.1.
- 7435AN 4/5, Mon/ 1800-0530/ 10-3-F/ Wislaw Wisniewski/  
 60"/ Pegasus/ P/Halleykins, asteroid  
 RGB 6.1. CN3 1h05m E.
- 7436E 5/6/ 1600-2200/ 3-2-F/ 61", then 60", then  
 61"/ Steve, Wislaw
- 7437M2 6/7/ 0430-0515/ 3-F/ JM4/ Miranda
- 7438E 12/13/ 2100-2230/ 3-F/ Chabot Observ/ other/ )  
 see 7468 for full description
- \*7468 May 7/8 0300-0600/ 3-10-F/ 61/  
 with CCD & visually. P/SWI



PI HALLEY PHASE 10

observing session after talk at Oakland  
for East Bay Astron. Soc

7439M. 16/17 Sat | ~~1800~~ 0030~ - ~0045 / Toronto, near  
McLaughlin Planetarium / others

7440M. 18/19/0000-0200 / § 10-F / Sharlot Lake, OSO  
observatory / 4", 8" / Leo / CN3 0h35mW, N.  
M57, M13. RAB 6.1 TGB 10.0 with  
2 Pallas very close.

• Pallas  
79.0 • T

• 10.2

7441M 20/21 / Wed / 0 030~ - ~0200~ / § 3-F / Montreal,  
between Warrat Sq & 818/.

7442EP 22/23, Fri | 23045-2355 / 3-7-F / London, at birthday  
party for me / others - Peter, Charles Fassel. /

7443M 23/24 / 0200-0215 / 9-10-F / Riverside Telescope  
Makers Conference / -

7444EM 24/25 / 2100-0200 / 10-F / RTMC / 4" SCT / John  
Grise, others. CN3 0h30mW

\*7445AN <sup>Mon.</sup> 25/26 / 2000-0500 / 3-F / Mt Bigelow / 61" / Steve,  
D. Gadercia. Comet Shoemaker 1987o. visual  
sighting, 61". Comet Klemola visd. no Halley

7446E 26/27 / Tue. | ~2000-~2200 / § 10-F / J M 4 / Miranda /  
- / CN3 0h15mW Did not find Halleykins

Jim Scotti

7447E 27/28 Wed | ~2000-~2200 / § 3-F / J M 4 / Miranda. Did  
not find Halleykins.



PI HALLEY PHASE 10.

7448 M 28 | 29/30 Thu | 0100 EDT--0115 / Ft Davis.

7449 AM 29/30/31 Fri | 2200-0600 / 10-F / Texas Star Party /  
Clyde Tombaugh <sup>and others</sup> | - | CN 3 ~~04:00~~ m W, E.  
Minerva. Found P/Halley 13.8 in 24 + 16-inch.  
Almost circular, DC = 0.

7450 EM 30/31/32 Sat | 2350-0005n | 1-2-F / TSP

7451 EM Sun 31/32 | 2000-0300 | 9-3-F / Alan Hale /  
Minerva, "Junior", 16". Did not find P/Halley.

7452 EM Mon June 1/2 | 2300-0100 / 3-F / Clyde Tombaugh /  
16-inch. Saturn through periscope.

7453 M # Mon 8/9 | 0330-0415 / 10-F / JM4 / Miranda /  
CN 3 0h 30m E

7454 M \* Tues 9/10 | 0330-0415 / 10-F / JM4 / Miranda / CN 3  
0h 30m E

7455 AE Sat 13/14 | 2000-2200 / 3-F / JM4 / Miranda /  
Tom Glines / No # real CN 3, clouds, why  
not say CN 3 0h 05m W.

Summer of 1987.

7456 EM Sun 14/15 | 2000-0330 / 3-F / KPNO / 36" /  
Did not see P/Halley through 36; low in sky.

7457 AM Mon 15/16 | 2000-0350 / ~~10~~ 10-7-F / KPNO / 2-36 /  
Don Davis until 1:30 / 694 E Kard, 339 Laetitia,  
337 Devasa. Probable sighting of P/Halley kins.  
DC = 0, very diffuse.



P/HALLEY PHASE 10.  $\nearrow$  91.40m  
27.45  
F17.5

7458 AM Tues 16/17/2000 - 0500/10-F/Kitt Peak/2-36, Minerva /  
Michael V. Magee / Comet P/Halleykins. 17.19  
Mv 13.9. Michael saw it too.

Two days ago I was on my way up here -  
just leaving PSI when I thought how nice it  
would be to try for P/Halley with the #2-36. So  
I went by LPL + got the ephemerides. The first  
two nights - 7456 EM and 7457 AM - were less  
than successful - nothing the first  
night, probable the second.

Tonight I saw a hint of a fuzzy, and  
kept on seeing the hint, but always in  
the same place. Then I tried the photometer  
eyepiece, which reverts everything, and still  
saw a fuzzy in the same place but more  
definite this time. I used my old Phase 9  
standard - G 26 162-66 (Circus) for the  
estimate.

CN3 0h15m W.

Finished Ekard (mostly)

and did 45 Eugenia Kilia  
Aethra 32, 470, 480, Hansa

337 Devosa, 39 Laetitia

7459 AM Wed 17/18/2000 - <sup>415</sup>0500/10-F/Kitt Peak/  
2-36, Minerva - Michael / CN3 1h00m W.

45 Eugenia 132 Aethra 470 Kilia 480 Hansa  
337 Devosa 39 Laetitia Jupiter, Saturn  
694 Ekard



June

7460 EM Thu 18/19/2000-0300 / 18-3-F / KPNO / 2-36 / Michael  
Search for Icarus. Clouds etc. 132 470 480  
354 Eleonora.

7461 AN Fri 19/20/2000-0400 / 3-F / Bigelow / 61 / Steve /  
Comet GRIGG-SKJELLERUP / on CCD only.

7462 AN Sat 20/21 / 2000-0500 / 10-F / Bigelow / 61 /  
Steve. Problem with CCD. Pictures of  
Shoemaker.

\* 7463 AN Sunday 21/22/2000-1900-0530 / 10-F / Bigelow /  
61 / Michael / New visual comets: P/Grigg-  
Skjellerup, Torres. 1987; also: Shoemaker 87,  
SW-I at 14:0; at June 22.42. Klemola, Sorrells.

7464 EM Wednesday, 24/25/2000-0300 / 10-3-F / JM4 /  
2.75<sup>h</sup> CN3, W, E. Miranda.

7465 M Thu 25/26 / 20245-0400 / 9-F / <sup>JAF</sup> JM4 / <sup>Miranda for</sup> Miranda /  
- / CN3 1<sup>h</sup>00<sup>m</sup> W.E. RAB 6.2.

7466 AE Fri 26/27 / 2050-2200 / 8-5-4-F-3 / Flandrau /  
Surveyor, 16" / Michael / J Vir, Saturn, M13.

7467 AZ 0230-0405 / 10-F / JM4 / <sup>RGB 6.1</sup> Miranda / - / CN3 0<sup>h</sup>30<sup>m</sup> E  
<sup>possible recovery of Danwing F.</sup>

(7468 M - see after 7437) - This was the session on Bigelow

7469 May 18 with the 61. I got a good image  
of P/Schweasemann-Weichmann T  
& saw it visually, then to meet McGraw  
came up & we took down Pandora.



7469M Sat June 27/28/ 0200-0400/ 3-10-F/JM4/-/Miranda/  
CN3 0<sup>h</sup>20<sup>m</sup>E: search for P/Denning-Fujikawa.  
Last night was a galaxy.

7470AV June 28/29/ 2000-0430/10-F/JM4/Miranda/-/  
CN3 5<sup>h</sup>30<sup>m</sup>W,E. search for P/DF.

7471M Mon 29/30/0000-0430/10-F/JM4/Miranda/-/  
CN3 2:08 E. search for P/DF.

7472A Tues 30/31/ 0100-0430/3-10-F/JM4/Miranda/-/  
CN3 1:00 E. search for P/DF.

### JULY

7473M Wed 1/2/ 0200-0430/ JM4/Miranda/10-F/  
Search for P/DF CN3 1<sup>h</sup>00<sup>m</sup>E.

7474M Thu 2/3/ 0000-0430/ 10-F/ JM4/ Miranda/ Jim/  
CN3 0<sup>h</sup>30<sup>m</sup>E, S. C/Sorrells, <sup>+10.5</sup>3.8 P/Klemola, <sup>+12.6</sup>3.42 Jim see  
Brooks II (probable by Jim; not me!) 14.5; at 3.44) →  
Sorrells 10.4 \* = Jim's estimate  
SS Cyg. #1 AE AOR 11.1  
A total of 10-15 meteors from new radiant in Pegasus.

7475S Fri 3/4/ 1930-1945/10-F/Houghton Rd/-/-/sunset-

\*7476MR 0130-0400/10-F/JM4,JMF/Miranda,Pegasus/-/  
CN3 0<sup>h</sup>40<sup>m</sup>E,W. Comet Brooks 2 July 4.4/  
14.1 Coma diam 2.5<sup>+</sup> 8'.2' RGB 6.2 SSCp

7477E Sat 4/5/ 2100-0000 int/ 7-Fm/ JMB, JMF/ Echo/-/  
Moon very close to Spica.



Comet Levy  $e = 1.0007925$

3834 (on Aug 15)

- \* 7478M2 0035-0400 / 10-F / JM4 / Miranda / - /  
CN3 1h45m E, W. Comet P/Howell.  $M = 11.6$ .  
SS Cyg 9.6. Jul 5.41 for comet
- 7479#E. <sup>Part</sup> Jul 5/6 / <sup>20</sup>1900-2100 / ~~10~~ 7-F / Uwe Fink's -  
party / steady seeing. Part 2) 2330-2345 / Roof of JM. Tent  
for future platform. Sky ok, 2 MV lights.
- 7480M2 0100-0415 / 10-F / JM4 / Miranda / - / Jul 6.45  
P/Howell 11.9. CN3 2.33h. (2h20m) W, N, E.  
SS Cyg 10.6 R CB 6.0.
- 7481M 6/7 / 0200-0405 / 10-F / JM4 / Miranda / CN3 1h30m S, E
- \* 7482M 7/8 / 0200-0415 / 7-10-F / JM4 / Miranda / - / CN3  
0h30m E. Probable sighting of P/Reinmuth 2  
 $M = 13.7$ . Liam Lima Bean. 8:40 <sup>time</sup> for Reinmuth 2
- 7483SP 8/9 / 1755-1800 / 10-F / LPL / SE CN5 Sun Ven.
- \* 7484M2 ~~9/10~~ 0230-0400 / 7-Fm-10-F / South, + JM4 /  
<sup>8/9</sup> Miranda / P/Reinmuth 2, 13.8. DC=5.  
CN3 0h15m ~~W~~ E.
- 7485M3 0410-0500 / 10-3-F / To town + back / Penelope /  
CN5 Tut Hzn. Rindora: look at P/Halley from the  
Jan 11/86. ~~Mercury~~ no! Venus very close to conj.
- 7486E ~~10/11/12~~ Sat 12300-2330 / 6-Fm / Pomona College /  
Ben Mayer, honny, Ian McGregor, others.
- 7487E Sun 12/13 / 2030-2130 / 7-F / at top of Indian Hill  
Blud, Pomona, Calif / - / Minoza / - / CN3 0h15m W.



7488E

\* ~~7489E~~ Mon July 13/14/1955-2300/ Ford Observatory,  
Mt Peaker / -Minerua, 18" / Peter Collins,  
Clint Ford, John Greise / CN3 1h00<sup>m</sup>W.  
M57.

7489S. Tues 14/ 1100-1300/ Big Bear Solar Obs/ Sun.

7489E Tues Jul 14/15/ 2100-2215/ Mt Baldy  
CALIF/ -/ Minerua / CN3 1h00<sup>m</sup>W. Thanks  
to Steve Edler for suggesting this site.

7491S. Thu 16/ 1200-1500/ 7-F/ Mt Palomar observatory.

7492E <sup>Thurs</sup> Wed July 16/17/ 2100-2330/ OCA site,  
CA/ John Sanford, Charlie Costelyk /  
Minerua, 11", 22" / CN3 1h00<sup>m</sup>W.

7493E. Saturday, 18/19/ 2045-0130/ 10-F/  
Polaris Site, Lockwood, CA/ Minerua/  
CN3 3h30<sup>m</sup>W, N.

7494S Sun 19/20/ 1730-1800/ 7-F/ Santa Monica,  
Calif/ -/ S Ven. CNS.

7495E2 2200-2215/ 3-F/ near Chiriaco Summit  
CA/ -.

7496M Monday 20/21/ 10-F/ 5M4/ Miranda / -/ CN3  
1h00<sup>m</sup>E.

7497M Tues 21/22/ 3-F/ 5MF/ Minerua, Regulus,  
and new "Telrad" / CN3 0h5m. also  
South site 10<sup>m</sup> CN3 with A Ophelia. Total 15m  
0000-0430

7498E Wed 22/23/ 2100-2130/ 10-F/ Gates Pass Rd/



Ophelia / - / CN3 0h15m W.

7499M2 0000-0430 / 10-F / JM4 / Miranda / - / CN3  
2h00m W E, NE.

7500M Thu 23/24 / 0300-0400 / JM4 / 9-F / Miranda / - /  
CN3 0h15m E.

7501E Mon. 27/28 / 2000-0000 / 2-F / Joint Observatory  
for Cometary Research / Minerva, 16", Schmidt, Pan-  
dora / Dan Klingbein, Steve Shore, Steve  
Larson, Larry Dunkleman, others / CN3  
0h30m W.

7502M Tues 28/29 / 0300-0400 / 3-F / JM4 / - / CN3 0h15m E.  
Miranda.

7503M Sat Aug 1/2 / 0245-0415 / 3-F / JM4 / Miranda / - /  
CN3 1h10m E.

7504E 11/12 / 1940-2300 / 3-F / JM4 /  
Ryan Ryan Bodgley  
CN3 0h10m W.

7505S 12/13 / 1745-1840 / 3-F / JM3 / - / Virgil Smith  
Completion of new JM3 site.

7506 EM2# 2330-0300 / 7-F / JM3, South site / Pegasus / Inaug-  
uration of JM3 site. Perseids informally watched.



\* 7507E Aug 13/14/1980 - 2300 / 10-7-F / JM4/JM3 / Miranda, Pegasus /  
Comet Bradfield 1987s. / Jim, Michael

Jim 1987 08 14.75  $M_1 = 8.9.1$  DC = 4  
David 14.16  $M_1 = 8.9$  Tail 10' PA ~ 90°  
DC = 4

0.2m L CN 3 1<sup>h</sup>00<sup>m</sup>W Pegasus

7508M2 0400-0420 / 7-F / JM3 / Pegasus / CN 3 0<sup>h</sup>10<sup>m</sup>W E.

August 14/15 Fri / 2030-2900 / 10-F / JM3, JM4 /

1987 08 15.14  $M_1 = 8.9$  = Bradfield.

Pegasus, Miranda.

CN 3 1<sup>h</sup>45<sup>m</sup>W

7509EM Aug 15/16 / 1930-0030 / 10-7-F / JM3, JM4 / Pegasus, Miranda,  
Penelope / Michael CN 3 2<sup>h</sup>00<sup>m</sup>W. suspect in Serpens.

Comet Bradfield.

1987 08 16.  $M_1 = 8.7$  DC = 3.

08 16  $M_1 = 9.1$  (Michael Magee)

Michael Magee

7510ME Friday, Aug 21/22 / 21:00-2200 / 10-F / JM4 /  
Robert Burnham, Pat.

7511M2 0200-0430 / ~~7-F~~ / JM4, JM3 / 10-yes, 10-F / \$ Miranda,  
Pegasus / - / CN 3 2<sup>h</sup>00<sup>m</sup>W E.

7512M Saturday 22/23 / 0300-0440 / 9-F / JM4 / Miranda / - /  
CN 3 0<sup>h</sup>20<sup>m</sup>W E. Just before flight to LA + Boston  
which left at 6 am.



# 7513E Mon 24/25 / 2045-2300 / 8, 9-F / observatory  
and Michael Rudenko's house / Michael's 6" refractor,  
Minerva, 18" Clark rsl / Michael Rudenko, Steve  
Edberg, Steve O'Meara

First view of Comet Rudenko 1984u.  $M_1=10.1$   $DC=2$ .  
 $DC=2$  in Amherst 18" Clark,  $DC=3$  in Rudenko's  
6" Christen. Swann filter helped by darkening sky.

Minerva is well collimated. Tested  
Orion 40mm Kellner, Celestron 35mm Plössl,  
& Juthill 35mm Plössl. All gave good images  
over their fields. Juthill had widest  
field but focus is too deep inside.  
Need to shorten housing so it fits  
Minerva and other telescopes.

First test of Baader grating  
on 35mm & 17mm Celestron Plössls.  
Grating is surprisingly low dispersion.  
View of Vega not satisfactory, possibly  
due to 1) Minerva's  $f/4$  beam  
2) eye's chromatic aberration  
2) something else.

Further testing is necessary and will be  
done.

Thanks Minerva, David, and Michael.

Steve Edberg



- 7516M Sunday, Aug 30/31 / 0100-0230 / 3-F / walk from Westmt Park  $\rightarrow$  818.
- 7517M Tuesday, September 1/2 / 0100-0130 / 3-F / La Fort / Minerva / Maw, Ed / nice view of Jupiter.
- 7518M ~~Wed~~ Friday, 4/5 / 0330-0430 / 10-F / JM4~~74~~ JM3 / Miranda, Pegasus / - / CN3 1<sup>h</sup>00<sup>m</sup>E.
- 7519M Sat 5/6 / 0420-0450 / ~~10-F~~ 7-Fm / JM3 / Pegasus / - / CN3 0<sup>h</sup>30<sup>m</sup>E.
- 7520M ~~Mon 6/7~~ 7/8 / 0200-0300 / 7-fm / JM4 / - / Daniel Fischer, Im Kottsiefer 10, 5330 Königswinter 41, and Susanne Hüttemeister.
- 7521E Tue 8/9 / 2000-2100 / 7-fm / JM4, JM3 / Miranda, Pegasus / Susanne and Daniel / CN3 0<sup>h</sup>15<sup>m</sup>W.   
 \* Comet Bradfield 1987s in moonlight.
- 7522E Thurs 10/11 / <sup>1930</sup>2000-2130 / 10-7-F / JM3, JM4 / Pegasus, Miranda / Daniel and Susanne / CN3: 0<sup>h</sup>25<sup>m</sup>W.
- 7523E Friday 11/12 / 20.1930-2130 / 10-7-F / JM3, JM4 / Pegasus, Miranda / Susanne + Daniel / CN3 0<sup>h</sup>50<sup>m</sup>W.



7524EM Sat 12/13/2000-0330/7-F/SMY,3/Miranda, Pegasus/  
CN3 0"15<sup>m</sup>.

Comet Bradfield is real, but we still have doubts  
about Comet Rudenko - it was too low. Re-discovered  
comets NGC 6229 and M-3.

i saw comet Bradfield too Jim Jenni Zotti

Comet Bradfield through the clouds, what an amazing  
feat of observing. Such skill! I hope to see Comet  
Rudenko soon also. Michael

Conclusions after spending 5 evenings at David's: the  
16" optical quality is outstanding - I've never  
looked through a reflector with such a sharp image! (Al-  
most the same holds true for the 8"). More success-  
ful hunts would be deserved!

Daniel Fisher

Sept. 13, 1987 2:57 am MST

Great! Though the moon was coming up too  
early, I got an impression of your beautiful  
sky, clear + warm + dark! Miranda is a  
great 'scope, quite easy to handle and a  
fantastic image. I'll miss it! THANK YOU for  
letting us stay with you.

Susanne Wittmann

1987-9-13



7525M Thu Sept 17/18/0300-0400/3-F/SM3/Pegasus/  
CN3 0h15mE.

\*7526S. Thu 24/25 | 1300-1400 EDT | 7-F/Summit Park,  
Westmount | -F/CN5.

\*7527M Fri 25/26 | 2200-2300/9-F/Seagrave Memorial Obs/  
Clyde + Patsy Tombaugh, Astro Assembly (Jupiter).

7528M Tues 29/30 | 0100-0115/10-F/SM4.

7529M Wed 30/Oct | 0300-0515/10-F/SM4/Miranda/-  
CN3 1h.E

7530M Thu 1/2/0430-0515/10-F/SM4/Pegasus/-  
CN3 0h30mE.

7531M Fri 2/3/0100-0500/<sup>7-Fm</sup>10-F/S.walk, SM4/  
Miranda/Kol Midrel CN3 1h15mE.

7532M Sat 3/4/0400-0515/10-F/SM4/Miranda/CN3 0h30m  
E.

7533E Tues 6/7/230 2000-2300/7-Fm/Tucson -  
SM3/Pegasus/-LUNAR PENUMBRAL  
ECLIPSE. Sharp darkening noticed.  
Clear shapes of mtns on edge.  
First use of expanded roof of SM3.



7534E Thursday Oct 8/9/1900-1940/97-Fm/(JM3) /  
Pegasus/-| CN3 0<sup>h</sup>30<sup>m</sup>W. "Independent  
finding" of 1987S, Bradfield.

7535E Friday, Oct 9/10/1915-2300 intermittent/3-F/  
Grace Wolf's party ... Moon, etc.

~~7536E~~ Saturday, Oct 10/11. | 1900-2030/10-F/JM3/  
Pegasus/-| CN3 1<sup>h</sup>15<sup>m</sup>W. Comet Bradfield  
1987 10 11.12 M<sub>1</sub> = 6.6 Tail 1.3° at PA 90°.  
? possible comet in Bootes

~~7537E~~ Sunday Oct 11/12/1900-2200/3-F/JM3/Pegasus/  
Jim Scotti | Comet confirmed  
14<sup>h</sup>38<sup>m</sup>.3  
+17°18' M<sub>1</sub> = 9.3  
1987y.

1987Y LEVY COMET SCOTTI:

I've now seen 18 comets thanks to your new discovery David!

Positions measured visually to be (from P.V.S.S. overlays)

1987 Oct 12.087 14<sup>h</sup>38<sup>m</sup>.40, +17°18'1 (14<sup>h</sup>38<sup>m</sup>.3, +17°18' in JAU 4468)

12.111 14 38.56, +17°18'1 (14<sup>h</sup>38<sup>m</sup>.5, +17°18' in JAU 4468)

Magnitude estimated at 9 using the "D" method -  
("Discoverer must be right" method)

Now it's time to find #4 (actually #5 since I will  
always count 8/ Hardly-IRAS - almost Levy).

Congratulations my Good Friend DAVID!

- Jim Scotti



7538E. Monday, Oct 12/13/1900-1915/1-F/ JM3/-/ clouded out.

7539E Wed, Oct. 14/15/1830-2330/10<sup>3</sup>-F/ JM3, JM4/  
Pegasus, Miranda 1-1 Comet Levy 1987y:  
1987 10 15.10 MI=9.2 DC=3 Dia=3'  
CN3 3<sup>h</sup> W, Peg, Mir.

7540EM Thurs 15/16/1815-0030/10-3-F/ JM3, JM4/  
Pegasus, Miranda <sup>Michael</sup> Comet Levy 1987y:  
10 16 09 MI=9.4 DC=2 Dia=3'  
(Michael)  
Bradfield: 10 16.14 MI=6.8  
(me) " 10 16.13 MI=6.2 DC=5  
CN3 4<sup>h</sup>00<sup>m</sup> W, E.

7541EM Sat 17/18/1930-0100 CDT/1-8-F/Milwaukee Ast. Soc/  
Jupiter Drawing





7542EM Sunday, 18/19/ 2300-0230/10-F/3M4/Miranda/-/  
CN3 3<sup>h</sup>00<sup>m</sup>. Galaxies near  $\alpha$  Gem.

7543EM Mon 19/20/ 2200-0100/10-F/3M4/Miranda/-/  
CN3.

7544M2 0330-0530-/10-F/3M4, 15M<sup>#</sup>3/Miranda, Pegasus/  
-/CN3 Total this night: 2<sup>h</sup>15<sup>m</sup> W, E.

7545E Tues 20/21/ 1900-2300/3M3/Pegasus<sup>3-F</sup>/-/CN3. No 1987.

7546M2 20/21/ 0340-0540/3-F/3M4/Miranda/-/  
CN3 Total this night 3<sup>h</sup>00<sup>m</sup> W, E.

7547BE ~~Sat~~ Wed 21/22/ 1800-2300/1-2-F/Mt Bigelow/-61"/  
Steve, Carl - / - Testing.

7548E Fri 23/24/ 1830-2130/1-F/Mt Bigelow/61/Steve,  
Charles Slaughter.



75495 Sat 24/25/1500-1600/2-F/Mall at UoFA/  
Minerva with newly completed mount. Cosmic Festival  
with FP & TAAA.

7550M2 0100-0430/2-F/Bigelow/6"/1-1-1 clouds...

7551S Sun 25/26/1430-1615/3-F/Cosmic Festival/  
Minerva: Valerie + Bob Goff, Duane + Sharon,  
Terry, Gary, Michael...

#7552 Av2 1840-0700 3-10-F/Mt Bigelow/6"/Sterel  
Comets Levy (visual) Bradfield (visual) (spectrum)  
1. P/Harrington (visual) P/Brooks #2 (visual)  
P/Schwassmann-Wachmann 1 (CCD only)

All comets above seen with CCD.

Jupiter with CH<sub>4</sub>.

Then: (copy this into log!) (1Hw log)

FF 60s 9260 cent.

Jupiter 10s

2. P/Kohoutek 1986K (visual) Pandora: red, 300s 1:1  
" (very diffuse) " 300s reduc.  
" motion obvious " 300s "  
" in eyepiece, " 300s. "  
M<sub>1</sub> = 13.0.)

P/Gehrels 1

3. P/Borrelly (visual) " 180s.  
" 300s.  
very nice tail, bright.

4. P/Gehrels 1. (VISUAL!!!!) M<sub>1</sub> = 15.0: " 60s  
" 300s  
in a field of with 2 galaxies, 360s  
id comet by obvious motion!!

both with CCD & visually.

P/Halley  
Rudenko 1987U - possible id in CCD.  
(visual) → coma, faned tail



7553M Oct 29/30 / 0200-0430 / 10-5-F / SM4 / Miranda /  
- / CN3 2h 00m E.

7554S Oct 31 / 1450-1700 / 1-2-F / JM3, 14, 2 / Photos:  
Miranda, Syncom II, Amalthea, Beer Can / Pete  
Manny.

7555M2 Oct 31 / Nov 1 / 0400-0500 / 3-2-F / JM3 /  
Pegasus / - / CN3 0h 20m E.

7556SE Nov 1/2 / 1530-2130 / 3-F / JM3, 4 / Bradfield, no Levy.  
Gary Rosenbaum



My drawing of Comet  
BRADFIELD - Jim

1987s 1987 Nov 2.067 5.9, DC6, N.P. Sequence w/ 7x50 B. (Penelope)  
Jenni loved the Comet, the Moon, and Jupiter.

7557M2 0100-0215 / 3-f / South site / -

7558M3 0400-0540 / 10-F / SM4, 3 / Miranda, Pegasus /  
CN3 1h 15m E.

7559E. Nov ~~19~~<sup>Mon.</sup> Tues. / 1800-1900 / 8-3-F / near Mt Wilson /  
Minerva / Charles Morris / Comet Bradfield. 1987s.  
CN3 0h 15m W.

7560E Nov 10 Tues / 1830-2000 / 3-f / Whitaker Peak, Ca /  
Minerva / - / CN3 1h W 1987s.



7616 EM2 2300-0005 - 13-F / Santa Monica / general observations

naked-eye  
0.7cm

P/Halley Phase II

7561E Wed Nov 11 / 1800-2000 / 10-F / Whitaker Peak / 10" r.l., Minerva / Charles / Comet Levy 12.6: <sup>25.6cmL</sup> ~~156~~ 111x

Bradfield: <sup>with 6x30mm refractor</sup> CN3 1<sup>h</sup> 00<sup>m</sup> <sup>F136</sup> x 30mm F

7562E Sat Nov 14 / 18400-1730-1930 / 10-9-F / near Pt. Reyes / Minerva - / Lomy / CN3 1<sup>h</sup>.w. Bradfield 4.6

7563E Sat Mon, Nov 16 / 1830-2300 / 10-3-F / JM4 / Miranda / - / CN3 3<sup>h</sup> w. Bradfield 87s is beautiful.

7564M2 0200-0215 / 3-F / JM4 / Miranda.

\*7565AN Wed Nov 18 / 1730-0630 / 10-F / Mt Bigelow. 61"; Minerva.

Visual sightings of:

Bradfield 1987s.

P/Borelly.

P/Shoemaker Holt 1987z.  $M_1 = 13.5$ :

1.5m Refl, M+B, P/Halley;  $M_1 = 14.6$  at 12:30 UT (19.52)

w/CCD: P/Helin, ?Bowell, Mu Tau, Mueller.

\*7566AN Thu Nov 19/20 / 1730- / 10-F / Mt Bigelow. 61", Minerva.

Visual sightings of

1. Levy 1987y 13.0: with 61" 0315UT.

2. Bradfield 1987s. 4.8 with 7x35b, 0330UT

3. P/MUELLER 14.5: 5" DC=0 DC=7 with Minerva.

4. P/HELIN 16.0: 7.15UT DC=1 tail ~ 3°.

5 P/Borelly, bright. [very difficult]

6 P/Kohoutek, near bright star.  $M_1 = 12.5$ : 1150UT

7 P/Halley,  $M_1 = 14.4$  at 20.53 <sup>very low</sup>

8 P/Rudenko in bright twilight. Did record on CCD. Much fainter than 2 nearby, much brighter stars.



PST

\*7567AN Sat 21/22/12 2000-0500 / 1-10-F1 Polaris Observatory /  
Minerua, lots of other telescopes / Steve Edberg,  
Rick Schaeffer, Dan Gendron, Tom Gresham,  
others too / CN3 1<sup>h</sup>30<sup>m</sup>W.  
Session held at Polaris Obs. Site.

\*7568E Sun 22/23/1800-1930 / 9-F-windy / Whitaker Pk, CA / Calif-  
ornia / Minerua / Steve, Charles, Betty /  
Comet Bradfield,  $M_1 = 5.2$  naked eye (73.07)  
CN3 1<sup>h</sup>00<sup>m</sup>W.

\*7569M Mon 23/24/0235-0105 MST / 10-F / J-M-4 /  
Miranda - / new comet ICHIMURA 1987d, Nov. 24.33  
 $M_1 = 8.3$  with ~~80mm~~ refr. 7.8cm or .078m  
f/6, 12x.

Minerua: 11 arc min coma, ~5 arc min inner coma  
Beautiful comet; DC=3. very big!  
Tail ~20' from center towards PA 210°

\*\*\*7570AN Tues 24/25/1800-0630 / 10-F / SM4 / Miranda / - /  
lots of excitement. First I began a search for  
SN in M31 but then was interrupted by a  
call from Dan Gresham. No supernova, he said,  
it was a false alarm. But there may be  
a new comet. It would be

Comet FURUYAMA and could I  
try to confirm it?  
So here is what I found:



CMY 0400 position confirmed by McCrosky:

25.16670 5 05 03.65 23 20 46.3 JIAUC 4502

CFIAUC  
4499

25.125 25 at 0300 UT 5<sup>h</sup> 5<sup>m</sup> 2<sup>s</sup> +23°22'

25.167 0400 UT 5<sup>h</sup> 4<sup>m</sup> 9<sup>s</sup> +23°21'

$M_1$  at 0400 = 10.2

Coma = 3' Tail 10' at PA ~ ~~40~~<sup>110</sup>°

While I was doing this the Shaemakers found a plate of it, so they and I are the confirming people.

1205 UT 5<sup>h</sup> 3<sup>m</sup> 4<sup>s</sup> 23° 07'

25.50347

Tail,

Earlier

1987d, Ichimura

25.33

0800 UT 7.4,

Coma 20'

CN3 2<sup>h</sup> 30<sup>m</sup> W, E

7571AN Wed 25/26/1800-1930-0630/10-F/SM4,3)

Miranda, Minerva (in SM3) / CN3 3<sup>h</sup> 20<sup>m</sup> W, E

Coma Ichimura 1987d,  $M_1 = 7.7$  at 26.33.

Coma 18' through Miranda.

7572AN Thu 26/27/1800-0600<sup>+</sup> 10-F/SM3,4/Miranda, Miranda/

-1 Comet Furuyama 27.36,  $M_1 = 9.9$  Tail ~10' toward 80°,  
broad faint fan. Coma 3', DC = 4.

CN3 1<sup>h</sup> 20<sup>m</sup> E, unsuccessful attempt  
to confirm a possible comet.



Nov 17 1987 Comet 1987y.  
SPACEWATCH photos by J. Scotti





Nov 24 87 1987d, #

7573AN 27/28/1815-0630/10-3-F/SM3, SM4/ Mexia,  
 Miranda/ -1 CN3 3445<sup>m</sup>W, E.  
 Comet Furuyama  
 28.48 10.0.

7574E 28/29/1830-2230/7-F/ Sabino Canyon Parking Lot/  
 Pegasus / TAAA, Peter Collins, Gary Rosenbaum,  
 Terri Lappin  
 Comet Bradfield Nov 29.12 5.3  
 P/Bareilly 29.421 8.2



7575E Dec 8/9 Tues 1800-1900/10-7-F/SM3/Minerva/CN3 0<sup>h</sup>30<sup>m</sup>W.

7576E Dec 9/10 1800-2200/10-F/SM3/Minerva, Miranda/CN3

2<sup>h</sup>10<sup>m</sup>W 10.10 Bradfield, naked eye.

7577E Dec 10/11 Thu 1800-2100/10-F/SM3/Minerva, Miranda)  
Virgil/CN3 2<sup>h</sup>15<sup>m</sup>W.

7578E Dec 11/12 Fri 1900-2330/10-F/SM 3.4/Miranda/-/  
CN3 3<sup>h</sup>25<sup>m</sup>W.

7579M Dec 12/13 Sat 0000-0015~ / 1-F/SM/ check for Gemnids

7580AE Dec 13/14, Sun ~~0030~~ 1840-1900/3-F/SM3/Minerva/-/  
CN3 0<sup>h</sup>10<sup>m</sup>W.

7581M2 0000-0215/10-3-F/SM4, South walk earlier/  
Geminids - from 0015-0130: 62 seen, mostly in  
clumps of 3-5. separated by ~~an~~ relatively  
empty spots. at SM4, CN3 0<sup>h</sup>20<sup>m</sup>NW

7582E Dec 14/15 1700-0000/10-3-F/Mt Bigelow/61/Minerva/  
Steel Comets - CN3 0<sup>h</sup>10<sup>m</sup>W.

7583EM 15/16/1650-0100/3-F/Mt Bigelow/61, Minerva/  
CA Visual: Jensen-Shoemaker 1987q<sub>1</sub>.  
1987 12 16.19 16.08 CF 17WC 4521

7584M 16/17/0500-0610/3-F/SM4/Miranda/-/  
CN3 1<sup>h</sup>00<sup>m</sup>E.

7585AN20R1 ~~12~~, Sunday 1730-0700/10-F/Bigelow/  
- 61", Minerva. 154cm; 9 F/13.5 654x

A strange session that began when I  
tried to pass a car on the Bigelow road  
to the 61. Even though I had 4-wheel drive  
I could not pass the other car and after almost



154.9 cm F/13.5 654x  
P/Halley Phase II

an hour I left it to open the 61 + cool down Pandora and call the Sheriff, who said that since I was Off A, he would pull the car out. I would have made it probably if it weren't for the other car. So I walked back (~ 1/2 mile) and after the pulling out I left the car safely on the side of the road. Then I walked with suitcase of winter clothes + briefcase in one hand, AND Minerva in other hand back up the road to 61, mostly through 6-8" of snow or ice. I had to rest frequently. When I finally got to 61 I was absolutely exhausted.

I observed lots of comets:

P/Reinmuth 1 <sup>21.21</sup> 0500 UT 13.5: visual

Wilson, Furuyama.

P/Halley 21.45 15.3 visual

DC=0 Coma .75'

P/Longmore 21.47 1116 DC=7 16.3 visual

P/West-Kohoutek-Ikemura <sup>21.49</sup> 1150 15.0: visual

CN3 0<sup>h</sup>45<sup>m</sup> E with Minerva

7586ME 2/22/ - Monday / 1730-2000 / 8-F / Tumamoc /  
21" (Steve Larson) P Bradfield, B Cygne  
for measuring scale on Pandora.

7587MP 2/22 Mon / 0430-0600 / 10-F / JM84, JM3 /  
Miranda, Minerva / CN3 1<sup>h</sup>15<sup>m</sup> E. Talked  
with Jim on phone.



\*7588AN Tues 22/23 / 1830-0630 / 10-F / JM3, JM4 /  
Miranda, Minerva

CN3 6<sup>h</sup> 30<sup>m</sup> W, N, E.  $M=6.2$   
Comet Bradfield 23.17 antitail  
1.5° in 8cm refl + 16" refl (Miranda)  
slightly forked through Miranda.

7589M Fri 25/26 / 0500-0630 / 9-F / SNOW! / JM3 /  
Minerva / - / CN3 0<sup>h</sup> 40<sup>m</sup> E.

7590AMP Sat 26/27 / 0130-0140 / 8-F / Las Cruces / John  
Grise, Cly de Tomblough / look at sky - M42

7591E Sun 27/28 / 1200-1245 / 9-F / Gage, NM / Ophelia, 7506 / John / CN3 0<sup>h</sup> 15<sup>m</sup> W

7592M2 Sun, 27/28 / 0030-0050 / 8-F / JM4 / John Grise /  
opened observatory.

7593M3 0400-0630 / 10-F / JM4 / Miranda / - / CN3 1<sup>h</sup> E.

7594EM Dec 31 / 32 / 0000-0100 / 3-F / JM4 / - / Jim,



1988.

7595ME Wednesday, 6/7/ 1830-1930/10-F/5M3/Minerva/-/  
CN3 1<sup>h</sup>W.

7596ME Fri 8/9/1830-2200/3-F/5M3/Minerva/-/ CN3 3<sup>h</sup>W.

7597SEA Sat 9/10/ 1400-0300/10-F/5M3,4/Minerva, Miranda/-Peter  
Collins, John Griese, Gary Rosenbaum/ CN3 3<sup>h</sup>W  
John W. Griese, III - Christmas Day - Jan 10. Used  
Minerva, Pegasus and ~~Mira~~ Miranda to  
observe the Moon, several Messier objects,  
Comets Bradfield and Borrelly; also variable  
stars UV, UW Perq. Had excellent time and vacation.  
David, you are a cherished friend, thanks for  
everything, especially your friendship - love, John  
Many obs; happy New Year DL  
JWG

7598SE Sun 10/11/ 1430-~~1830~~30/3-F/5M3,4/Minerva, Miranda/  
Peter Collins, Alister King/ EN-3 3<sup>h</sup>00<sup>m</sup>

7599M Mon 11/12/ 0100-0200/10-F/5M3/Minerva/Alister/  
CN3 0<sup>h</sup>30<sup>m</sup> W.

\*7600EM Tues 12/13/ 1840-0130 /10-F/Minerva, Miranda/  
CN3

COMET LILLER 1988a.

1988 '01 13.10 MI=9.9 DC=1 CD=5'.

19m eyepiece

CN3 1<sup>h</sup>30<sup>m</sup>.



P/Halley Phase II.

7601M Wed 13/14/0045-0115/3-F/5MB/Minerva ~~A115~~  
A strange sky, apparently plastered with an almost  
invisible veil of cirrus.

\* 7602A Thu 14/15/1800-0530/10-P/Bigelow 161, Minerva  
CN3 0<sup>h</sup> 15<sup>m</sup> W

T Tau, HL, XZ Tau. Views with occulting masks.

I chose M88 as a pretty galaxy base for  
our pretty picture. It is a magnificent Sb  
spiral. We took a 200 second exposure.

P/Halley 0335  $M_1 = 15.8$

Jan 15.44 DC=1 Coma Diam = 0.38<sup>9</sup>

Comet McNaught, also seen visually  
through 61. Nice tail. Quick observation to prepare  
for CCD.

Catalina 1.55m reflector, ~~at~~ University of Arizona

Eyepiece field about 7'

• Sky was very clear and steady until  
just before dawn, then winds

CN3 0<sup>h</sup> 30<sup>m</sup> E.



7603AN Sat 15/16/1830-0500/2-3-F/Bigelow/61/Walter  
Scott Houston, Alistair King/61", Minerva/  
Comets Liller and P/Kohoutek on CCD; Liller  
seen visually through 61finder.

Alistair and Scotty arrived shortly after me,  
and I showed them the M88 picture we got in session  
7602. The ephemeris for Liller wasn't that  
good, and we found it was not in the field. I  
went up & looked through the finder and could  
see a diffuse brightening in the field that  
I moved to the center. It was Comet Liller, seen  
in CCD as a strongly condensed comet with  
tail. DC=7 in CCD, 2 visually.

7604E David - what you need is 2 telescopes... I mean  
a really good telescope... I mean a couple of  
telescopes... no maybe three... or better...

*Richard Hill*  
David - it is good to see you again.  
Keep up the good work! - Richard Hill  
18/19 Nov/2315-2345/1-2-F/3M3.

J.D.

2446810.7724

2442129.7724

↳ extrapolation by David Levy first effort was  
off by a full year

To Dr. D.X. Levy, amateur astoundingly,  
comet brander extraordinary, rapid &  
illustrious in human relations - all this  
in thanks for taking in 2 victims of  
the great Jan storm of 1988. P.S. He  
is now also pregnant with Comet Levy IV.  
Walter Scott Houston "HU"



David,  
what a fantastic story! It hasn't even ended yet!! The evening talks at the eyepiece, introductions to people astronomical, the memories all make up for those cloudy nights. How incredible fate can be: After the fantastic night with Miranda (M51 forever etched in my mind, the finest ever seen!), you invited me up to Mt Bigelow; lo and behold, the delay lets me meet with Walter Scott Houston. Hours of talks with the two of you, images of M88, Alcell planetaries and comets; The best of all possible occasions.

The deepest of friendship from an observer of the deepest sky.

Alister Ling

1-19-88

\* 6055

Jan 19 1987

One bit of important advice  
The comet observatory was originally  
named after Peltier - Levy was pressured  
into changing it - but Peltier wanted  
it as originally done - and the  
interference is gone - so Dave can  
now adequately correct me  
for the few mistakes in his life!  
Walter Scott Houston - TWINKY



\*7606 E2 19/20/ 1830-2205/2-10-F/JM3, now added as  
Leslie C. Felter Observatory / Minerva - / CN3 1<sup>h</sup>W. with  
Dvorak's Symphony 9 - New World on Minerva's radio!

7607 M3 0550-0630/10-F-cold f. 27°F, Frost / LCP1-1  
CN3 0<sup>h</sup>30<sup>m</sup>E. Independent discovery of Comet  
McNaught 1987b<sub>1</sub>.  $M_1 = 6.3$  Tail 45' in p.a. 290°.  
DC=5. Coma 4'. 1988 01 20.55 19mm  
Tail somewhat teardrop-shaped.



7608 E Wed 20/21/ 1830-2300/10-F/LCP for JM3 / Minerva - / CN3 2<sup>h</sup>50<sup>m</sup>W.  
Using cloth, of black cotton<sup>(?)</sup>, to increase contrast works  
very well, but adds a dynamic element to observer's interface  
with telescope. Fogging of eyepiece removed using  
P-tips or hair dryer.

7609 M2 0445-0630/10-F/LCP-JM3/Minerva - / CN3 1<sup>h</sup>30<sup>m</sup>E.  
Very nice session. Black cloth used. Kind of, as Steve Larson  
suggested, invites observer into private world. Fogging  
removed by P-tips, or very brief removal of cloth, for an  
instant. RGB 6.2

7610 E Thu 21/22/ 1830-2000/3-10-F/JM3-LCP<sup>Minerva</sup> - / CN3 0<sup>h</sup>30<sup>m</sup>W.  
Moon + Venus very close.

7611 M2 0450-0630/3-10-F/JM3-LCP/Minerva CN3 1<sup>h</sup>10<sup>m</sup>E. Very  
windy. No eyepiece fogging. Cloth prevented tearing from eyes.  
"Ind. Sc." McNaught 22.55  $M_1 = 6.2$  Tail fanned, 25' in p.a. 290° Coma 4'  
DC=6.



\*7612AN Fri 22/23/ 1845-0630/ 7-fm-then 11, then 10/ Minerva  
Part 1 - 1845-1915 - at JM3-LCP; Minerva, comet hunt -  
I did about 15 minutes.

Part 2 - 2115-0330 - at KPVO with Minerva  
and Jim at the 36" SPACEWATCH  
camera. Lots more comet hunting,  
with a comet scare when I  
found P/Borelly while comet hunting.  
It was near the Algal field of galaxies -  
I recognized it as a suspect & later  
by its ~~shape~~ appearance & later by its  
motion. Jim did a computer search &  
which identified it as Borelly.

1988 01 23.33 M1=9.6 CD=4' DC=3.

Part 3 - 0515-0630 - at JM4, with Miranda,  
more comet hunting.  
Total CN3 bright = 4<sup>h</sup> 15<sup>m</sup>. W, E.

7613E Sat 23/24/ 1830 - 2200 / 3-F / (Slandrau - the Mall)  
Minerva, other telescopes / Gary, Alistair,  
Michael, Terry, Duane, Gerald - TAA, A,  
Don Karl, David Crawford.  
Observing session for light pollution.

7614MR Sun, <sup>23/24</sup> 24/25 / ~~1830~~ 1930 - 0200 / 10-F / (SMB) - / A lister.

7615M3 23/24/25 / 0510-0635 / 10-F / (SMB) / Miranda / Alistair  
CN3 1<sup>h</sup> 00<sup>m</sup>. Alistair observed w Cen. + 6291  
(Globular) in Sco with Penelope.

7616 - see after 756D.  
\*7617 ♀ 24/25 11600-1750 / 10-F / (SMB-LCP) / A lister / View of Jupiter noted esp. of ~~see 762~~



- 7618E2 1850-1930/10-F (7-Fm) 5M3-LCP/Alister/Munewa/CN3  
0<sup>h</sup>30<sup>m</sup>W.
- 7619EB 2300-2310/7-Pm / Peter Collins Havelina Point, site off  
Houghton Rd. / Alister.
- 7620M4 0000-0700/10-F - gusting to 40mph about / Miranda,  
Munewa / CN3 / 1<sup>h</sup>30<sup>m</sup> E.
- 7621M 25/26/0145-0200 3-F / 5M3 / - Alister / noting of cirrus -  
thin layer covering most of sky; at least no wind.  
(Note on 7617S - Alister yesterday noted Jupiter near  
noon by using his polarizing glasses - it was  
near band of maximum polarization some 90° from  
Sun.)
- 7622M2 0430-0630 / 10-F / 5M4 / Miranda / Alister /  
CN3 / 1<sup>h</sup>20<sup>m</sup> E. Fine night; very clear, no wind.  
Alister observed meteors + satellites.

Alan, time to leave telescope land, the observing  
place. As with all things cyclical, David, you can count on  
me returning. I can hardly forget all those wonderful  
moments at Miranda's eyepiece and simply sitting under the  
veritable canopy of stars, talking with you.

Thank you so much for the fantastic time.  
In deepest friendship. Alister.







7634E Fri Feb 5/6/ 1900-2045/10-f/3M3/Mirerwa/-/  
CN3 1<sup>h</sup>30<sup>m</sup>W

\*7635M2 0300-0400/7-fm/3M3/Echol-1 new tube.  
Echo now looks like she did when I first used her in  
the summer of 1960. Purchased a tube +  
eyepiece holder from Julian Grzejewski. Rice  
session!

7636E Sat Feb 6/7/ 1900-2200/10-f/3M3/Mirerwa/-/  
CN3 2<sup>h</sup>W.

7637E Sun Feb 7/8/ 1900-2300/10-7-f/3M3/Mirerwa/-/  
CN3 2<sup>h</sup>30<sup>m</sup>W.

7638E Mon Feb 8/9/ 1920-2330/10-7-f/3M4/Miranda/-/  
CN3 3<sup>h</sup>30<sup>m</sup>W. During the first part of the  
comet hunting I had a long talk with David  
Eicher over the phone.

7639M2 0540-0620/7-fm/3M3/Mirerwa/-/CN3 0<sup>h</sup>20<sup>E</sup>

7640EM Tues 9/10/ 1915-0040/10-f/3M4/Miranda, Mirerwa/-/  
CN3 4<sup>h</sup>00<sup>m</sup>W, a little E.

→ Comet Bradfield Tnd. dis. at 0400 UT - 03  
10.17  $M_1 = 8.1$  Tail 15' at PA 90°, <sup>braced</sup> fan shaped,  
DC = 5. (0.15mL)

7641EM Wed 10/11/ 1925-0150/10-f/3M3, 4/Mirerwa, Miranda/-/  
CN3 3<sup>h</sup>30<sup>m</sup>W.



7642AN. Thurs. 11/12/1830-0630/10-F/3M3, 4/Minerva, Miranda

11 Feb 88 → DAVID, thanks again for being a good friend & taking time away from your favorite pursuit to indulge me. Great views of some old favorites!

Michael (BAKICH)

11 Feb - Thanks for a real treat - It's great to meet someone that I've read about. Hope to have you up to Wickburg soon  
Dick Reichel - 805-682-5139

Comet McNaught 1987b1

'02 12.52 M1=7.7 1.5m refl

Tail 10'

CN3 6<sup>h</sup>30<sup>m</sup>W.

7643E Fri 12/13/1830-193-2030/3-F/3M5/Minerva-1

talk w/ Simon phone from Kitt Peak.

7644M2 0000-0200/32. 10-F/3M3/Minerva-1/ talk w/ John Grise.

7645M3 0530-0615/10-7-Fm/3M3/Minerva/  
\*CN3- 2<sup>h</sup>30<sup>m</sup> total this night, w, E.

7646E Sat 13/14. 1830-2300/10-F/ Missile site, TAAA

Star party / This afternoon I met Liz Mitty and drove her out to the star party site. Dean Koblson had organized this event at a site he hopes the club will acquire (maybe me too!) It was a very nice evening, after which Liz & I, + Michael & Sue, had a nice meal.

7647M2 0300-0630/10-F/3M4, 3/Miranda, Minerva/CN3  
4<sup>h</sup>30<sup>m</sup> all night - w, E.



\*7648 AN Sun 14/15, 1830-0630/10-F/ JM3, JM4/Miraviva,  
Miranda, Miraviva - | CN3: 10<sup>h</sup>15<sup>m</sup> W until about  
midnight, ~~W~~ SW until about 2, then E. This  
session eclipses the CN3 record of 9<sup>h</sup>20<sup>m</sup>  
that was done on Sept 21/22 1968 (Session  
2138AN-6.) at Acadia University. Two suspects  
in Monoceros region and one in Serpens; other  
than that, a thorough but uneventful  
sweep of a huge portion of the available sky for  
comets. This situation I've probably swept  
about 50% of the available sky through either  
Miraviva or Miranda.

7649  
7469 AN Mon 15/16/ 1830-0620/10-F/ JM3, 4/Miraviva, Miranda/  
- | CN3 4<sup>h</sup>15<sup>m</sup> W, S, E.

7650  
7470 E Tues 16/17, 1830-2000/10-F/ JM3/Miraviva - | CN3.  
7471 M2 0130-0415/ 3-F/ JM4/Miranda - | CN3  
7651 Total this night = 3<sup>h</sup> W, E.

7472 E <sup>652</sup> Wed 17/18/2100-2130/10-F/ Stowell house / Judy, Roy, Bonnie/  
Albino / GAT Jupiter, M42, & CMa.

7473 M2 <sup>653</sup> 0130-0245/10-F/ JM3/Miraviva - | Jim Scott over the  
<sup>654</sup> phone; he was at Kitt Peak/ CN3, W.  
7474 M3 0530-0615/10-F/ JM3/Miraviva - | CN3, E.  
Total this night = 1<sup>h</sup>35<sup>m</sup>.



7655M. Feb 20/21/ 0200-0645/ 10-F/ Houston Ast Soc Observatory Site / Steve + Amelia Goldberg, other HAS members / 13" reflector belonging to Amelia / CN3 1<sup>h</sup>50<sup>m</sup> E. This site is excellent.

David, it was a honor to have you use my telescope to hunt for comets.

Amelia

YOU ARE WELCOME TO OUR HOME ANYTIME. Steve Goldberg

7656M. Sun Feb 21/22 / 0200-0630 / 3-F / Mt Bigelow 61 / Steve, Charles various comets. Light night since clouded sky in many finest places. We saw (CCD) P/Lionmore, Comas Sola, SW-2, W-Kh-Ik, Tempel 2, McNaught.

Visually: P/Comas Sola, McNaught.

CN3 0<sup>h</sup>35<sup>m</sup> E. W/M.

7657AN Mon 22/23 / 1830-0630 / 3-F / ~~31~~ Mt Bigelow / -bl

P/Halley 23.32: M<sub>1</sub> = 16.8 IC = 1 CD<sub>diam</sub> = 50"

Tonight, Charles and I were "tested" on whether we could see P/Halley. I after Steve got some images I inserted the 38mm eyepiece and immediately got a suspect. Because Charles is not accustomed to the telescope as I, he could not confirm seeing it although he lists it as a probable sighting.



I did not draw the field + comet position very well, but the 50" diam + the ghostly appearance were obvious to me.

The highlight of this night was clearly the splitting of Comet Wilson. We have several images showing a double nucleus central condensation ~10" apart. Charles + I observed the 2 comets, Wilson A + B, on through the eyepiece with separation  $\Delta M_1 \approx 2$ .

7658 EM Tues/23/24 / 1930-0300 / 2-1-F / Catalina 61 / Charles Morris / Some poor observations

~~7658(10) AN~~ → 24/25 Wed / 1900-0400 / 3-F / Catalina 61 / - / New comets seen visually: Shoemaker 88b, Mcury-Phinney 88c.

7659 AN (24/25?) / 0500-0600 / JM3 / Minerva / - / CN3 - 30<sup>m</sup>E. (but this was a different morning. when?)

7660 M 25/26 / 0130-0200 / 3-F / JM3 / Minerva / Damien Lemay / This session was conceived as a chance just to show Damien my observatory. It was very cloudy but cleared off just a bit in the south. Therefore we were able to get a good look at Cen - Damien's first.

Damien is now RASC's 2nd VP. He has completed a fabulous survey of the sky with a 5-in. celestron schmidt camera.



26 février 1988.

C'est avec grand plaisir que j'ai profité d'une visite dans la région pour me rendre ici voir le sanctuaire de David. Tout y reflète son amour pour le ciel. <sup>Par</sup> besoin d'être astronome pour constater que David est astronome, mais un astronome est excité par toutes les publications, télescope et log book. Mes meilleurs souhaits pour de futures comètes. A bientôt  
Damien Bernay

It is with <sup>great</sup> pleasure that I visited David's astronomical sanctuary. Anybody would realize how much in love you are with the sky. But, for an astronomer it is a pleasure to the soul to see all your books, atlases, logbooks, telescopes etc. May I wish you all the best with your comet hunting.  
From your friend Damien Bernay.



7661M 26/27 Feb / 0530-0610 / 2-F / JM3 / Minerva / - /  
CN3 10<sup>m</sup>E.

7662E 27/28 / 1920-1935 / JM3 / Minerva / - / CN3 10<sup>m</sup>W.

7663M2 0530-0600 / JM3 / " / CN3 0<sup>h</sup>10<sup>m</sup>E.

7664E 28/29 Sun / 1900-1930 / 7-Fm / JM43 / Minerva / - /  
CN3 15<sup>m</sup>W.

March 1988

7665E 3/4 / 1915-1945 / ~~10~~-F / (m) / JM3 / Minerva / - / CN3  
15<sup>m</sup>W

7666E 4/5 / 1915-2030 / 10-F / JM4<sup>3</sup> / Minerva / - / CN3 1<sup>h</sup>W.

7667~~AE~~E 6/7 / 1930-2000 / 3-F / JM4 / Miranda / Clifford Cunningham /  
CN3 0<sup>h</sup>30<sup>m</sup>W.

7668E 8/9 / 1900-2330 / 10-F / JM4 / Minerva, Miranda / - /  
CN3 3<sup>h</sup>10<sup>m</sup>W.

7669E 9/10 / 1900-2245 / 10-F / JM3 / Minerva with new  
eyepiece a 24mm TeleVue widefield, very nice  
for wide field sweeps. CN3 2<sup>h</sup>.  
Also Miranda for this night's comet hunt.

7670M2 0115-0130 / 3-F / West of UA campus, driving / - / 0124:  
Very bright fireball M = -6. Fell westward,  
through Gemini, two bright flashes followed  
by rapid disappearance.

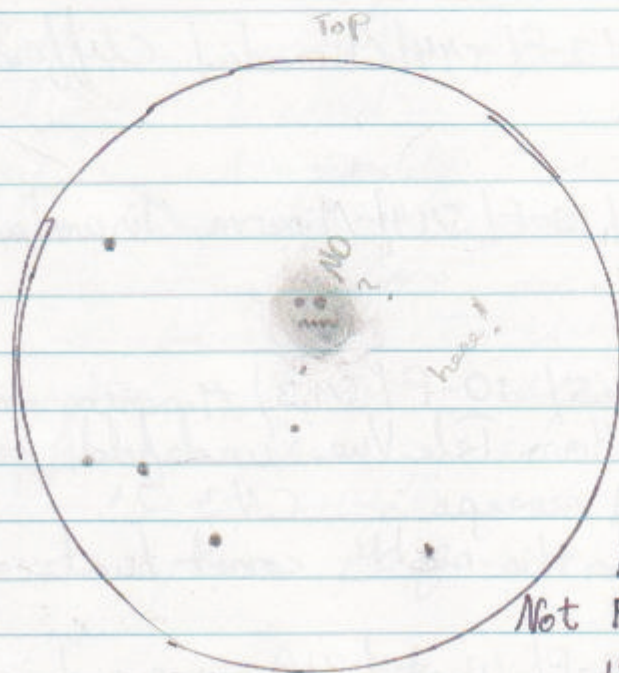


7671E Fri 11/12/1930-2050/10-F/3M3/Minerva-|CN3 1<sup>h</sup> W.  
Was not feeling at all well tonight. Cold + finish  
feeling.

7672E Sat 12/13/1930-0000/10-f/Empire Ranch/-Minerva  
etc|-TAAA star party, especially Gary, Vivian, +  
Terri. | CN3 2<sup>h</sup> 30<sup>m</sup> W. Also NGC 4565 through  
Terri Lappin's 10 in.

7673E Sun 13/14/1930-2155/10-f/3M4/Miranda-|CN3  
2<sup>h</sup> W.

7674AM Mon 14/15/1900-0630/10-f/Mt Bigelow /61" + Minerva/  
Steve



(What is this?)

Attempt failed - can't recognize this field.

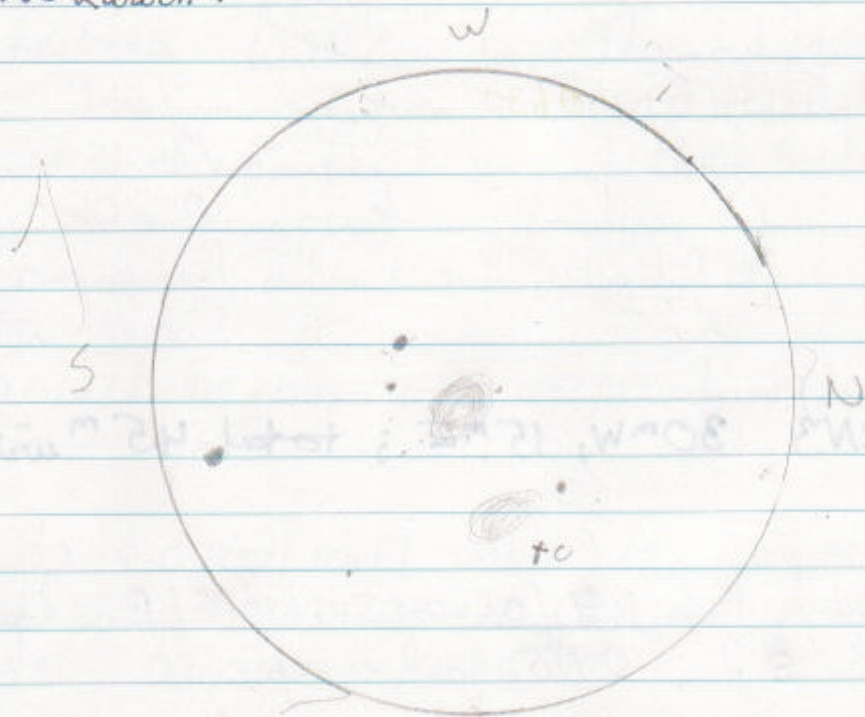


(March 6/88 Clifford Cunningham) of 7667E.

I'm not sure what I saw where I marked  
the fuzzy, probably 2 faint stars that show  
up in the CCD image. Better luck tomorrow!

Also saw through CCD - Bradfield, Wilson, Comas Sola,  
Tempel 2. CN3 with Minerva 45<sup>m</sup> W, E.  
(of which 30<sup>m</sup> W, 15<sup>m</sup> E.)

7675AN Tues 15/16/1830-0630. | 10-F, very windy ~ 20mph | Minerva,  
6" | Steve Larson.



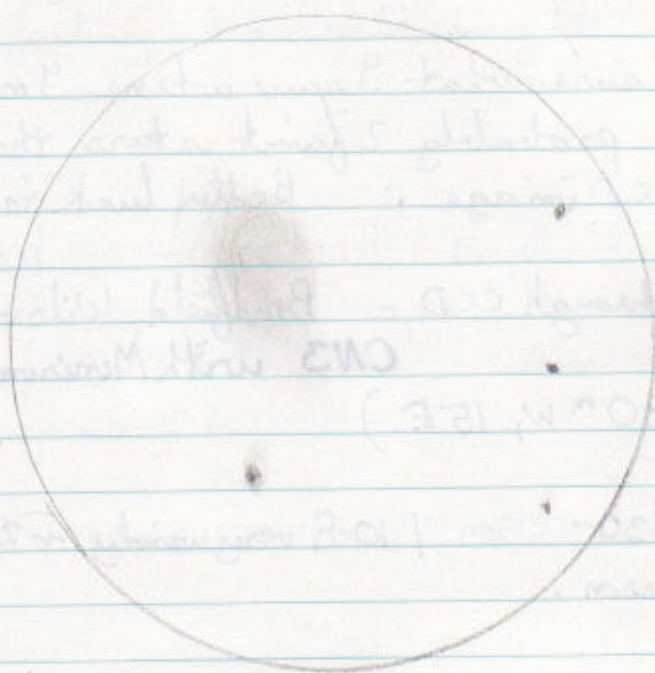
3

No confirmation  
of sighting  
comet on either  
night.



P/Hartley 3 1988d

1988 03 16 0820 UT



Poor seeing  
hard to identify  
correct at first.

$M_I = 15.6$

$DC = 0$

CN3 30<sup>m</sup>W, 15<sup>m</sup>E ; total 45<sup>m</sup> with Minerva.

7676MP Wednesday, Mar 16/17/0540-0545/10-F/Penelope/-/JM3/  
RGB 6.2, CN5 East sweep.

7677AE Thursday, 17/18/1930-2030/10-F/Minerva, M/Miranda  
CN3 1<sup>h</sup>W

7678M2 0415-0530/10-F/JM4/Miranda/CN3 1<sup>h</sup>E.



7679E Fri 18/19/1930-2130/10-F/3M3/Minerva, Miranda/  
CN3 1<sup>h</sup>30<sup>m</sup>W.

\*7680M2. 0340-0600/10-F/3M4, 3M3/Miranda, Minerva/  
-1CN3 1<sup>h</sup>30<sup>m</sup>E. Doubtful comet at this  
rough position  $\text{Mag } 9.5 \quad 21^{\text{h}} 30^{\text{m}} + 16.2^{\circ}$  (1950)  
also suspect in Pegasus, probably galaxy. (found with Miranda).  
First mentioned suspect seen just at dawn.

7681E Sat 19/20/1930-2130/10-F/Minerva, Miranda/  
CN3 1<sup>h</sup>4<sup>m</sup>W.

\*7682M2 0430-0550/10-F/3M3, 4/Miranda, Minerva.  
CN3 1<sup>h</sup>4<sup>m</sup>E. With Miranda, I located the suspect  
again. Its new position is  $(20.5) 21^{\text{h}} 32.6 + 16.8$   
BUT last night's position is so uncertain that it  
is still just a suspect. However, I am now  
getting concerned about it! Why did it not appear to move  
this am in  $\frac{1}{2}$  hr?

7683E Sun 20/21/1935-1935/7-F/3M3/Minerva 1-1 CN3  
0<sup>h</sup>15<sup>m</sup>W.

~~7684M2~~  
7684M2 0345-0700/10-F/3M4, 3) Minerva, MIRANDA/  
CN3 1<sup>h</sup>E. New comet confirmed:  
21.49 21 35.2 +17.5°

A-1130 UT

B-1230 UT

last night's lack of motion was apparent: it was gliding  
directly on top of a star, which confused me. Stars = minor comets!



- 7686E Wed 23/24/1915-1940/7-Fm/JM3/Minerua/CN3 0<sup>h</sup>45<sup>m</sup>W.  
 7685E Tues 22/23/2200-2215-/6-F/Flandrau/16", Surveyor/Dig  
 Matty, et al./M82.  
 7687M2 Wed 23/24/0445-0615/10-F/SM4,3/Miranda,  
 Minerua/CN3 0<sup>h</sup>50<sup>m</sup>E.  
 Obs. of comet 1988e.

1988e. Comet Levy Mar 24.49  
 $M_1 = 11.4$  Coma 1' Tail 1.5' pa 240°

7688E 24/25/1930-1950/10-7-Fm/JM3/Minerua/-/CN3 0<sup>h</sup>15<sup>m</sup>W

7689M2 24/25/0410-0615/10-F/SM4,3/Miranda, Miranda/-/  
 CN3 1<sup>h</sup>20<sup>m</sup>E.

Breakfast with Comet Levy:

Mar 25.50

$M_1 = 11.3$  Coma 1.5' Tail 2' pa 240°

DC=3.

Mar 25/26.

7690M ~~25/26~~ 28/29/0130-0600/10-F/SM4/Miranda/Miranda/  
 -/CN3 2<sup>h</sup>45<sup>m</sup>E. 1<sup>h</sup>E.

26.49.

~~25.50~~  $M_1 = 11.4$  Coma 1.5' DC=3

Tail 3' in PA 240°.

Breakfast w/ comet Levy.  
 Comet suspect.

no!  
 same as  
 7689.

This entry  
 correct after all

7691M ~~28/~~ 28/29. 0450-0535/10-F/SM4/Miranda/-/CN3 10<sup>m</sup>E.

7691M

29.49  $M_1 = 11.4$  Coma 2' DC=2

Tail somewhat fanned, 3' in PA 240°.

Suspect not a comet.

7692E April 2/3/1930-2000/9-Fm/JM3/Miranda Stewart Donna/  
 CN3 15<sup>m</sup>W.

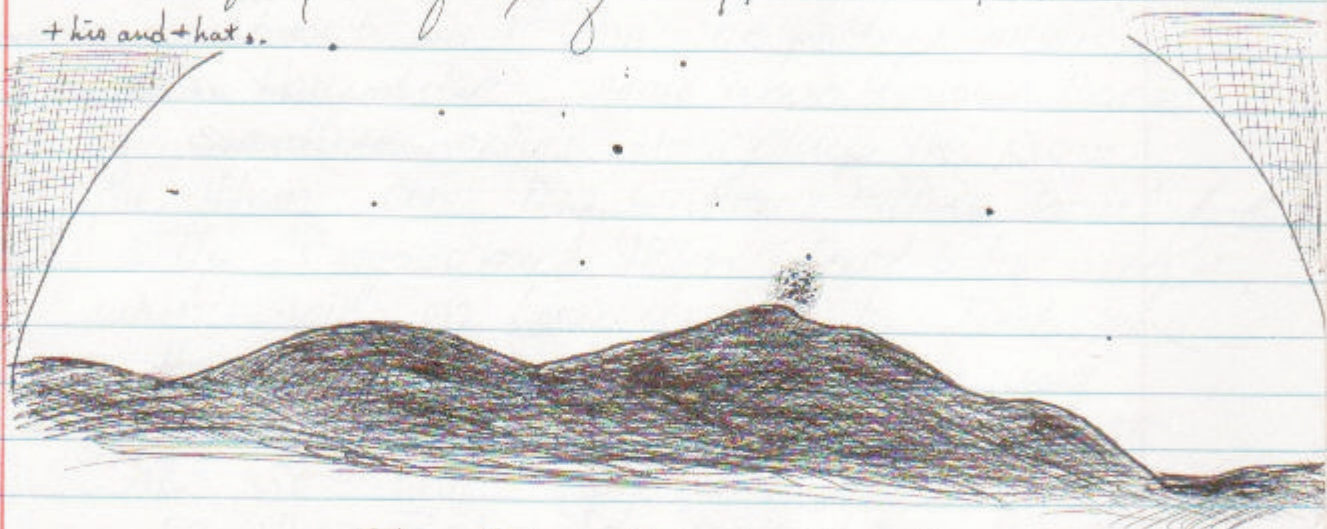


April 1-5, 1988 Steve and Donna O'Meara, and that omnivorous comet catcher David

Hi David, just for the record I did morning and evening  
Nova patrols from your L.C. Palatin Observing Station (over your sunroof).

I did not find any, but I had a "close call" in Puppis, east of where  
Nova Puppis 1942 lies. As you know, since you were present, I viewed

April 5 → Omega Centauri <sup>with your 6" scope</sup> rising above the Empress Mtns. (Fagan Mtn.). - "The  
revelation was sublime." Thus would sayeth G.P. Bond. Donna  
did a few comet sweeps with the 6" and stumbled upon numerous clusters in  
Puppis. I showed you <sup>+ Donna</sup> the Eskimo nebula in Gemini, M106 in U. Maj,  
some NBC galaxy in the front part of U. Maj; M81-82, and other  
+ his and + hats.



~~Omega~~ Omega Centauri Rising: A Comethati parent  
as seen through Minerva, David's 6-inch  
Stephen James O'Meara

Sunday

7693 ~~ES~~ ~~Apr 3/4~~ 3/4/ 1600-1630/ 10-F/Tombstone, Az/ -1 Steve +  
Donna O'Meara, Liz Matty/ Venus in daylight.

7694E2 1940-2040/ 10-7F/ near Bisbee - east of it/ Minerva/ Steve,  
Donna, Liz/ CN3 0<sup>h</sup>25<sup>m</sup>W.

7695E Monday 4/5/ 1940 - 2300/ 10-F/ (343, 4) Miranda/  
Steve, Donna/ CN3 2<sup>h</sup>45<sup>m</sup>W.

7696E Tues 5/6/ 2000-2300/ 3-F/ JM3/ ~~Minerva~~ Minerva/  
Steve + Donna/  $\omega$  Cen rising; see above.





April 5 1988 The Beehive  
as seen from Sarnac observatory  
Tucson Arizona



April 1-6 1988 - Donna Donovan - O'MEARA

The truth of the matter is that David LEVY doesn't really "discover" comets, or any other celestial bodies the real story is that they SEEK him out! Because they have heard from their other comet friends that he is so nice.

One of these days they are going to tell him but they'll let him have his fun for now, he is modest and they don't want to make him blush. Of all the astronomers on Earth they choose him to be their friend. He is patient with them, he plays music that they like, sometimes Joan Baez or sometimes oldies, He plays the piano for them and has written many wonderful silly songs about them that he sings when going on long drives to Tombstone. He listens to their problems and gives them advice every night that he sees them. They like all these things so they came to see him first and let him introduce them to the rest of the earthlings. They'll be sending their other comet friends to visit in the future years and David will introduce them as well.

The stars + suns + comets + planets + dust + gas etc etc are very lucky to have David LEVY as a friend..... and now so am I!



7697 AN. Friday, April 8/9/1800-0600/10-F/Mt Bigelow, Az/  
61", Mineral Gary Rosenbaum / Photographic-  
visual program on comets, as follows:

M88, M66, M64, M87 (jet seen visually, easily)  
Comets observed:

Bradfield

UT ~~0654~~ 0400 M1=13.1  
(Apr 9.17) (Apr 9.29)

1988b Shoemaker 0654 M1=13.8  
Coma 1' DC=3 <sup>just past</sup> tail 2' in PA 310°

(Apr 9.33)  
1987p P/Borely 0800 M1=12.4  
Coma 2' DC=5 Tail 5' in PA 350°

(Apr 9.40)  
P/SW 2 0940 M1=14.1  
Coma=2' DC=7 Tail not observed.

(Apr 9.46)  
1988e Levy 1058 M<sub>1</sub>=12.3  
Coma 2' DC=4 Tail 3' in PA 220°

C13 1<sup>h</sup> W, E.



7698AN Mon Apr 11/12/06<sup>12</sup> 00-0630/3-F/Mt Bigelow/  
61", Munera | Steve Larson

Several comets observed including Bradfield,  
P/Borrelly, SW-2, Field of Levy 87, and Levy  
88e. We took 4 5-min. pics of 88e to produce a  
very nice composite image. Also, earlier, Wilson  
A, B (elongated, split?)  
CN3 0<sup>h</sup>10<sup>m</sup>E.

7699E Tue, 12/13/1840-2100/1-F/Mt Bigelow/61/ Ellen Burd  
mostly taking down equipment.

7700M Sat, 16/17/0140-0500/10-3-9<sup>1</sup>/<sub>2</sub>-F/SM4/  
Miranda - CN3 1<sup>h</sup>12<sup>m</sup>E. Nice session  
but I was tense during the first part. Second  
part, after cloud left, much better. Had to  
unscrew E. neighbor's light before beginning  
the observing.

7701AN Mon 18/19. /2000-0440/10-F-SM4, 3/Miranda,  
Munera | -1 CN3 5<sup>h</sup>40<sup>m</sup>W, E.  
Comet hunting. Also, breakfast with Comet Levy.  
Apr 19.47 M1=12.6 Coma=2' DC=2.

7702EM 19/20/2230-0500/10-F/SM4, 3/Miranda,  
Munera | dig Matty/ CN3 3<sup>h</sup>0<sup>m</sup>E.

Comet Levy 1988e:

20.46  $\odot$  M1=12.7 Coma 2' DC=2.

Also, earlier we looked at M13, M82, M11, M51,  
M84+86, some galaxies in Leo, M87, M104, M83.  
Beautiful night, beautiful sky, beautiful friend,  
beautiful comet.



April 20, 1988

Studied fluid mechanics till midnight, then took a tour of the heavens with David and Miranda. Miranda is truly a lovely instrument. Very bright images of M57, M13 - really lovely. Great resolution. Saw dark lanes (Kass' lanes?) I never saw these before. M104 (Sombrero) very impressive - bright point of condensation I never saw before. Virgo cluster - 15 galaxies counted in one field (well  $14\frac{1}{2}$ ). M82, M83, and some other globular (unexpectedly). Time to sleep -

3:00 AM:

Wakened from my morning dreams - there's someone out there wants to meet me. Playing hide and seek among the stars - oh, don't let me down! I've travelled a long way (through mental space) to see you! At last, recaptured by your discoverer, perhaps the answer to my dreams...

Two years ago I never could have seen this faint fuzz-ball. Comet Levy (1988e) is leaving us, but still putting on a little show. Watched it over half hour period moving away from faint star. Very tricky to see. At first David didn't see it, had to plot it. Then he found it hiding on top of a dim star, just as it was during discovery. Actually, this helped me to see it, because when it moved away, it was far more difficult to see. Well, comets are like that, you know!

David is still observing. The sky will be growing light soon, and Comet Levy will be passing out of view. And just like all proper comets, it didn't even confess to us its real name.

Jo  
Ly



7703E Wed 20/21/1930-2035/3-F/SM3/Minerva - /  
CN3 0h 20m W.

7704M2 20/21/0405-0445/3-F/SM3/Minerva, which had  
waited all night through mostly cloudy sky  
while I was doing the index for my variable  
star book, then it was clear enough to comet  
hunt just before dawn. / - /

I have CN3 0h 05m E only, then  
the telescope picked up a very bright comet  
which I ~~was~~ suspected and which turned  
out to be Comet Liller. I reported the  
observation as follows.

1988a 21.47  $M_1 = 4.7$  Coma 4', DC=6  
tail 3° in PA ~ 20°. No antitail noticed  
even though orbital plane is being crossed now.

7705AN 22/23/1930-0530/3-F/5A Kitt Peak/Minerva,  
2-36"/4"8". First, public night. Saw Comet  
Liller with 14"; beautiful. tail, 2 jets-like structures

10 min CN3 in evening

Then, asteroids. We did 216 Kleopatra,  
201 Penelope, and 43 Ariadne. Michael Magee  
did most of the work.

35 min CN3 in morning.

Comet Liller 0355  $M_1 = 4.8$  Tail 2.5° in PA 20°.



7706AN 23/24/1900-0455/7-1-10-F/KPNO/Minerva/36",14")  
24.47<sub>2</sub> Public night, Asteroid Geodas interrupted by clouds. Then  
0400 Liller M1=4.7 naked eye  
0420 Levy M1=13.0: 2-36 CD 2' DC=0  
24.48 ~~SN3~~ CN3 0h10m W.

7707AN 24/25/1900-0515/7-Fm-10-F/KPNO/236, Minerva/Asteroids.  
216 Kleopatra 107 Camilla 22 Kalliope 201 Prokopa 43 Ariadne  
25.48 Liller M1=4.3 naked eye I had the wrong object  
20 tail PA = 0° but caught the tail  
so we got almost  
2 hrs on 107 Camilla.  
CN3 0h30m E.

7708M 25/26/1900-0300-0430/10-F/SM4/Miranda/-/  
CN3 1h00m E.

7709EM 28/29/1900-0130 13-F/Kitt Peak/#236,  
Minerva. I opened the dome while Michael  
got the night's objects ready. Then there  
were a few clouds so the T.A. called us to close  
down. Why I don't know. Anyway I  
did set up Minerva for comet hunting.  
CN3 0h15m W.

Then I observed comet Liller.

28.14 2024 M1=5.8 D Levy, KPNO, 15m refl.  
28.14 2025 M1=6.0 M Magee, KPNO, 10x50 binocs

Then we started asteroids.

9 Metis  
19 Fortuna  
107 Camilla  
189 PHTHIA



7710 M2

0400-0440/7-10 - F/ JM4/ Miranda/ -/ CN3 0.30<sup>m</sup>

This morning, I did a little comet hunting in the east. The moon set just as dawn was beginning. Talked over the phone with Michael.

All I did <sup>was</sup> help put the nails in to hold the plaque on. Congrats on 1988e.

Steve Edberg 1988

DAVID WANTED ME TO WRITE SOMETHING IN HIS LOGBOOK - NOW THAT I'VE FINISHED THE FORMALITIES, (OF WRITING "SOMETHING") I CAN GIVE DAVID MY CONGRATULATIONS ON HIS NEW COMET. I'LL BE BACK SOON TO HELP INSTALL THEN NEXT PLAQUE!

Jim Smith 1988 May 1

7711 E.

Monday, May 2/3/2000-2030/7-F/ Steve Larson's house/ IHW party, / Mercury.

7712 E

Tuesday, May 3/4/2000-2020/7-F. This session was actually held at the Tack Room Restaurant. Got up Miranda outside and observed for a while since the "undignified scramble for comets" is occurring with this moon phase.  
CN3 0.15<sup>m</sup> MW.

7713 E.

Wed, May 4/5/2015-2300/10-3-F/JM4/Miranda, Miranda/ CN3 1<sup>h</sup> 35<sup>m</sup> W. Also M13, M83, M65, M66, M51, Eskine  
NB: NBC 6207, 4038-9 too. Swept a bit to see what it's like; tested eyepieces. Fun to have an observatory  
3671 Steve Edberg



P/Halley phase II.

7714E Thu May 5/6 | 2000-0000 / 10-F / JM4 / Miranda / - /  
CN3 2:45<sup>m</sup>W.

\*7715 AM Fri May 6/7 | 1830-0630 / 10-F / Mt Lomon / 60" / Steve Larson,  
Santiago Topia, Gary Rosenbaum / CCD and visual  
program for comets:

P/Halley field - nothing

Good Bye + Farewell, friend

Comet Wilson - visual <sup>March 7.17</sup> 0.435 UT 13.9 - 1' trail DC 1.

P/Gurnea, "new" comet - visual observation.

(May 7.21) at 0550 UT M1 = 14.6 CD 1.5 DC = 2

Then we spent some time trying to find geosync  
satellites, and were successful only  
after I bet Santiago he wouldn't see it  
since he wasn't dark adapted. We got a  
good picture with satellite + SAO star  
chopped with special shutter.

7716E May 7/8 | 2030-2330 / 10-F / JM3, 4 / Miranda,  
Munera / David Eicher / CN3 3:10<sup>m</sup>W, E

7717EM 8/9 | 2130-0230 / 10-F / JM3, 4 / Miranda / - /  
CN3 1:50<sup>m</sup>

7718E 9/10 | 2000-2200 / 10-F / JM4 / Miranda / - /  
CN3 1:05<sup>m</sup>W. Nice, warm night



77195

10/11/1300-1315) 7F/E/ Pso, Texas / -1-1 CNS Sun  
Vicinity, check for sungrazing comets

\* 7720AN2

2200-0630/3-1-10-F/ Texas Star Party /  
Miranda. This session began with a fabulous &  
moving surprise - a tribute to 1988e. When I  
gave a lecture in Houston last February, they  
gave me in return a bottle of champagne with  
instructions to enjoy it after I found my  
next comet. I decided, in the wake of 1988e,  
to bring the bottle to IS Panel show it with my  
Houston friends. Steve & Amalia Goldberg  
introduced me, saying how special I was to the  
Houston Astronomical Society, and it was  
all extremely touching. I really love  
these star parties.

After the sky cleared at ~3am I did some  
hunting, as follows:

CN3 2<sup>h</sup>15<sup>m</sup> W.

\* 7721AN

May 1 2200-0600/ 10-F/ Texas Star Party/

If you want to understand of his universe  
you've got to see what the hell it looks  
like

- John Dobson, May 1988

Very fine night CN3 4<sup>h</sup>05<sup>m</sup> W, E

with Miriam + Amalia  
Goldberg's 13" Dobsonian. Beautiful sky -  
Regenbogenschein, band, dark detail in <sup>W</sup> Scorpius  
 Milky Way



\*7722 AN FRIDAY - 13/14 May / 2115 - 0630 / 10-11-F / Texas Star Party Pick Place  
Fort Davis, Texas / CN3 5<sup>h</sup> 05<sup>m</sup> W, E with  
Minerva and Amelia Goldberg's 13-inch  
Another beautiful night, Liz observed  
Esquimo Nebula + other planetaries with her 8" incl.  
2371 and 2372.

7723 E Sat 14/15 / 2130 - 0200 / 10-F / Texas Star Party /  
CN3 2<sup>h</sup> with 6" and 13".

7724 M2 0330 - 0600 / 10-F / TSP / CN3 1<sup>h</sup> 15<sup>m</sup> E  
with Minerva -

7725 E Sun 15/16 / 2200 - 0000 / 3-F / Clyde Tombaugh's  
house - Patsy, Clyde, Liz, Matty /  
Comet diller  
M4



Your 6-inch "Minerva" is a beautiful instrument - my first view of Liller's Comet was with your Minerva Telescope.

Happy looking

your friend

Clyde W. Tombaugh

your favorite Pluto-crater

15 May 1988

7726 E

May 18/19 / 1815-2030/2-F / 3M3, 4 / Minerva hand-held, Miranda. Tonight a photographer from US News + World Report came by and took Trolls of 35mm film of me with Minerva and Miranda.

7727 M2

0200-0400 / 10-3-F / 3M4 / Miranda / CN3 1<sup>h</sup>00<sup>m</sup>E.

Comet Shoemaker-Holt 1988g.

May 19.45 MI=11.9 DC=3 Coma 2'

7728A N

19/20 / 2030-0420 / 10-F / 3M4, S. walk 2:30-3:45 / CN3 2<sup>h</sup>40<sup>m</sup>W,E. Shoemaker-Holt 1988g

20, 45 MI=11.9 DC=3 Coma 2' again!



- 7729E Sunday May 22/23/2300-0000/3-F/  
JM3/Liz/Maddy.
- 7730M Mon 23/24/0330-0400/3-2-F/JM3/Minerva CN3 10<sup>m</sup>E.
- 7731EM Fri May 27/28/2200-0100/7-F/Riverside,  
CN3 50<sup>m</sup>W.
- 7732S Sat 28/29/1130-1800/7-3-F/RTMC/  
Minerva lothars at RTMC/telescope  
competition. Displayed Minerva with  
newly installed fishing rod.
- 7733E Sun 29/30/2200-2300/7-F/RTMC/Minerva/  
CN3 0<sup>h</sup>10<sup>m</sup>W. Very cold, moon like sky.  
Minerva just won a "BOZO" award for  
"spin casting for comets."
- 7734E June 1/2 2030-2230/10-F/JM4/Miranda/  
CN3 1<sup>h</sup>15<sup>m</sup>W.
- 7735E 6/7 | 2030-2240/10-F/Amateur Astronomy  
Vista|-Minerva -| CN3 2<sup>h</sup> W
- 7736EM 2350-0130/10-F/JM4/Miranda/  
CN3 0<sup>h</sup>45<sup>m</sup>W.
- 7737E 7/8/ 2030-2230/10-F/JM4/Miranda/  
CN3. 1<sup>h</sup>35<sup>m</sup>W
- 7738M 2 0330-0400/7-F/JM4/Minerva/  
-|CN3 15<sup>m</sup>E.



7739AM June 8/9/2030-0405/10-3-F/JM4,3/Miranda,  
Miranda/-/CN3 3<sup>h</sup>15<sup>m</sup>W, E.

7740EM June 9/10/2000-0100/9-unF/JM4/Miranda/  
Virgil/ Installation of unsuccessful  
encoder system; just generally in a very  
depressed mood over Dig.

CN3 0<sup>h</sup>50<sup>m</sup> East

7741Mz 0335-0350/3-F/JM4/Miranda/-/  
check of suspect-galaxy.

7742EM 10/11, Friday/2300-0500, 19-3-F/  
Mt Bigelow/61/Steve Larson, Ellen Bus,  
Mark & Lowitz/

Tempel 2.

Saturn

Comet Levy spectrum      Nereid search

Terra

7743AM 11/12/1900-0500/10-F/Mt Bigelow/61/  
Miranda/Steve Larson, Ellen Bus,  
Mark & Lowitz/- CN3  
1<sup>h</sup> W

0<sup>h</sup>30<sup>m</sup> E.

Shoemaker-Holt spectrum

Liller spectrum

P/Bus field. no comet

Tempel 2.

Nereid search



\*FF 12/13 2015-0430 / 10-F / Bigelow; then Geology histo / 61, Mon

7744AN Ellen Bus / CN 3 1<sup>h</sup> 30<sup>m</sup> N, E.  
First look at 3673, Levy. We took  
one image of the field then another  
(at ... and ... ) and then subtracted  
one from the other and the asteroid stood  
out prominently. Then I looked through  
the eyepiece, and there it was.

Seeing this little asteroid makes me  
feel much much better. Also - P/Tempel 2:  
0600UT M1=13.5; CD=0.2' no tail (154.9cm)

7745E 13/14, Mon / 2040-2300 / 10-F / JMY / Miranda  
-1 CN 3 2<sup>h</sup> 40<sup>m</sup> W, E

7746M2 0330-0400 / 10-F / JMY / -end of CN 3 also

7747EM 14/15 / Tues / 1945-0030 / 3-F / KPNO / Minerva  
Schmidt /

7748M2 0300-0405 / 9-F / JMY / Miranda / -1 CN 3  
1<sup>h</sup> E.

7749M 15/16 / 0250-0410 / 3-F / JMY / Miranda / -1 CN 3  
1<sup>h</sup> E.

7750M 23/24 / 0000-0355 / 10-F / JMY / Miranda / CN 3 2<sup>h</sup> 20<sup>m</sup> E.



7751M 24/25 0100-0330/10-F/SM4/Miranda/  
CN3 0<sup>h</sup>15<sup>m</sup>E.

7752M 25/26 0100-0400/10-F/SM4/Miranda/-/  
CN3 1<sup>h</sup>

7753M 26/27 0300-0400/10-F/SM4/Miranda/CN3  
0<sup>h</sup>30<sup>m</sup>.

7754S 29/30/1035-1215 -/3-F/U of Victoria/-/-/CN5  
Sun Ven. Decision made to drop the following:

1) ALPO Comets Section

2) ALPO Meteors Section

3) Columns: Comets, Small Scope Showcase, Reflections

→ These totals come from <sup>(probably recent)</sup> unknown dates but should be  
added to CN3: "Thurs, 40<sup>m</sup>, Wed, 1:25, Tues, 0:15; Mon, 1:40, Sun 40<sup>m</sup>."

7755E2 2240-0000/3-F/Dominion Astrophysical Obs/  
RASC-WAA-ASP. A look at the beautiful  
72". Beautiful telescope with a plaque  
mounted on the pier in memory of JS Plaskett.

7756S 30/31/?/1650-1715/3-F/U of Victoria/John Dobson's  
telescope/Magnificent sunspot group.

7757S July 2/3/0915-0930/3-F/U of Victoria/John Dobson's  
telescope/Mighty spot group. many spots + faculae.

7758M July 8/9?/0330-0405/3-F/SM4/Miranda/CN3  
0<sup>h</sup>15<sup>m</sup>E

7759S July 10/11/1500-1530/3-F/JMB/Ophelia/Gerry Dyck, Helga/O.



7760M 10/11 / 0000-0400 / 1-F / Mt Bigelow / Bobby + Ellen  
Bus / -61' / -.

7761AM 11/12 / 1915-0430 / 3-F / Mt Bigelow / 61' / Bobby + Ellen  
Bus for 1st 1/2 hr, before dark.

Beautiful night. Humidity very high, ~90%,  
but none outside. Some clouds with  
medium + low bases, clear after midnight  
except low in NE.

Comet Shoemaker-Holt - Rodriguez -  
Visual: 0455 UT M<sub>1</sub> = 14.0: CD diam = 1 Min DC = 6  
12.20

Also w/ CCD, P1 Tempel 2, Shoemaker-Holt,  
and LEVY 88E! M<sub>1</sub> (CCD) around 17 or 18.  
Very faint. Decl was 62°, telescope  
moved to 60 then "nudged" further N, and  
successfully went to an object beyond its  
announced Northern limit.

7762E1 13/14 / 2230-2245 / 9-F, but some lights / 19E Mariton Crescent /  
Peter Jedicke / old times. Still a nice sky there!

7763EM 2330-0230 / 3-F / Leo's house, OSO observatory /  
-14" Celestron, Spartan, Minerva CN3 0<sup>h</sup>40<sup>m</sup> N.  
We saw that faint little galaxy between M13 and  
NGC 6207. Very warm night; clouded over later.

\*7764AM 14/15 / 2215-0355 / 10-F / Leo's house; OSO  
obs. / 14" Celestron, Spartan, Minerva /  
CN3 3<sup>h</sup>15<sup>m</sup> W, NE.



- 7765 EM 16/17 | 2000-0030 | 3-f | Syracuse Summer Seminar | -Minerva, many other scopes CN3  
0<sup>h</sup>30<sup>m</sup>W.
- 7766 EM 17/18 | 2200-0230 | 1-f | Syracuse Summer Seminar. Looking at telescopes, talking with people.
- 7767 M 20/21 | 0200-0300 | 2-f | South walk. Some stars visible - no novae seen!
- 7768 M 21/22 | 0000-0430 | 3-10-f | JM4 | Miranda, Penelope - | CN3 3<sup>h</sup>15<sup>m</sup>E. Three suspects almost certainly not comets. Venus & Mars both very bright.
- 7769 E 22/23 | 2000-2030 | 3-f | JM4 | Penelope | R G B 6.7. (at 2010) (23.13)
- 7770 EP2 2300-2305 | 3-f | Sasabe, AZ. | - | nice dark sky, even with moon up.
- 7771 E August 3/4 | 2900-2115 | 9-3-f | ~1 mi S of rest area, N of Az. | Minerva | - | CN3 0<sup>h</sup>30<sup>m</sup>. Very hot, very buggy, not very comfortable. On way to Flago Buff.



6/7/0950-0530/1-8-F/SM4/SM3/Miranda, Minerva

\*7772M August 7, 1986

Comet Machholz observation as follows:

RA 1950 =  $4^h 46^m . 8$  Dec =  $+0^{\circ} 35'$

$M_1 = 8.7$  Coma =  $3'$  DC = 2.

Diffuse with slight condensation  
slightly elongated toward west

The sky was cloudy until just before dawn, & cleared rapidly (by  $\approx 0$ ) just in time to observe the comet. I actually first set up Minerva in SM3, and as the sky began to clear I realized that the 16" would be better since the comet was high enough.

7773M Aug 7/8/ 0315-0500/8-3-F/SM4/Miranda/  
- | CN3 1<sup>h</sup> E.

Comet Machholz 1988j

Aug 8, 1986

RA 1950 =  $4^h 52^m . 8$  Dec =  $+0^{\circ} 33'$

$M_1 = 8.6$  Coma  $5'$  DC = 3

Diffuse with condensation  
Tail toward west,  $15'$

7774AN 8/9/2009-0515/10-3-F/SM3, SM4/Miranda,  
Miranda | CN3  $5^h 30^m$  W, N, E.

Comet Machholz 1988j

Aug 9, 1986  $M_1 = 8.4$  Coma  $6'$  DC = 3

$\alpha = 15'$  PA  $276^{\circ}$



7775S 9/10/1430-1445/3-F/ JMB/Ophelia/-/Sun.

7776M 9/10/0200-0240/10-F/JM3/Minerva/ "SSS"  
CN3 0h 20m E, N.

7777M2 9/10/0410-0440/10-3-F/JM4/Miranda/-/  
CN3 0h 15m E, N. Also JM3 + Minerva.

7778AN 10/11/1930-0500/3-10-F/JM3, 4/Minerva,  
Miranda. This was to be a cloudy night, cleared  
showers diminishing to 30% after midnight.  
Instead, there was a beautiful but localized  
thunderstorm over the SW, or S part of  
Tucson while the rest of the sky from here was  
very nice at dusk. Some clouds during  
the night but generally a fine night, light  
wind or none at all.

I did have hay fever, though

Comet Michholz 1988j

11.47 MI = 8.9 Coma 3.5' DC=3

Tail 15' in PA 260°.

CN3 4h W, E

7779EN. 12/13, Friday/2030-0030/9-10-F/STELLAFAME/  
Minerva. / Dave Leicher, Peter Seducke, Constantine,  
many others / CN3 2h 15m W, N.

7780E 13/14, Saturday/2100-2200/3-1-F/Splafame/  
some stars during Clyde Tombaugh's talk.

7781M 17/18, Wednesday/0340-0500/9-F/near  
"Camping Squiggle", actually our  
nickname for Peter + Dianne Seducke's  
campground, Near St Philippe / - Minerva /  
Peter Seducke / CN3 0h 50m E.



7782E 18/19, Thurs / 2050-2330 / 7-10-F / Rolf Meier's  
new home, near "Camp Ontario KOA" /  
Minerva / - Rolf, Linda, Peter, Dianne,  
Matthew Meier / CN3 2<sup>h</sup> 00<sup>m</sup> W.

7783M 21/22, Sun / 0000-0130 / 13-1-2-F / walk  
from Westmount High to 818 + back /  
0-1.

7784M 22/23, Mon / 0000-0130 / 6-7-F / Summit,  
walk and 818 / Mulky way barely visible from  
818.

7785M2 0400-0510 / 8-9-F / Site near "Camping  
Squalan" / Minerva / Louis Bernstein /  
CN3 0<sup>h</sup> 50<sup>m</sup> E. Nice session. Also looked  
at Pleiades, M44, cluster at the Rosette  
Nebula (but no nebula) and Mars.

WELL DAVID, THINGS SEEM TO HAVE GONE FULL CIRCLE, WITH AN ORBITAL  
PERIOD OF 24 YRS. IT'S ALMOST LIKE YESTERDAY SINCE WE WERE KIDS,  
GOING FOR BIKE RIDES, MEMBERS AT THE MONTREAL CENTER - RASC,  
OBSERVING METEOR SHOWERS AND LUNAR ECLIPSES FROM THE UPPER  
BELMONT SITE. OUR PATHS ALMOST CROSSED SEVERAL TIMES, ONCE  
WHEN YOU DROPPED BY THE MONTREAL CENTER ON AN EVENING I  
WASN'T THERE. ANOTHER TIME WHEN I CANCELLED AT TRIP TO SYRACUSE,  
AND AGAIN AT STELLAFANE THIS YEAR. BUT I KNEW THAT WE'D MEET  
SOON. AND FINALLY, ON SATURDAY AUGUST 20, YOU WALKED THROUGH  
THE DOOR LOOKING JUST AS YOU DID IN 1964 (THE MIND PLAYS TRICKS)  
IT WAS GOOD TO SEE YOU AGAIN! AND I'M SURE WE'LL BE IN  
TOUCH MORE FREQUENTLY NOW.

OBSERVING WITH YOU AT 0400 HRS ON AUGUST 23, WAS A LOT OF



FUN. I ALWAYS FEEL AT HOME WHEN I'M UNDER A SKY FULL OF STARS. "MINERVA" IS A BEAUTY. LOOKING THROUGH HER WAS A PLEASURE. I HOPE SHE GETS A BREAK SOON WITH THE DISCOVERY OF YOUR FIFTH COMET.

BEST OF LUCK,  
Louie Bernstein  
Aug. 24, 1988.

Fri  
\*7786M 26/27/0400-0440/2-LF/Lorry's house, San Francisco - ECLIPSE OF THE MOON.

This evening Lorry reminded me that there would be an eclipse the following morning. I set the alarm for 4 but there were dense low clouds. I decided to go back to sleep, but 10 mins later I got up again and went outside, just in case. Now there were breaks in the rapidly-moving cloud bank, and soon the  $\frac{1}{3}$  eclipsed moon came into view! It was very nice, the eclipsed moon in one direction, San Francisco skyline in another, & the 20-sec foghorn sounding from far away.

No instruments used, but nevertheless it was a very nice eclipse, caught at maximum.



7787AN.



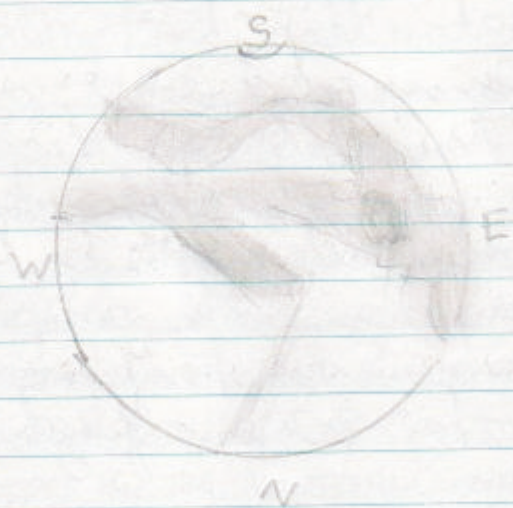
9<sup>h</sup> UT

4" refr.

⊙ = bright spots

Tues 30/31

2:000-0500 int / S 3-F/SM4, 3/Miranda (4"),  
 Minerva. Test of 2" focuser on Minerva  
 CN 3 3<sup>h</sup> W, E.



8:15 UT

16" F/5

stopped to 9"  
seeing 7

7788E had 31/32 / 1945-2100 / 10-F/SM3 / Minerva (-)  
 CN 3 2<sup>h</sup> W.

7789M

0040-0125 / 7-F/SM4 / Miranda /  
 MARS.





8.50 UT  
16 s topped to?  
seeing 4

7790E Thru Sept 1/2 / 2000-2100 / 2-F / Mt Bigelow /  
Steve | - / CN 3 0<sup>h</sup> 15<sup>m</sup> W.

7791M2 0140-0230 / 3-F / JM4 / Miranda | - /  
Mass. Steve pleased to find out  
during 7790 that last night's Mars drawing  
was easily comparable to Steve's  
CC Damage taken just 1/2 hr later.

7792M3 0440-0500 / 3-F / JM4,3 / Miranda | - /  
CN 3 0<sup>h</sup> 05<sup>m</sup> E. Clouds.

7793M Sep 4/5 SUN / 0445-0500 / 3-F / JM3 /  
Minerva | - / CN 3 0<sup>h</sup> 10<sup>m</sup> E

7794AN 5/6, Mon / 1900-0500, 2 hr nap when a cloud came  
by ~ midnight / 10-3-10-9-F / JM4,3 / Miranda, Minerva  
- / CN 3 4<sup>h</sup> 45<sup>m</sup> W, E



7795AN 6/7, Tuesday / 1900-0530 / 10-9-F / Mt Bigelow /  
61", Minerva / Faith Vilas, Steve Larson, Gary Rosenbaum  
CN 3 1<sup>h</sup> 15<sup>m</sup> W, North, E. Thorough sweep E W → E  
across 2 UMi, then incl sweeps S. With 61",  
Tempel 2, Shoemaker-Holt Rodriguez, Shoemaker-  
Holt, and Levy. 1988e Levy was at  
about +64° 50'. The telescope's N limit was  
~62, then the slow motion stopped around 63°. I  
found I was able easily to move the <sup>dec</sup> flywheel, &  
the scope, back south, so why not North?  
Keeping a close watch on the tube approaching  
the yoke, I edged the scope to 64° 50'.  
We got 3 good images that may be good for  
astrometry. Then - just to see - I moved  
it N till it gently touched the yoke - at 64° 59'.

7796AN 7/8, Wed / 1930-0545 / 10-F / 5M4 / Miranda / - /  
CN 3 5<sup>h</sup> 00<sup>m</sup> E. Cool, calm night. / Suspect

7797E 8/9, Thurs / 2130-0000 / 10-F / 5M4 / Miranda / - /  
CN 3 2<sup>h</sup> 00<sup>m</sup> W, + E (rest session) Suspect <sup>not by comet</sup> ~~regular~~

7798M2 0420-0515 / 10-F / 5M4 / Miranda / - / rest of  
above comet hunt.

7799EM 9/10, Fri / 2000-0100 / <sup>CDT</sup> 4-F / Astrofest,  
S. of Chicago / Minerva, other telescopes / many  
people, especially Dave Eicher, Linda Cozzitella,  
Richard & Eleanor Berry /  
CN 3 On ~~15<sup>m</sup>~~ 30<sup>m</sup> W.

This was a very busy night, the sky



being covered by smoke from the Wyoming forest fires.

7800EM 10/11, Sat / 2100-0340 / 3-F / Astrofest /  
- Minerva / others / CN3 0<sup>h</sup>15<sup>m</sup> W.  
Mars through a fine Scheepers type +  
through Richard Berry's 20" reflector.  
Both scopes performed well. Also used  
some 8" scopes belonging to young people.

7801E 11/12, Sun / <sup>1930</sup>2000-<sup>EDT</sup>2015 / on plane to Montreal,  
saw a remarkable earth shadow,  
made deeper + richer by the layer of  
smoke at ~20000 feet.

7802M 12/13, Mon / 0030-0050 / - / near Westmount H.S.

7803E 13/14, Tues / 2330-0000 / 7-3-F / 818, Grandpa's  
Apt. Bldg, 4902 Roslyn.

7804M2 0300-0530 / 8-9-F / RASC Observatory,  
Camping Squaler site / Louis Bernstein  
A. RASC - 14" Celestron; fine view of  
Mars  
B. Camping Squaler - CN3 1<sup>h</sup>15<sup>m</sup> E.

7805M 14/15, Wed / 0240-0305 / 9-F / Camping Squaler  
site / - / CN3 0<sup>h</sup>15<sup>m</sup> E.



7806E 15/16, Thurs / 2100-0000 / 12-F / JMF / Miranda / - /  
CN3 2<sup>h</sup> W. Nice to be home  
but sad from a highly successful  
trip to Chicago and Montreal.

7807M2 0420-0515 / 10-F / JMF / Miranda / - /  
CN3 0<sup>h</sup> 40<sup>m</sup> E.

7808E 16/17, Fri / 2030-2100 / 9-F / JMF / Echo /  
2 people from "Jarcik Furniture" / Moon, Saturn

7809E M2 2215-0200 / 10-3-F / JMF, JMF / Miranda /  
Jim Scotti. Meteor-bolide at 2217 or so. 3 pieces  
CN3 - View of Schwassmann - Wachmann I  
0825 UT M-1 = 13.4 Coma 30" (.3')  
(17.35) DC = 2

OUTBURST  
P/S-W 1 07:05 UT, 13.3 (T<sub>pan</sub> 12.4-13.9) DC 2 Coma 0.20"  
(17.30)  
Motion nearly certain.  
Mars, Jupiter, h+X Per, M-1 also.

I'm sorry we can't report anything as  
interesting as a New Discovery, but P/S-W 1  
looked pretty nice. Jim

1810M3 0300-0500 / 3-10-3-F / JMF, JMF / Jim at  
first / Miranda / CN3 0<sup>h</sup> 45<sup>m</sup> E.

7811E 17/18 / 1900-1930 / 7-F / JMF / Miranda / - / CN3  
15<sup>m</sup> W.



7812E 17/18/2200-2300/7-F/China Rose Restaurant/  
TAAA + others (Terry + Lu - Terri + her refractor/  
Mars.

7813M2 17/18/0000-0500/10-F/SM4/Miranda  
CN3 2 45<sup>m</sup>N, E. 2 nice suspects.  
P/SW1 0750 UT MI=13.6 CD=30" DC=1  
(18.33)

7814E 18/19/1950-2020/7-Fm/SM3/Minerva/ - /CN3 15<sup>m</sup>W

7815M2 0240-0500/10-F/SM4,3/Miranda, Minerva/ - /  
CN3 1<sup>h</sup>45<sup>m</sup>E.

7816M 19/20/0030-0430/10-2-F/SM4/Miranda/ - /  
CN3 2<sup>h</sup>15<sup>m</sup>N, E. I have a cough tonight.  
P/SW1 0730 UT = 20.31  
MI=13.3 CD=1' DC=2

7817E 20/21/2000-2100/1-F/Mt Bigelow/61, Minerva/  
Steve, Gary R.

7818E 21/22/1930-2330/3-1-F/Mt B/61 (not used),  
Minerva/ - Steve, Gary, & reporters from Channel 4/  
Brief look at Mars @ 8pm at moment  
of closest approach to Earth. Like in 1963.  
This was the only look through or use of  
any telescope that we had this cloudy &  
foggy run. See session 198E-512,  
Feb 2 1963.

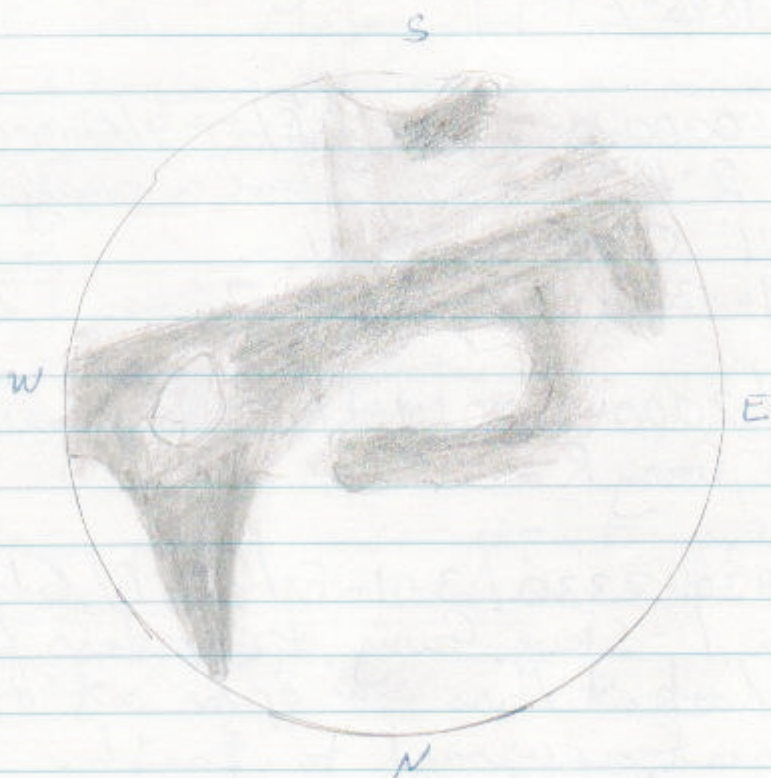


7819M 22/23, Fri. Morning / 0410-0530 / 10-F / 5113 / Minerva / - /  
CN3 1<sup>h</sup> E. Fine, but eyepiece fogged up  
because of tearing eye because of a slight  
allergy. Nagler eyepieces to this; at least 16+20.

7820E 23/24 / 2000-0100 / 7-F / Dean Ketelsen's house /  
TAAA / Mars - Gary R. pointed out Syrtis blue cloud  
to me.

7821E 24/25? / 2000-2030 / Sycamore Canyon / 3-F.

7822E 25/26, Sun / 2000-0000 / 7-F / 5114 / R.P. VanZandt /  
Mircanda / Mars.



16" refl.  
stopped to 9"  
Seeing 6  
Red filter  
9mm eyep.  
2200



It was an impressive evening with Planet  
Mars as our close visitor and probably my  
last good look if enjoyed your re-observing  
and verified your effort with a last good  
look to make sure you weren't kidding.  
Thanks for a real nice session.

R. P. Van Santt  
(Van) 9-26-88

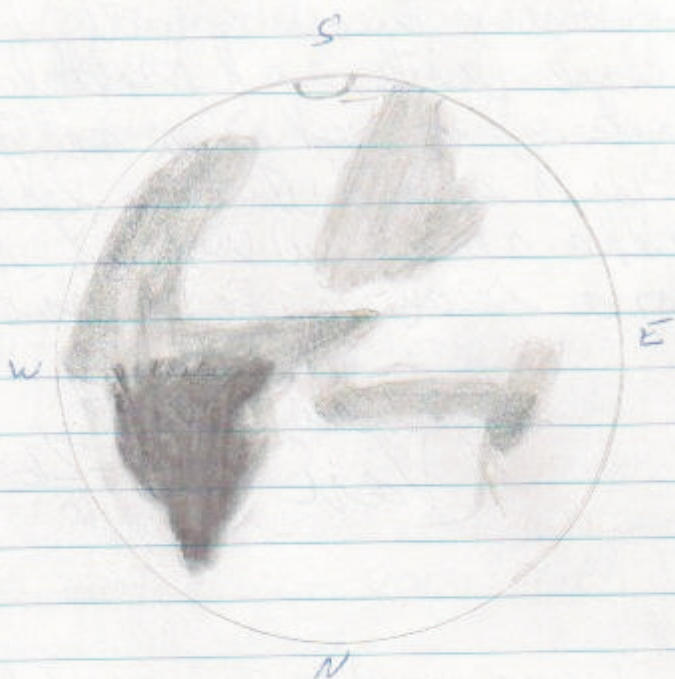
- E
- 7823E 26/27, Mon | 1900-1925 | 7-Fm | JM3 | Minerva | -/  
CN3 0<sup>h</sup>15<sup>m</sup> W.
- 7824E 27/28, Tue | 1900-1950 | 7-8-Fm | JM3 | Minerva |  
CN3 30<sup>m</sup> W.
- 7825E 28/29, Wed | 1900-2030 | 10-7-F | JM3 | Minerva | -/  
CN3 1<sup>h</sup> W.
- 7826EM 29/30, Thu | 1900-0200 | 10, but quickly 3,  
then 7+3 after moonrise.  
CN3 1<sup>h</sup>00<sup>m</sup> W.

Mars - 16 stopped to 9,  
seeing 5.

9mm and red filter. Why so different  
from Sunday night?

Time = 8:00.





(see disc, overleaf)

### OCTOBER

- 7827M 5/6 | 0450-04500/3-f/3M3/Minerva/CN3 5<sup>m</sup>E
- 7829M 6/7 | 0000-0530/3-10-f/3M4/Miranda, Minerva/  
-1 CN3 1<sup>h</sup>E. Tried without success to  
get encoders to work.
- 7829~~AM~~AN 7/8 | ~~200~~ 1830-0500/3-F/Empire Site,  
then 3M3/Minerva, then Miranda/TAAAT First  
part | CN3 4<sup>h</sup> 45<sup>m</sup> W, E.
- 7829~~AM~~AN 8/1 | 1700-0545/10-3-10<sup>(miras)</sup>-f/Empire Site/  
7830<sup>SAN</sup> Minerva, CCD system on 13", and 5"  
binoculars belonging to R. Buchroeder



CN3 6<sup>h</sup> 00<sup>m</sup> W, N, E.

CCD recorded Stephan's Quintet, (which I found) in 5 sec exposure. 1 sec unguided exposure of M17 was ok, trails not objectionable.

R. Bochröder's binoculars had same field as Minerva with 32mm eyepiece - both showed Veil - both halves - in one field.

Some murk in sky all night, clouds in early evening.

Wed 9/12/13

~~7831M~~

0030-0600 / 10-F but murky / -JM4 / -Miranda / 4<sup>h</sup> 45<sup>m</sup> CN3 E.

7832M

13/14 / 0000-0200 / 3-F / JM4 / Miranda / - / 0<sup>h</sup> 45<sup>m</sup> E. CN3.

\*7833M

14/15 / 0440-0500 / 0-F / JM3 / Minerva / - / CN3 0<sup>h</sup> 10<sup>m</sup> E. Sky very good near eastern horizon, but it was indeed raining!

7834E

15/16, Sat. / 1840-2030 / 7-Fm, then 3, 2 / JM3 / Minerva / - / CN3 1<sup>h</sup> W. Very good session - Crescent moon, dark sky until sudden increase in cloud from SE. (Rained later.)



- 7835E2 2245-2315/3-F/U of A/-/-/ clearing sky.
- 7836EM3 2355-0045/10-3-2-F/JM3+North, JM4/Miranda/  
CN3 0<sup>h</sup>25<sup>m</sup>W. Cygnus region.
- 7837M4 0400-~~04~~0530 then didn't get to sleep till 11/  
3-F/JM4/Miranda/CN3 1<sup>h</sup>E.
- 7838M 17/18 Mon/ 0140-0220/3-F/JM3/Minerva/  
CN3 0<sup>h</sup>15<sup>m</sup>W. Check for someone else's  
bright suspect. Nice night but somewhat  
murky + pt cl.
- 7839M2 0420-0540/3-F/JM4, JM3/ Miranda, Minerva/  
CN3 1<sup>h</sup>00<sup>m</sup>E. Some clouds near horizon  
to bypass, but otherwise a good session.
- 7840SE ALL THE WAY TO...  
Thursday, 20/21/ 1800-1830 / road home, Houghton Rd / 3-F  
Green flash  
Finally the several day long storm  
breaks just before dawn for -
- 7841M2 0450-0530/3-2-F/JM3/Minerva/-/  
CN3 0<sup>h</sup>25<sup>m</sup>E.
- 7842M Fri 21/22/0420-0540/3-F/JM4/ Miranda/  
CN3 1<sup>h</sup>00<sup>m</sup>E. Some clouds, suspect (prob. galaxy)
- 7843E Sat 22/23/1845-1900/3-F(m)/JM3/Minerva/  
CN3 0<sup>h</sup>10<sup>m</sup>W.



\* 7844M2 0250-0535 / 7-fm-3-f / Southwalk, then JM4, JM3 /  
 Miranda / - / CN3 0<sup>h</sup>30<sup>m</sup>E. While I was nearing  
 the end of my walk, at 0428 MST, my attention was  
 grabbed by a lightning like flash. I looked up  
 & saw the bright train of a bolide in Hydra.  
 It was straight but curved in on itself with ~30 secs.  
 It lasted about 15 minutes, getting more and  
 more diffuse.

7845E Sun 23/24 / 1800-1830 / 7-fm / JMF, JM3 / Minerva.

First, while sitting outside with my computer on the  
 front porch writing about Mars, I saw Mars,  
 abnormally red in contrast to green computer screen.  
 So then, on the roof, CN3 0<sup>h</sup>05<sup>m</sup>W.

7846M Mon 24/25 / 0525-0540 / 7-f (full moon) / - / - / CN3 5<sup>m</sup>E.

7847E Tues 25/26 /  
 2145-2230 /  
 7-f - full moon /  
 JM4 / Miranda /



complex shape  
 hand-drawn w/ bad  
 seeing

MARS

9mm eyepiece  
 Seeing = 4,  
 periods of rather  
 bad seeing

Telescope stopped  
 to 9", slightly off-  
 axis. (A)



- 7848E Wed 26/27/ 1820-1910/9 then 7-3-f(m)/ JMB/Minerva/-/  
CN3 0<sup>h</sup>20<sup>m</sup>W. Start of new lunation.
- 7849E 27/28/ 1830-1945/ 10-7-f(m)/ JMB/Minerva/-/  
CN3 40<sup>m</sup> W with 32, mostly 16 + 28mm eyepieces.  
New 28mm Pretoria eyepiece borrowed from  
R. Buchroeder.
- 7850E M2 0120-0135/ 7-f/SMF+ven / Ophelia / / Mars, Moon.
- 7851E M3 0310-0315/ 7-fm / Houghton N of Sarnac / / -/  
Very bright, MV = -1, Orionid in SE at 0312.
- 7852E 28/29, Fri / 1900-2040 / 3-f / JMB 3, 4 / Minerva, Miranda /  
CN3 1<sup>h</sup>W.
- 7853E 29/30, Sat / 1850-0000 / 3-f (light to moderate views,  
heavy in NE / Sabino Canyon parking lot / Minerva  
and several other telescopes, especially Gary  
Bivin's 10" with fine mirror from Enterprise Optical - TAA  
Mars party - Gary Bivin, Michael Magge,  
Terri Lappen, at Larry Dunlap, others / -  
sparse crowd, probably 100 throughout  
night, but good representation by of  
by children. Seeing 7-8 despite clouds, so  
we had good views of Mars + Jupiter (shadow  
of moon.)



\*7854E 30/31/Sunday/1830-2310/10-f+then7/5M4/  
Miranda-1 CN3 4<sup>h</sup>10<sup>m</sup>W. Listened to  
2nd 2/3 of War of the Worlds, which was  
being rebroadcast tonight on the <sup>its</sup> 50<sup>th</sup>  
anniversary. Original Wells version.

7855M2 0250-0340/7-F(m)/5M4/Miranda-1/CN3  
0<sup>h</sup>45<sup>m</sup>45<sup>s</sup>. Listened to first half of Orson Wells  
+ War of the Worlds - being re-rebroadcast  
on same station KNX in LA. Apparently there  
was a riot in Portugal! Comet Nelson not  
confirmed, probably a ghost of Sirius.

7856EM<sup>3</sup>/Nov 1, Monday/1820-0300/10-3-f/5M4/Kitt Peak -  
Gary's house with the beautiful western horizon/  
Miranda-1-Gary Rosenbaum / CN3 4<sup>h</sup>30<sup>m</sup>W  
followed by looking at printed photos of  
300m f/2.8 lens subjects. Possibility for CN3F.

7857E 1/2, Tues/1830-2000/3-2-f/5M4/  
Miranda-1 CN3 0<sup>h</sup>45<sup>m</sup>W.

7858M2<sup>F</sup> 2330-0100/3-f/5M4/Miranda-1/  
CN3 0<sup>h</sup>35<sup>m</sup>W.

7859EM 2/3, Wed/1830-0330/10-f-7-fm/5M4 plus S. var. 1K/  
Miranda-1/CN3 4<sup>h</sup>45<sup>m</sup>W, N. One nice  
suspect that is a galaxy.



7860EM 3/4, Thurs / 1830-0300 / 10-F / 5M4 / Miranda / - /  
CN3 4<sup>h</sup>30<sup>m</sup>W, N. Nice Night. -4  
fireball at 0204, other flashes & bright  
meteors. (S Taurids, 2 nights past maximum).  
bright zod. band + Gegenschein betw. Jupiter + Mars.

7861.E 4/5, Fri / 1945-2000 / 10-F / Johnson Road / Minerva /  
Peter Collins / Peter used 10x50 binoculars  
to search for Nova + do RFSs.

I did CN3 0<sup>h</sup>45<sup>m</sup>W.

- RAB 9.9 at 1920 MST.

Saw zodiacal band + Gegenschein.

7862E 4/5/6, Sat / 2245-2345 / 10-F / about 15 miles West of  
Deming / - Minerva + 10x50 b / Peter Collins /  
CN3 0<sup>h</sup>35<sup>m</sup>N.

- SS Cyg 11.9 at 2330 MST.

With the binoculars we saw a pencil-  
thin dark nebula N of M39, a bit E too.

7863S 5/6 / 1420-1450 / 7-F / Socorro, NM / Minerva /  
Peter Collins, Bob Evans

Best wishes, and keep them coming -  
- Bob Evans.

7884E2 1855-1930 / 3-F / between Silver City +  
 Lordsburg, along SR 90 near Continental  
Divide, in a roadside wash / Minerva /  
10x50 b / CN3 0<sup>h</sup>20<sup>m</sup>W. Peter did  
Nova Search in Sgs Oph Ser



## P/Halley Phase 12

<sup>7865</sup>  
7686M3

5/6/9/2330-0030/10-3-F/5M4, 5MB/  
Miranda - 1 CN3 0<sup>h</sup>25<sup>m</sup>E

<sup>86</sup>  
7688AN

6/7/1830-0630/10-F/Mt Bigelow / 61" + Mirasat  
10x5061 Steve Larson, David Peterson, Peter  
Collins / CCD imagery of 8q Shoemaker-Holt, 8e  
Levy, 86L Wilson, 86 III Halley, and Chiron,  
and 3690 Larson, and 3766 Junepatterson.  
Visually, we saw Jupiter and ... some bright Taurids.  
CN3 0<sup>h</sup>30<sup>m</sup>N, one suspect.

<sup>867</sup>  
7687AN

7/8/1830-0530 / 3-0-1-f / Mt Bigelow / 61" plus  
Mirasat Steve, David, Peter / CCD imagery of  
3766 Junepatterson after clouds + fog cleared  
+ humidity went down briefly  
Also 1989g Shoemaker-Holt at 04:35 UT but seeing  
not too good.

7888EM

8/9/2000-0555/10-F-1/5M4, 5MB/ Pegasus,  
Miranda, Mirasat / Peter Collins - 1 CN3  
3<sup>h</sup>20<sup>m</sup>E. Sky was good but a bit murky near  
S. N. horizon. Several bright Taurids.

Pete J. Collins - think of this house as a  
special astronomical residence, with its star-like ambience  
of talk + starlight. It should not be lightly forsaken



7869AN 9/10, wed / 1830-0600 / 10-3-F / JM4 + short walk /  
Miranda / - / CN3 6<sup>h</sup> 15<sup>m</sup> W, E. Mostly E.  
Clear all night, except for humidity / haze  
around 3 & clouds around dawn. Nice night.

7870E 10/11, Thu / 2040-0215 / 9-~~3~~ 3 (some by + d) -F /  
JM4 / CN3 0<sup>h</sup> 05<sup>m</sup> E. Tripped over a chair  
going to set up. It hurt!

7871E2 2230-2315 ~ / 7-F / U of A / walk.

7872M3 0400-0535 13-2-F / JM4 / Miranda / - /  
CN3 - 1<sup>h</sup> 45<sup>m</sup> + E. NGC 3242 is a very  
bright greenish planetary near MU Hydrae.

7873E 11/12 / 2000-2030 / 7-F / Flandrau Planetarium / 16" +  
Surveyor / Ewen Whittaker / Mars.

7874AN 12/13, Sat / 1830-0600 / 10-F / Empire Ranch, JM4, JM3 /  
Minerva, Miranda, then Minerva again / CN3  
7<sup>h</sup> 00<sup>m</sup> W, N, E. Stephan's Quintet with another scope  
TAAA star party.

7875EM 13/14 / 1830-0100 / 10-F / JM3, 4 / Minerva, Miranda / - /  
CN3, W, E.

7876M2 080-0600 / 10-F / JM3 / Minerva 1-1 / East sweep,  
CN3. Total this night = 4<sup>h</sup> 40<sup>m</sup>.

7877MEP 14/15 / 1930-1935 / 3-F / Light bulb, thick dust, wind / JM.B

7878M2 0300-0430 / 10-F / JM4 / Miranda / - heavy rain came,  
then this! CN3 1 hour E.



- 7879M Tues 15/16/0510-0605/10-F/3M3/Miranda/-/CN3  
0<sup>h</sup>35<sup>m</sup>SE. Corvus + ven. Cold morning, calm. Temp ~38F.
- 1880S 14<sup>h</sup>17/15/16/01310-1330/10-F/3MB/Ophelia/-/SST  
11 groups, at least 83 spots.
- 1881M2 0245-0600/10-3-F/3M4, 3MB/Miranda/-/CN3  
2<sup>h</sup>15<sup>m</sup>N, SE.  
Leonids. And cirrus! Alain Puth
- 7882 MP 17/18/0240-0250/9-F/3MB/-/1-1 phone call from Alain.
- 7883 M2 17/18/0315-0550/10-F (clouds in N at end) - Miranda/  
Alain better / CN3 1<sup>h</sup>30<sup>m</sup>E.  
More Leonid watching. Suspicious of a shower in CMa or nearby.  
(probably early Monocerotids)
- 1884 E 18/19/01905-0000/3-F/Dean Ketelsen's house/  
Ophelia + other telescopes / Dean, Terri Lappin,  
Dick Buckroeder, Bob Croff, others, Mars,  
Jupiter, moon.
- 7885M2 0300-0440/10-F/3M4/Miranda/-/CN3  
1<sup>h</sup>10<sup>m</sup>EN.
- 7886M3 0530-0550/10-F/3M3/Perelope/-/CN5, CN3  
0<sup>h</sup>05<sup>m</sup>E.
- 7887 E 19/20 1850-1915/3-fm/3M4/Miranda/-/CN3 0<sup>h</sup>15<sup>m</sup>E.
- 7888 M2 0430-0540/3-(but better)-F/3M4/Miranda/-/CN3  
1 suspect. 0<sup>h</sup>40<sup>m</sup>E.
- 7889M 20/21 0500-0600/10-F/3M4/Miranda/-/CN3 0<sup>h</sup>35<sup>m</sup>E.  
still 1 suspect.



7890M 21/22, Mon / 0535-0600 / 7-Fm (moon low in W, Twilight in E) /  
3M4 / Miranda - 1 CN3 0<sup>h</sup>05<sup>m</sup>E. Difficult.  
Managed successfully to confirm suspect from last  
night as a faint, but non-moving, galaxy.  
Cloud thins as the lunation.

Full moon - cloudy

then...

7891E 27/28 / Sun / 1750-2050 / 10-F / windy + cold / - Minerva /  
CN3 2<sup>h</sup>35<sup>m</sup>W, 3M43.

7892E 28/29 / 1815-2240 / 10-F / 3M4 / Miranda - 1 CN3  
3<sup>h</sup>15<sup>m</sup>W.

7893E 29/30 / 1830-0000 / 10-F / 3M4 / Miranda - /  
CN3 4<sup>h</sup>W.

7894E 30/1 / 1830-0100 / 10-F, windy / 3M4, Southwalk /  
Miranda / CN3 4<sup>h</sup>W. Talk over phone  
with Debbie Smith over the phone, one suspect.

7895E DEC 1/2 / 1835-0040 / 10-F - very windy /  
3M3, 3M4 / Minerva, Miranda - /  
CN3 4<sup>h</sup>W, E, NW.

7896E 3/4, Sat / 1730-1915 / 8-F / ~~3M~~ Alden Tombaugh's  
house / - Minerva - Clyde Tombaugh  
CN3 1<sup>h</sup>SW.

A fine 6-inch telescope for comet  
hunting. I love it. Clyde W. Tombaugh



7897E2 2005-2035/8-6-F/ Et Clyde's house / 16"  
-16A-MARS, Seeing about 5, dropping to 4.  
Planet wide dust storm on Mars. Syrtis Major  
vaguely visible, Scap even less distinct.  
This is the worst dust storm that I have  
seen during this opposition. Maria  
are of extremely low contrast.  
- Clyde W. Tombaugh <sup>OT</sup> Dec 1988

7898 E 4/5, Sunday / 1830-1900 / Walter Haas's house /  
Spica- / Mars, Jupiter, M31, M45.  
Walter H. Haas - It's been fun, David. Come  
again when the seeing is 8 to 9!

7899E2 1930-2000 / 8-9-F / W of Lac Grucas / Minerva / - /  
CN3 0<sup>m</sup>15<sup>m</sup>W.

7900M 5/6, Mon / 0540-0610 / 10-F / JM3 / Minerva / - / CN3  
0<sup>m</sup>20<sup>m</sup>E.

7901M 6/7 Tues / 0525-0600 / ~~10-3~~ 3-F / JM4 / Miranda / - /  
CN3 0<sup>m</sup>30<sup>m</sup>E - after clearing - it had been ~~cloudy~~  
cloudy all night!

7902 M 7/8 / Wed / 0300-0415 / 2-F / South walk. Sky improved  
somewhat at very end. 1 possible Geminid.

7903M2 0520-0600 / 10-3-F / JM4 / Yes - cleared fast!  
Storm predicted later today. 1 Miranda / - /  
CN3 0<sup>m</sup>30<sup>m</sup>E.



7904AM 10/11/1800-0630 int/10-f/ ~~Dean Dean~~ ~~Miranda~~ -TAAA  
 Miranda/TAAA / EW then  
 SM4 with Miranda / Mars with 12" belonging to  
 Dean Ketelsen.  
 Total CN3 4h 20m W, E.

\*7905E 11/12/1800-2300 / 10-f / Schmidt / Dean Ketelsen,  
 Betsy Greene.  
 UT Date Plate# Hyp UT start object Exp Focus Filter Film C

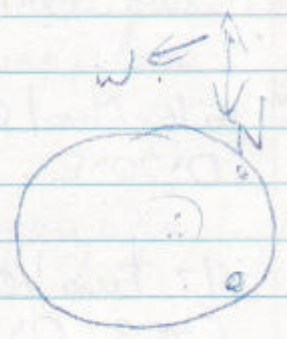
12 1 3h Focus

- .445 ✓
- .449 ✓
- .446 ✓
- .458 ✓
- .450 ✓ ←
- .452 ✓
- .454 ✓
- .456 ✓
- .458 ✓ ← double exposure
- .460 ✓

DAVID ENTERS THE CHALLENGING  
 WORLD OF ASTROPHOTOGRAPHY!  
 AND AWAY HE GOES.....

best guess

Steve Larson wrote this!



3:51.4 20m  
 Plate #2 Hyp 6" start 2351.4 Exp=20m Fil=none 4415 hyp 6"  
 Area around  $\gamma$  Geminaum,



7906M2 ~~0300~~ 0130-0300 / 10-F / JM4+ South / - / Geminids.  
only 23 Geminids, 1 sporadic, in the whole hour!

7907AN Dec 12/13 / 1730-0730 / 10-F / Mt Bigelow /  
Schmidt, 61" / Steve Larson, Gene + Carolyn  
Shoemaker, Dave Patterson / Comets: Shoemaker-Holt,  
Levy 88e, 1988 Ge-Wang, Wilson, Halley field.

### Visual obs of Ge-Wang

0730 1988 12 13.31  $\delta$  M1 = 14.8. Coma 0.2'  
Gene + Carolyn did fields of 1988XB + Ge-Wang.  $DC=6$

Carolyn Shoemaker: This has been  
a humorous learning experience - fun.  
With more to come! A real pleasure  
to observe some with David Levy.

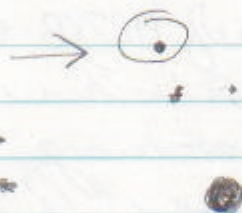
Here's to the start of a significant  
program on the 16-inch Schmidt  
Gene Shoemaker

Obs'd field containing 3766 June Patterson. Seeing,  
(and own poor vision) precluded specific ID of  
obj. In my heart I know I saw the image  
I was looking for.

Dave Patterson



\*7908AN Dec 13/14 1988/1800-0630/10-F/Mt Bigelow 161",  
Schmidt/Steve Larson, David Patterson, Gene +  
Carolyn Shoemaker, Dean Ketelsen, others)  
G+C took films (I guided a bit) of 'some asteroid  
fields, so did Steve. Comet SH-A 1987, Levy  
field 1988e, 1988VR4, 1988VN4.88XB P/Halley fields.  
Asteroid 3766 Junepatterson



I SAW HER!! I SAW HER! I SAW 3766 Junepatterson.  
Thank you David, thank you. Your patience (and  
that of Steve's) has resulted in my being able to visit  
with my loved one for a short but poignant moment. One  
that will remain sharply etched for the rest of my days.  
In future no seeing will surpass or even equal that  
of tonight. Keep up the good work in seeking and  
finding heavenly objects — the rewards may not be  
great for you on earth but will be manifold that in  
heaven which you will know well before your  
own ascension. God Bless. Dave Patterson



7909E Wed 14/15/1945-2000/3-f/3MF/-/-Roy Stowell/  
 Gemini region - Moving Pandora to Sarnac.

7910AN Saturday, 17/18/1800-0700/7-fm 15MB, JM2,  
 Southwalk / Pandora + 200mm lens.

Start of CN3F. 2:25 UT

	Time	Exposure		show 0200
1	Castor region	30.0 <del>60.0</del>	Red Filter	Tape 41 Position
	523 18	all 30.0	↓	19, FF 20
2	Pollux	5 25 40	↓	21, 22
3	M42 bottom	5 27 41	↓	23, 24
4	M42 top	5 29 07		25, 26
5	M42 nice, but slightly distorted	5 30 42		27 28
6	M42	5 32 35		29 30
7	M42, better	5 34 17		31 32
8	M42 region	5 36 15		33 34
9	M=Castor	5 40 17		35 36
10	Pollux region	5 42 18		37 38
11	Pollux region	5 46 25		39 40
12	"	5 50 31		41 42
13	M42	6 06 41	(better centering, cirrus)	43 44
14	bias	6 52 12	- -	400 composite bias 392 45
15	M42	6 53 13	BEST	46 47
16	Castor	6 57 39	NICE	48 49
17	Castor	7 02 43	BETTER	50 51
18	Pollux	7 35 46	BEST POLLUX	52 53
19	Castor	7 42 01	BEST(?) CASTOR	54 55
20	2 Fls w. castor, suspect	7 45 03		56 57
21	M44 region	7 59 24		58 59
22	M see 20 (?)	8 03 10		60 61



Obj.	Time	Exp	Comment	Tape <sup>41</sup>
23	Field 1 Leo 8 13 17	30.0	Red Filter	62 FF63
24	Field 2 Leo 8 15 28	↓	↓	61 65
25	Field 3 Leo 8 20 22			66 67
26	Field 4 Leo (near Field 1)	9 13 05		68 69
27	Arcturus region	12 18 38		70 71
28	Virgo Group	11 58 16		72 73
29	M 84 86 87	12 08 20		74 75
30	N Oph suspect	12 30 18		76 77
31	M 5 field	12 35 31		78 79
32	Suspect E M 5	12 58 27		80 81
33	" "	13 02 01	(sat. in field)	82 83
34	M 5	13 08 54	nice	84 85
35	Bright twt.	13 17 39 <del>5 sec</del>	(1/5 sec)	86 87
36	232853	1	Comp. 32 stab 5259	88

Add exactly 1 hr to all times on tape.  
Equivalent search time: 1<sup>h</sup> 30<sup>m</sup>.

Start of CN3G 09.35 UT  
Search of  $\alpha$  Gem film taken last Sunday, of  $\alpha$  7905 E  
Search Time = 0.5 h

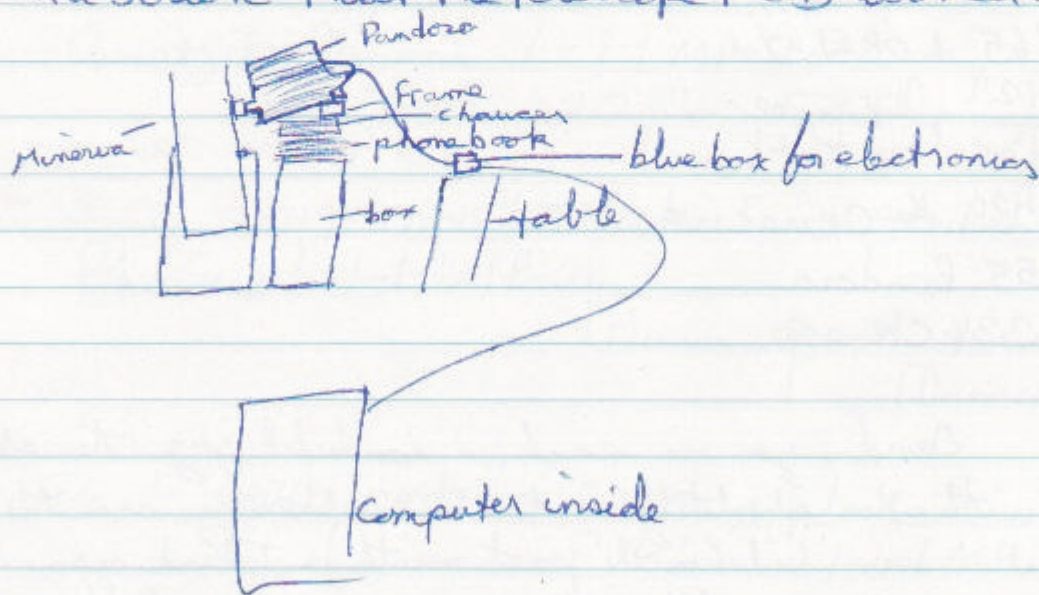
\* 7911M Sunday Dec 18/19/ 0300-0545 13-F/5MB/Minerva  
& Pandora CCD attached. I managed to attach the  
two by following this procedure:  
1) Pointed Minerva on Blazis  
2) Mounted CCD on its small storage box,  
on top of which was a thick phone book and a  
Chaucer anthology of proper thickness  
and a plastic picture frame to underneath for  
side to provide proper angle.



3) Then CCD rested against eyepiece focuser until proper match + balance was achieved. When system was in balance, I then took these test images:

No.	Subject	Time	Exp	Tape 4/
1.	field near blaris LUMi	10 43 30	field near blaris; 10,0	89, FF90.
2.	LUMi	10 58 10	10	91, 92.
3.	LUMi	10 58 59	30,0	93, 94.
4.	LUMi	11 00 23	60,0	95, 96.

This can be used to determine magnitude limits. Then I achieved flat fields through a light on a screen that the telescope + CCD looked at.



The setup looks unwieldy but the CCD rested nicely against the telescope + somehow the focus wasn't too bad.

Later, 5M3:

Minerva CN3 0<sup>h</sup> 30<sup>m</sup> E.



7912SM Monday 19/20/0530-0615/3-F/JMB/~~Mine~~<sup>eris</sup>|-/  
CN3 0<sup>h</sup>15<sup>m</sup> ~~W~~E

7913M 20/21/0500-0615/3-F/JM4/Miranda|-/CN3 1<sup>h</sup>E.

7914SP 23/24/0430-0435/3-F/~~JA~~ Road to Kitt Peak/ CN5 Sun ~~Ken~~

7915AM2 1800-0700 13-F / ~~JA~~ KPNO/<sup>Minerva</sup>2-36/Michael  
Magee / Asteroids  
CN3 0<sup>h</sup>10<sup>m</sup>W.

Asteroids for tonight.

337 DEVOSA  
165 LORELEY  
129 Antigone  
135 Leo Kothea  
439 ~~K~~ COMACINA  
55 Pandora  
334 Chicago

David, you are such a wonderful guy to observe with. You absolutely made this observing run the best I've ever had (in the past month). Thank you for helping me watch out for my asteroids!  
Michael Magee



7916E Mon Sun 25/26/2100-2200/<sup>PST</sup>3-f/Ashby MacDermott's house / E/MIDT packing. Observatory under construction.

7917E Mon 26/27/1800-2035/10<sup>9</sup>-7-f/W North boundary Angeles National Forest / -Minerva, Jensen / Steven Edberg / CN3 2<sup>n</sup> W. w/Minerva.

\*7918E Tues 27/28/1930<sup>PST</sup>-2030/3-f/Just west of Chiriaco Summit, Calif / -Minerva / - CN3 - 30<sup>m</sup> W. Start of MP 26 - 5 min. South.

7919E MST ~2220-2245<sup>r</sup>/7<sup>3</sup>-fm/Just west of Quartzite, Arizona / - / - MP-26  
20 min. South + west.

7920M3 0120-0145/7-fm/about 90 miles west of Phoenix / - / - MP-26  
20 min South + west  
| Ursid M# = 3

7921M4 0410-0435/7-fm/same place as 7771E, near rest area se of Phoenix / - / - MP 26  
15 min West  
Total Meteor time / hr. | Coma Berenicid M=3, fast.

7922E 28/29 Wed / # 1850-2300/10-F/SM4/Miranda/\* / CN3/1<sup>n</sup>45<sup>m</sup>. Very clear night. \* - Debbie + Jim (Smith) looked at M42.

7923M2 0245-0345/108-fm/SMFT southwalk / - / - MP 26.  
45 min 245-0330 | Monocerotid, blue-green, M = 2.50



7924EM 29/30/1815-0030/10-F/JM4/Miranda-1 CN3 2430mW.  
Virgil Smith, John Griese, + J

28 Dec 88 The best 16" I ever saw - and David's telescope is  
pretty impressive too! Nice clear cold night for observing -  
M-42, M-31, Mars & Crabby Nebula. Well worth a  
visit to the Cathedral in the Back Yard! Mickey Farrance  
WONDERFUL VIEWING IN TUESDAY. ENJOYED THE OPPORTUNITY  
TO VIEW SOME OF OUR UNIVERSE WITH KNOWLEDGEABLE  
GUIDES. THANK YOU! Jim Black

A spectacular evening - the 16" telescope  
and suburban Tucson skies. A great  
opportunity to view a stellar nursery.  
Bill Gance

\*7925M2 0545-0630/7-Fm (brighter than last quarter) / JM4/  
Miranda-1 / CN3 0°05' E. Confirmed Comet  
Yanaka 1988g<sub>f</sub>

0615 on 1988 12 30.5521

RA 1950.0 16<sup>h</sup> 32<sup>m</sup>. 1' + 0° 38'

Coma 2'  $TM_1 = 8.6$  DC = 6 Tail 7' in pa 290

bright moonlight

7926EM 30/31/1800-0300/10-F/JM4/JM3/JM2/Ophelia + Schmidt  
Virgil S. ~~Peter G.~~ John G., Jim S. Pictures w/ Schmidt  
1989

7927E 2/3/1800-0000/3-F/JMB/Debbie Smith, Peter Calliope  
Michael Magee, Lonny Baker, Todd Hansen, John Griese,  
Miranda



2 Jan 89  
(7529)

Toled Hansen - Thanks for a  
great look at M42, M82

" How wonderful to be back under dark, ~ clear  
Arizona skies observing the wonders of the universe.  
with you - Larry

7928E

1830-2300 ~ / 10-F / <sup>JM2</sup> JM4 / Miranda / - /  
CN3 1h 00<sup>m</sup> W. Also, pictures with Ophelia + Schm.

7929EM

Jan 7/8 (1830-0600 but long break for clouds / 3-F /  
JM4 / - Miranda / John Griesé, Debbie Smith / CN3 3<sup>h</sup> 30<sup>m</sup>  
W.E.

7930EM

January 8/9 1989 / 1800-0500 / 10-F / <sup>JM2</sup> JM3, JM4 /  
CN3 3<sup>h</sup> W, N, E. / - John Griesé / ~~CA3~~  
X Leo 0440 (14.2)

7931AM

9/10, Monday / 1800-640 / 10-F / Mt Bigelow / 6 / "4  
+ Minerva / Steve Larson, John Griesé.

Monday, Jan 9/10, 1989

Dave, I have learned much from you  
during this winter visit and I know you  
better. I feel closer to you than ever  
before and I hope that we will take  
this special friendship of ours to that  
great observatory in the sky. Love, John



P/Halley Phase 12.

Comet Helin-Roman-Crockett 1989b

Pos: drawing  
only

09:40 UT  $M_1 = 14.7$   $DC = 5$   $Comet 1'$  Tail  $4'$  in PA  
Attempt to see visually - succeeded  $10:44$  UT  $270^\circ$

Observed X Leo at 16:00 with the  
61" also attempted SW UMa - John's obs.

Visuals:  
Then, 09:55 UT, Comet Yanaka 1989a  $M_1 = 11.0$ :  
 $CD = 3'$   $DC = 6$ , condensation about  
 $1'$ . Very diffuse.

X Leo 16:00:

P/Halley top close to bright star,  
Yanaka + 88r very nice.

7932M 14/15/0240-0315/10-3-f/Calgary RASC Observatory/  
Don Hladnik / -f CN3 On 5<sup>th</sup> ME.

7933S 15/16/1030-1045/1-f/Don Hladnik's house +  
observatory:

David,

Jan. 15/89

It was a real pleasure to have spent this time  
with you here in Calgary. Wishing you clear skies,  
many more comet discoveries and good health,  
your friends, Don + Marianne Hladnik



7943E 23/24 Jan / 1830-2000 / 3-F / SM3 / Minerva / Debbie /  
CN 3 0420mW.

7944E 25/26 Jan / 1830-1850 / 3-F / near Kitt Peak /  
Minerva / Debbie / view of NGC 7793. CN 3 0405m