



April, 1999

At the April 9 meeting... NOTE: 2nd Friday of April

Jay McNeil

“Planetary Nebulae: An Amateur’s Perspective.”

Jay is a member of HAS, a veteran of numerous observing sessions, and author of the recent article in *Sky & Telescope* (Jan./1999) on observing planetary nebulae.

Houston Astronomical Society

GuideStar

Starline - 281-568-9340

Houston Astronomical Society presents *Starline* -- a recorded message of Society events and astronomical happenings. This service is updated regularly, so call often to keep up-to-date on Society functions, new comets and more.

H.A.S. Web Page: <http://spacsun.rice.edu/~has>

Schedule Changes & Up-To-Date Information

See the GuideStar's Monthly Calendar of Events to confirm dates and times of all events for the month, and call Starline for any last minute changes.

Observatory Site Telephone: 409-732-8967

★★★★★ **The Houston Astronomical Society** ★★★★★★

The Houston Astronomical Society is a non-profit corporation organized under section 501 (C) 3 of the Internal Revenue Code. The Society was formed for education and scientific purposes. All contributions and gifts are deductible for federal income tax purposes. General membership meetings are open to the public and attendance is encouraged.

★★★★★ **Officers and past president** ★★★★★★

President: Don Pearce H: 713-432-0734	Treasurer: Bill Flanagan H: (713) 699-8819
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Jay Levy 281-992-2708	Liaison responsibility
Bill Leach 713-863-8335	Field Trip and Observing, Program
Bill Molinare 713-664-3261	Observatory, Welcoming
Bill Pellerin 713-880-8061	Education, Telescope
Barbara Wilson 281-933-1289	Audit, Publicity (shared)
Mike Dye 281-498-1703	Novice, Publicity (shared)
	Observatory Director

★★★★★ **Committee Chairpersons** ★★★★★★

Audit Orv Wiens 281-391-2995	Program Scott Mitchell 713-461-3020
Education Bill Leach 713-863-8335	Publicity Michael Cubstead 713-307-0270
Field Tr./Obsg. Kenneth Drake 281-367-1592	Telescope Clayton Jeter 281-383-1337
Novice Sancho/Spore 281-379-4726	Welcoming Marg Nunez 713-529-2549
Observatory Michael Dye 281-498-1703	

★★★★★ **Ad-Hoc Committee Chairpersons** ★★★★★★

Historian Leland Dolan 713-529-0403	Publ. Star Party Marg Nunez 713-529-2549
Librarian Peggy Gilchrist 281-558-1190	Rice U. Coord. Matt Delevoryas 713-795-0808
Logo Mds Sales Judy Dye 281-498-1703	Schedule Obs'v'ty Steve Goldberg 713-721-5077
Long Range Plan Don Pearce 713-432-0734	Texas Star Pty Steve Goldberg 713-721-5077
Parliamentarian Kirk Kendrick 281-391-3834	

★★★★★ **Special Interest Groups & Help Committees** ★★★★★★

These are now listed on the inside of GuideStar (not every month). See the Table of Contents

★★★★★ **Advisors** ★★★★★★

Dr. Reginald DuFour, Rice Univ.	Dr. Lawrence Pinsky, U. of H.
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★★★★★ **Dues and Membership Information** ★★★★★★

Annual Dues: Regular \$33.00	Student \$5.00
Associate \$5.00	Honorary None
Sustaining . \$50.00	

All members have the right to participate in Society functions and to use the Observatory Site. Regular and Student Members receive a subscription to *The Reflector*. Regular, Student, and Honorary Members receive *The GuideStar*. Associate Members, immediate family members of a Regular Member, have all membership rights, but do not receive publications. Sustaining members have the same rights as regular members with the additional dues treated as a donation to the Society. *Sky & Telescope* mag \$27/year, *Astronomy* mag \$29/year -- see club treasurer.

Membership Application: Send funds to address shown on outside cover of *Guidestar*. Attention - Treasurer, along with the following information: Name, Address, Phone Number, Special Interests in Astronomy, Do you own a Telescope? (If so, what kind?), and where you first heard of H.A.S.

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Call the Starline, 281-568-9340 for updates and changes

Welcome to New Members!

Roberto Brunel, Dave Clark, David Cotten, Benjaman Daniel, Ryan Daniel, Eric Daniel, Larry Daniel, Sherry Daniel, Lisa Hennigan, James Langley, Jory Pacht, Thomas Schwartz, Angela Steinle, Mark Steinle, Michael Stout Akio Yanagawa

Membership is still going! HAS membership was 410 members at the beginning of March.

Special Interest Group Listing

Any member who wants specific information on a SIG listed below may call the listed individual. Also, see the "Ad Hoc Committee Chairpersons" on the inside front cover and the "Special Help Volunteers" listing (not in every issue).

Advanced Bill Flanagan 713-699-8819
Comets Kenneth Drake 281-367-1592
Lunar & Planetary John Blubaugh 713-921-4275
Occultations & Grazes ... Wayne Hutchison 713-827-0828

The President's Message



What is astronomy? Astronomy is the science of the universe in which the stars, planets, etc. are studied, including their origins, evolution, composition, motions, relative positions, sizes, etc. (from Webster). I would simplify this by defining it as the study of "everything and everything that happens beyond the confines of the earth." Astronomy is deep sky observing, astronomy is CCD imaging, astronomy is observing comets, asteroids, planets, the Moon and other solar system objects. But note I said observing and it

can also be just the study of these things. Astronomy is astrophotography, astronomy is astrophysics, astronomy is cosmology, astronomy is astrometry, astronomy is observing(studying) double stars, variable stars, planetary nebulae, galaxies, etc. etc. Astronomy is ... well, I could go on and on, but you get the message.

The point of all of this is that, a long time ago, members of HAS recognized that under the umbrella of the Houston Astronomical Society were an extremely broad range of interests. This reality fostered the development of special interest groups (SIGs). When I first joined HAS (1984) there were several active SIGs, but in recent years most of the SIGs have declined in participation and interest. There are, perhaps, several reasons for this, most notably, as traffic problems have increased, it takes longer to go places, and combined with people having greater demands on their time, has left little "extra time" for things such as SIG participation. But the thought has occurred to me that with internet accessibility, SIG activity could be conducted online. Granted, there is already a wealth of astronomical "special interest" sites, but would it not be more meaningful to communicate with people you know? The HAS list server is the model that inspired my thoughts on this matter, and, in fact, serves as a "general purpose" SIG.

It is with sadness that I report the passing of Mike Morton, a well known Houston area amateur astronomer and member of the Fort Bend Astronomy Club. On behalf of the Houston Astronomical Society I want to express our condolences to Tracy and his family. Mike will be missed.

Clear skies and le croissant lunaire

Don Pearce

Houston Astronomical Society

Meeting Notice

For Friday, April 9, 1999

NOTE: 2nd Friday of the Month

Jay McNeil

“Planetary Nebulae: An Amateur’s Perspective.”

Jay is a member of HAS, a veteran of numerous observing sessions, and author of the recent article in Sky & Telescope (Jan./1999) on observing planetary nebulae.

Schedule of meeting activities:

Novice meeting: 7:00 p.m.

Jose Sancho and Susan Spore began a new year of novice programs in January. This year the Novice committee will work with you to complete the Messier list.

Site orientation meeting: 7:00 p.m.

General meeting: 8:00 p.m.

See the inside back cover for more information.

April/May Calendar:



<i>Date</i>	<i>Time</i>	<i>Event</i>
April		
4	2:00 a.m.	Standard Time ends, Daylight Saving Time begins -set clocks forward 1 hour
8	9:53 p.m.	Third Quarter Moon
9		HAS Club Meeting
	7:00 p.m.	Novice Presentation - U of H
	8:00 p.m.	General Membership Meeting - U of H
10		Prime Night-Columbus
12	7:00 p.m.	Advanced SIG Mtg.-Rice Univ., Contact Bill Flanagan, 713-699-8819
15	11:23 p.m.	New Moon
17		Members Observatory Night-Columbus
22	11:00 a.m.	Lyrid meteor shower peaks
	2:02 p.m.	First Quarter Moon
24	1:00 p.m.	Mars at opposition
30	9:54 a.m.	Full Moon
May		
7		HAS Club Meeting
	7:00 p.m.	Novice Presentation - U of H
	8:00 p.m.	General Membership Meeting - U of H
8	12:30 p.m.	Third Quarter Moon
		Members Observatory Night-Columbus
9		Texas Star Party begins - Ft. Davis
15	7:05 a.m.	New Moon
		Prime Night-Columbus
		Texas Star Party ends - Ft. Davis
18	7:00 p.m.	Advanced SIG Mtg.-Rice Univ., contact Bill Flanagan, 713-699-8819
21	11:32 p.m.	Occultation of Regulus by the Moon
22	12:25 a.m.	Reappearance of Regulus
	12:33 a.m.	First Quarter Moon
30	1:40 a.m.	Full Moon

Send calendar events to JBlubaugh@aol.com or call 713-921-4275.

The Comets of April

by *Kenneth Drake*

Currently (March 8) there are about 13 comets being watched over by amateur observers worldwide. It appears that only three may be visible in 4 to 8 inch class instruments. I am fairly sure that Matt will go out and observe 52P/Harrington-Abell (currently 12th magnitude and fading) with his 8" SCT just to prove me wrong! I am providing ephemerides below for your enjoyment. These are generated by MegaStar ver. 4.0.26 using elements from the IAU. Point to:

<http://cfa-www.harvard.edu/cfa/ps/Ephemerides/Comets/SoftwareComets.html>

Comet Jäger P/1998 U3 is moving southeast through Gemini at about half a degree per day. It is predicted to slowly fade as it moves farther from both the Sun and Earth. It is an evening object, setting after midnight, with the moon interfering after the 16th.

Jäger P/1998 U3

	Local Time	U.T.	RA	Dec	Mag	E.D.	S.D.	E
1999 Apr 6	0:00	Apr 6 5:00	07 11 10.8	+17 59 40	11.2	1.8853	2.1494	91
1999 Apr 7	0:00	Apr 7 5:00	07 12 41.4	+17 49 39	11.2	1.8970	2.1505	90
1999 Apr 8	0:00	Apr 8 5:00	07 14 12.8	+17 39 41	11.2	1.9086	2.1517	90
1999 Apr 9	0:00	Apr 9 5:00	07 15 44.9	+17 29 43	11.2	1.9203	2.1529	89
1999 Apr 10	0:00	Apr 10 5:00	07 17 17.7	+17 19 46	11.3	1.9320	2.1542	89
1999 Apr 11	0:00	Apr 11 5:00	07 18 51.1	+17 09 49	11.3	1.9438	2.1555	88
1999 Apr 12	0:00	Apr 12 5:00	07 20 25.2	+16 59 54	11.3	1.9556	2.1569	87
1999 Apr 13	0:00	Apr 13 5:00	07 21 59.9	+16 49 59	11.3	1.9674	2.1583	87
1999 Apr 14	0:00	Apr 14 5:00	07 23 35.2	+16 40 04	11.3	1.9793	2.1597	86
1999 Apr 15	0:00	Apr 15 5:00	07 25 11.2	+16 30 10	11.3	1.9912	2.1612	86
1999 Apr 16	0:00	Apr 16 5:00	07 26 47.6	+16 20 16	11.4	2.0031	2.1627	85
1999 Apr 17	0:00	Apr 17 5:00	07 28 24.7	+16 10 21	11.4	2.0151	2.1642	85
1999 Apr 18	0:00	Apr 18 5:00	07 30 2.3	+16 00 27	11.4	2.0270	2.1658	84
1999 Apr 19	0:00	Apr 19 5:00	07 31 40.4	+15 50 33	11.4	2.0390	2.1675	83
1999 Apr 20	0:00	Apr 20 5:00	07 33 19.0	+15 40 39	11.4	2.0511	2.1691	83
1999 Apr 21	0:00	Apr 21 5:00	07 34 58.1	+15 30 44	11.4	2.0631	2.1708	82
1999 Apr 22	0:00	Apr 22 5:00	07 36 37.7	+15 20 49	11.5	2.0752	2.1726	82
1999 Apr 23	0:00	Apr 23 5:00	07 38 17.7	+15 10 53	11.5	2.0872	2.1744	81
1999 Apr 24	0:00	Apr 24 5:00	07 39 58.1	+15 00 56	11.5	2.0993	2.1762	81
1999 Apr 25	0:00	Apr 25 5:00	07 41 39.0	+14 50 59	11.5	2.1115	2.1781	80

Comet LINEAR C/1998 M5 is moving south at nearly a degree per day leaving Camelopardalis, edging through Ursa Major and entering the star poor Lynx. Star poor but galaxy rich. On the evening of April 17 I plan on watching the 10th magnitude comet glide by just 8 minutes east of the 12th magnitude galaxy NGC 2549. Fortunately, this happens about

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the same time the comet transits. Near 8:00pm. A two day old crescent moon should pose minimal problems. Increasing distance will cause comet LINEAR C/1998 M5 to slowly fade in brightness. Remember that comets are dynamic in nature and many times magnitude predictions are just plain wrong! Two good web pages to look at other amateur observations are <http://encke.jpl.nasa.gov/RecentObs.html>, by Charles Morris and ICQ/CBAT/MPC: Recent Comet Magnitudes at <http://cfa-www.harvard.edu/cfa/ps/icq/CometMags.html>.

LINEAR C/1998 M5

Local Time	U.T.	RA	Dec	Mag	E.D.	S.D.	E
1999 Apr 6 0:00	Apr 6 5:00	08 08 35.0	+68 04 54	10.1	1.6883	1.9708	91
1999 Apr 7 0:00	Apr 7 5:00	08 09 34.4	+67 09 13	10.1	1.7003	1.9767	90
1999 Apr 8 0:00	Apr 8 5:00	08 10 33.5	+66 14 08	10.1	1.7126	1.9827	90
1999 Apr 9 0:00	Apr 9 5:00	08 11 32.3	+65 19 40	10.2	1.7253	1.9887	90
1999 Apr 10 0:00	Apr 10 5:00	08 12 30.9	+64 25 51	10.2	1.7384	1.9948	89
1999 Apr 11 0:00	Apr 11 5:00	08 13 29.4	+63 32 40	10.2	1.7519	2.0010	89
1999 Apr 12 0:00	Apr 12 5:00	08 14 27.7	+62 40 08	10.3	1.7656	2.0072	88
1999 Apr 13 0:00	Apr 13 5:00	08 15 25.9	+61 48 15	10.3	1.7798	2.0134	88
1999 Apr 14 0:00	Apr 14 5:00	08 16 24.0	+60 57 03	10.3	1.7942	2.0197	88
1999 Apr 15 0:00	Apr 15 5:00	08 17 22.0	+60 06 32	10.4	1.8090	2.0261	87
1999 Apr 16 0:00	Apr 16 5:00	08 18 19.9	+59 16 41	10.4	1.8241	2.0325	87
1999 Apr 17 0:00	Apr 17 5:00	08 19 17.8	+58 27 31	10.4	1.8396	2.0389	86
1999 Apr 18 0:00	Apr 18 5:00	08 20 15.6	+57 39 02	10.4	1.8553	2.0454	86
1999 Apr 19 0:00	Apr 19 5:00	08 21 13.4	+56 51 14	10.5	1.8713	2.0520	85
1999 Apr 20 0:00	Apr 20 5:00	08 22 11.1	+56 04 07	10.5	1.8876	2.0586	85
1999 Apr 21 0:00	Apr 21 5:00	08 23 8.8	+55 17 41	10.5	1.9041	2.0653	84
1999 Apr 22 0:00	Apr 22 5:00	08 24 6.5	+54 31 56	10.6	1.9210	2.0720	84
1999 Apr 23 0:00	Apr 23 5:00	08 25 4.1	+53 46 52	10.6	1.9380	2.0787	83
1999 Apr 24 0:00	Apr 24 5:00	08 26 1.7	+53 02 27	10.6	1.9554	2.0855	83
1999 Apr 25 0:00	Apr 25 5:00	08 26 59.2	+52 18 43	10.7	1.9729	2.0924	82

Comet Williams C/1998 P1 is a good example of how predictions can be wrong! It is currently about two and a half magnitudes brighter than the predictions are showing, mag. 10.9 on March 8th. Williams is looping slowly through Auriga moving about four minutes per day. On the evening of the 19th it passes just 4 minutes west of a faint galaxy (KUG 710-413, mag.15.5).

Williams C/1998 P1

Local Time	U.T.	RA	Dec	Mag	E.D.	S.D.	E
1999 Apr 6 0:00	Apr 6 5:00	07 16 56.7	+41 39 59	13.8	2.5191	2.6973	89
1999 Apr 7 0:00	Apr 7 5:00	07 16 25.9	+41 38 06	13.9	2.5491	2.7085	88
1999 Apr 8 0:00	Apr 8 5:00	07 15 57.9	+41 36 13	13.9	2.5790	2.7197	87
1999 Apr 9 0:00	Apr 9 5:00	07 15 32.5	+41 34 18	13.9	2.6088	2.7309	86
1999 Apr 10 0:00	Apr 10 5:00	07 15 9.6	+41 32 24	14.0	2.6386	2.7421	85
1999 Apr 11 0:00	Apr 11 5:00	07 14 49.2	+41 30 29	14.0	2.6684	2.7533	84
1999 Apr 12 0:00	Apr 12 5:00	07 14 31.1	+41 28 35	14.1	2.6981	2.7645	83
1999 Apr 13 0:00	Apr 13 5:00	07 14 15.4	+41 26 41	14.1	2.7277	2.7757	82
1999 Apr 14 0:00	Apr 14 5:00	07 14 1.8	+41 24 47	14.2	2.7573	2.7869	81
1999 Apr 15 0:00	Apr 15 5:00	07 13 50.3	+41 22 55	14.2	2.7867	2.7981	80
1999 Apr 16 0:00	Apr 16 5:00	07 13 41.0	+41 21 02	14.2	2.8161	2.8092	79
1999 Apr 17 0:00	Apr 17 5:00	07 13 33.6	+41 19 11	14.3	2.8454	2.8204	78

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1999 Apr 18 0:00	Apr 18 5:00	07 13 28.1	+41 17 21 14.3	2.8747	2.8315	77
1999 Apr 19 0:00	Apr 19 5:00	07 13 24.4	+41 15 32 14.4	2.9038	2.8427	77
1999 Apr 20 0:00	Apr 20 5:00	07 13 22.6	+41 13 44 14.4	2.9328	2.8538	76
1999 Apr 21 0:00	Apr 21 5:00	07 13 22.4	+41 11 57 14.4	2.9617	2.8649	75
1999 Apr 22 0:00	Apr 22 5:00	07 13 24.0	+41 10 12 14.5	2.9905	2.8761	74
1999 Apr 23 0:00	Apr 23 5:00	07 13 27.0	+41 08 28 14.5	3.0192	2.8872	73
1999 Apr 24 0:00	Apr 24 5:00	07 13 31.7	+41 06 46 14.5	3.0477	2.8983	72
1999 Apr 25 0:00	Apr 25 5:00	07 13 37.8	+41 05 05 14.6	3.0761	2.9094	71

Note—U.T.=universal time RA=right ascension Dec=declination Mag=predicted magnitude based on data in the MPC source of the elements E.D.=Earth distance S.D.=Sun distance E=elongation in degrees from Sun. Positions are in epoch 2000. Distances are in Astronomical Units. I can be reached by e-mail at kdrako@swbell.net.

Logo Sales

I would like to thank all the members of HAS for supporting Logo Sales. If it were not for you, Logo Sales would not exist. But, an incident happened at the last meeting that should not have happened. One of the books that I had on the table was taken and not paid for. This is the first time this has happened since I have been doing logo sales. I would appreciate it if that person would send me the money in the mail. The price of the book is on the back. Tax is already added. Please make out a check to HAS and mail it to my address: 12352 Newbrook, Houston TX 77072-3910. If there are any questions, please feel free to call me at 281-498-1703. I will return a call if I am not home. Thank you. Judy Ann Dye

∞ Want Ads ∞

For Sale

Celestron “Starhopper” 6" f/8 Dobsonian Reflecting telescope. Includes: Telrad mount, 25mm. SMA. Celestron eyepiece, Celestron's user friendly “Dove-tail” tube balancing system, collimating tool, and instruction booklet. The primary mirror has been center dotted and the optics are superb. Jupiter's moon's are razor sharp! Sale for: \$300. 281-383-1337

The Size of the Universe

by Steve Sartor

I've always marveled at the night sky and have often wondered how far it was to whatever it was that was out there. "Light years" have always been a popular way of measuring distances. Four light years to the nearest star, one hundred thousand light years across the Milky Way Galaxy, eighteen billion light years to the edge of the visible universe. But these are and have always been useless numbers because they just don't mean anything other than it's a long, long, very long way.

So I started looking for more comparisons. I found a very good comparison at "Ask the Astronomer" by Dr Sten Odenwald (odenwald@bolero.gsfc.nasa.gov) who compared the Milky Way Galaxy as a 3" coffee cup to the edge of the known visible universe some 30 miles away. I now had a comparison: 3 inches vs. 30 miles. Although I could understand a comparison of 3 inches vs. 30 miles, I could not comprehend exactly how big those 3 inches really were.

So I went to my first piece of software on the cosmos called "Astronomy" (a very original title) and attacked this from a different angle. I found out that there were about 200 billion stars in the Milky Way Galaxy, and as such, took a big leap back to ground zero. 200 billion was meaningless. But the information continued. A grain of salt is about 1/100 inch in diameter, or about 1/1,000,000 cubic inch, or you might say that there are about 57 million grains in a box of table salt. This meant that it would only take about 3,500 boxes of salt to contain 200 billion grains. Hmm, that's 5,687 pounds of salt, or 114 (50-pound) sacks. 200,000,000,000 is a very big number.

But now I had some comparisons. I had a grain of salt, (I had a lot of grains of salt), I had a 3" diameter coffee cup and I had a distance of thirty miles. Now what to do with what I had. After working with this a while, I found that the smallest object that I could compare each grain

Continued...

The Size of the Universe.. from previous page

of salt to was the distance from the Earth to the Sun. One solar unit (AU) or about 8 light minutes. I was on my way.

Now that I had one AU down as the diameter of a grain of salt, or about $1/100^{\text{th}}$ of an inch, I was able to calculate the closest star (or another grain of salt) as being only 219 feet from my original grain of salt. Not bad, that's something around 55 feet per light year. Now I had a comparison and all I had to do was to carry it out to its conclusion.

One solar unit = eight light minutes = one grain of salt = about $1/100^{\text{th}}$ of an inch

One light year = 55 feet

Distance to the nearest star = 219 feet

But again, this is where I lose my comprehension of dimensions. The diameter of the galaxy now figures out to about 1042 miles. (And this is where one AU was equal to the diameter of a grain of salt). That's the distance from North Houston, Texas to South Cleveland, Ohio. So now my distance to the edge of the visible universe is over 187,000,000 real miles away from our original grain of salt. The planet Mars is closer to the sun than that.

No, I'm giving up, I'm just conceding that the size of the visible universe is far larger than I can comprehend. The size of the Milky Way Galaxy is equally as large. Even the distance between the Earth and the Sun are hard to imagine, and THAT distance is no larger than a grain of salt.

Note: The above article was written in an attempt to get an understanding of the size of the cosmos, it was not written for the entertainment of those who might attack my simple Newtonian logic. Also, all measurements used were rounded off, so I may be off a few million light years here and there. So what! Sue me.

Announcing a new group to help with Light Pollution!

Effective Outdoor Lighting Council of Texas (EOLC)

Many of you probably remember efforts in 1995 and 1997 to enact “dark sky” legislation in Texas. Part of the reason why those previous efforts failed to produce meaningful laws was a lack of statewide organization and coordination of efforts.

We are committed to changing this in 1999! It’s time for Texas to join the other progressive states who recognize the benefits of effective outdoor lighting practices. House Bill 916 is where we will start.

The Effective Outdoor Lighting Council of Texas (EOLC) was formed in Austin in May 1998, to provide a focus for statewide public education and advocacy efforts to this end, especially during the 1999 Texas legislative session.

EOLC is a nonprofit group, but it has not been organized as a 501(c)(3) group and thus is not subject to lobbying constraints that are placed on 501(c)(3) groups by the IRS. Also being located in Austin, we are well-positioned to most easily encourage and track the progress of pending legislation.

Our charter is to coordinate the “dark sky” public education and legislative efforts of individuals and organizations throughout Texas, to develop and present a large, well-organized, and unified front.

We want to act as an information clearinghouse, providing a means for all interested parties to communicate with each other and to exchange ideas, and providing a means for rapidly disseminating time-critical information, as legislative events unfold. We will also act as a conduit for communicating with legislators and the public in ways that 501(c)(3) organizations are best advised to avoid, unless expert tax-law counsel is readily available.

Continued...

Effective Outdoor Lighting...

from previous page

Our goal is to communicate a complete, compelling message regarding effective outdoor lighting as the means to save energy, save taxpayer money, enhance public safety, and preserve our nighttime skies — and to encourage adoption of these concepts as prudent public policy for Texas.

For the latest information, please visit our website at: <http://www.fc.net/~eolc/> This site could be important for linking Texans together who share our agenda. We plan to provide up-to-the-minute legislative progress reports on our web site.

Visit our site and post your “public” message of support, volunteer your time, discuss existing problems with Texas state-owned lighting, and share dialog with other interested Texans!

Or SIGN UP to be included on our E-MAIL LIST for important broadcast messages on this topic.

Please pass our message to other interested Texans, especially your local astronomy club!

Thanks for listening!

Effective Outdoor Lighting Council of Texas (EOLC)

Dave Clark
Valerie Clark
Rick Kirchhof
Mike McCants
John Peterson (El Paso)
Keith Shank (Dallas)
Ruben Solis
Barbara Wilson (Houston)

E:mail: eolc@fc.net Website: www.fc.net/~eolc/

Comet 52P/Harrington-Abell

by Matt Delevoryas

Following is an ephemeris for Comet 52P/Harrington-Abell, continuing the ephemeris in the last *GuideStar*, brought to you by the folks at Starline, with information provided by the IAU Circulars Committee. Do not believe the magnitudes listed. The comet has spent months nearly ten magnitudes brighter than these predictions, which are based on its normal behavior. Check Starline (281-568-9340) for information about its current magnitude. During the ephemeris, it is overhead early during the night, leaving Gemini for Cancer on the 2nd. Do not confuse it with any of the galaxies in the rich IC object field through which it passes during the middle and end of April. The elements are from MPC 27081, and the magnitude is from the 1990 Comet Handbook (which is also the magnitude still used in MPC 31882). For elements, contact the Committee. For additional ephemerides, please contact Kenneth Drake, the Chairman of the HAS Comet SIG. The columns C-E and C-S give the comet-Earth and comet-Sun distances in a.u., and each line is for 0^h UTC.

Date	Julian	J2000.0			B1950.0			Mag	C-E	C-S
		RA	Dec	RA	Dec					
mm dd	Date	h m	deg mi	h m	deg mi					
Mar 28	2451265.5	7 52.6	+23 48	7 49.6	+23 56	18.0	1.26	1.84		
Apr 2	2451270.5	8 00.6	+22 45	7 57.6	+22 53	18.1	1.32	1.86		
Apr 7	2451275.5	8 08.9	+21 42	8 06.0	+21 51	18.3	1.38	1.87		
Apr 12	2451280.5	8 17.5	+20 39	8 14.6	+20 48	18.4	1.43	1.89		
Apr 17	2451285.5	8 26.2	+19 37	8 23.3	+19 47	18.6	1.50	1.91		
Apr 22	2451290.5	8 35.1	+18 35	8 32.2	+18 45	18.7	1.56	1.93		
Apr 27	2451295.5	8 44.1	+17 32	8 41.2	+17 43	18.9	1.62	1.95		
May 2	2451300.5	8 53.1	+16 30	8 50.3	+16 42	19.0	1.69	1.97		

Request for Information

by Bill Leach

As the education chairman for HAS, I am in search of an expert on radio astronomy. An amateur radio club in the Kingwood area would like a speaker for one of their early Saturday morning meetings to talk about unusual signals in the radio band. For example, they heard the crash of SL-9 on Jupiter. If you are knowledgeable in this field or if you know someone that is, then please let me know.

A Small Light Pollution Victory

by *Bill Pellerin, GuideStar Editor*

I have a modest personal observatory in New Ulm, Texas (not too far from the club site). Some months ago, a house was moved on the property adjacent to ours and a standard street light fixture was installed. I found out that these fixtures are installed on a power pole (by the light company) at the request of the property owner, and are maintained for a monthly fee to the light company (paid by the property owner). The family living in the house were eager to work with me to deal with the light pollution caused by this fixture. Here's what I did.

I purchased a Hubbell light shield, got permission from the homeowner, and called Bluebonnet Electric Co-op (out of Brenham). They agreed to install the shield, but the workers who came to pick up the device from me didn't seem too enthusiastic about the idea. After a few weeks (without the shield being installed), I called Bluebonnet Electric. They said that it was against their policy to install user-provided devices on their equipment. Yikes! Bluebonnet returned the shield to me (I found it dropped on my front porch).

I went to see the neighbor, and he (very kindly) agreed to take the shield to Bluebonnet's offices and to insist that it be installed. That was the ticket. Within a couple of weeks it was in place. In addition, the light company installed (at my expense of \$25) a switch to turn the light off for special observing sessions when it's *really dark*.

Since I'm observing double and variable stars, light pollution isn't as big a factor for me as it is for those of you who are observing at the threshold of observability, but the darker the sky the better, of course.

Lessons learned -- If you want something like this done, you've got to keep working on it. Don't give up at the first sign of resistance. Enlist others in your activity. The more customers the light company hears from, the more likely it is that something will happen. There's a huge education opportunity out there -- folks don't understand the issues associated with 'bad' lighting.

Keep working!

Second Quarter Total Occultations

by *Matt Delevoryas*

There are three interesting occultations by the Moon during the second quarter of 1999. Here's the information for these events as seen from Houston (times are CDT):

- **April 19:** 119 Tauri (mag. 4.4) disappears behind the dark limb of the 21% illuminated waxing crescent moon after 8:33 PM 15° clockwise from the south cusp, moon 41° up, azimuth 270°. (Reappears before 8:51 PM 14° counterclockwise from south cusp, moon 37° up, azimuth 272°.)
- **May 5:** 21 Sagittarii (mag. 4.8) reappears from behind the dark limb of the 81% illuminated waning gibbous moon before 2:46 AM 67° clockwise from the north cusp, moon 31° up, azimuth 144. (Disappears before 1:23 AM 85° clockwise from south cusp, moon 18° up, azimuth 128°.) The star is a double star, 5.1 with with a magnitude 7.6 comes 1.8" away at 288° (1959). Yes, I know these magnitudes don't add up right!
- **May 21:** Alpha Tauri (Aldebaran) (mag. 1.1) disappears behind the dark limb of the 49% illuminated waxing quarter moon after 11:31 PM 54° clockwise from the south cusp, moon 32° up, azimuth 266°. (Reappears before 12:26 AM 59° counterclockwise from south cusp, moon 21° up, azimuth 272°.) (See also p. 9 of Leland Dolan's article in the January *GuideStar*.)



Did You Miss the Last Meeting?

By Bill Leach

Scott Mitchell and others are working very hard to have the very best presentations at the general meeting. The education committee is now bringing a new opportunity to the membership. If you wanted to see a program but just couldn't make it to the general meeting, then we have the solution for you. If you saw a program and liked it and would like to share it with a friend, with the family, or build a personal library, then your problems are over. The education committee is videotaping the programs. We have taped the following programs:

January 1999: Dr. Walter Kiefer – Lunar and Planetary Institute
The View from the Space Telescope: The Solar System and Beyond

February 1999: Chris Mendell – The Boeing Corporation
Long Baseline Optical Interferometry in the Search for Terrestrial Extra-Solar Planets

March 1999: Hernan Contreras
Astronomical Oddities: A Review of Astronomical Theories of the 17th, 18th and 19th century, and Their Common Misconceptions

As our collection grows the list will grow. We will keep the last 12 programs on the list and available to members.

The Deal: We exchange a blank tape from you for a recorded tape with the programs you want. You need to order them in advance. Methods of ordering include personal requests, telephone orders, internet orders or mail orders. Tapes will be brought to the general meeting. I need to know what programs you want, how to contact you and which meeting you want delivery.

This service is at no cost, but we highly recommend that you make a hefty donation to the Observatory Fund. The Houston Astronomical Society is in a rapid state of growth. Astronomy is the "in thing" to do. In the last *GuideStar* you read about plans for a large 30-inch class telescope and observatory for the members. You heard about needs for a new lawn tractor, more storage space, and upgrading and computerizing telescopes. If we fight to preserve the dark skies at our site then we should also make sure our site is state-of-the-art and

Continued on page 21...

Other Meetings...

Brazosport Astronomy Society meets at 7:00 p.m. on the 2nd Thursday of each month in the Planetarium of the fine Arts Center at Brazosport College. Call Steve Lamb for program details (409) 297-3984

Fort Bend Astronomy Club meets the third Friday of the month at 8:00 p.m. at the First Colony conference Center. Novice meeting begins at 7:00, regular meeting begins at 8:00. Web site: <http://rampages.onramp.net/~binder/>

Johnson Space Center Astronomical Society meets in the the Lunar and Planetary Institute on the 2nd Friday of each month. Web site: <http://www.ghgcorp.com/cbr/jscas.html>

Northside Astronomical Society meets at 8:00 p.m. on the 4th Friday of each month in the Teaching Theatre of the Student Center at Kingwood College. Call 281-312-1650 or E-mail bill.leach@nhmccd.edu. First organizational meeting: April 23, 1999.

HAS Web Page

The Houston Astronomical Society Web page has information on the society, its resources, and meeting information.

The address is: <http://spacsun.rice.edu/~has>

Want your astronomy work and name on the Internet for the whole world to see? Have some neat equipment? Pictures in film, CCD, hand drawings or video format are all welcome on the page. Do you have an idea to improve the page? I'm listening. Send me Email at goldberg@sccsi.com. (You can click on my name on the HAS home page). Or, you can call me, Steve Goldberg (WebMaster), at 713-721-5077.

Observatory Duty Roster

by Michael B. Dye, Observatory Chairman

This is the duty list for April, May and June. Be sure to contact your supervisor for any information that you may need and the date and time to be at the site. You may change from site duty to open house or from open house to site duty by pre-arrangement with the Site Supervisor for that month. Changes between months require Observatory Chairman coordination.

April supervisor Howard Leverenz 713 957-8667
Kenneth Drake Site
Mark Egan Site
Jean-Marc Follini Site
Fred Garcia Members Observatory Night 04-17-99
John Garza III Site
Clifton Goldman Members Observatory Night 04-17-99
David Granadino Members Observatory Night 04-17-99
Michael Gumler Site

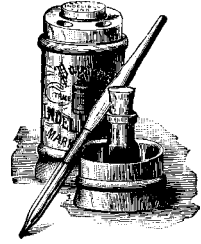
May supervisor Logan Rimes 713 681-5397
Chai S. Heng Site
David L. Herlinger Site
Gary Hlivko Site
Wayne Hutchinson Members Observatory Night 05-08-99
Clayton L. Jeter Site
Stanley G. Jones Members Observatory Night 05-08-99
Keith A. Jurgens Members Observatory Night 05-08-99
Arnie Kaestner Site

June supervisor Matt Delevoryas 713 795-0808
David Kahlich Site
Bill Krell Site
Jay Levy Site
Mary Lockwood Members Observatory Night 06-05-99
Robert C. Menius Site
Larry Mitchell Members Observatory Night 06-05-99
John J Mitscherling Members Observatory Night 06-05-99
Jeff Moore Site

Please remember that Site work can be done anytime and does not have to be done just before Members Observatory Night. Contact your Site Supervisor for details. Names are selected for Site Duty using the current Alphabetical listing for Observatory Key Holders. If any member knows of a conflict please call me before your name is listed.

B&Ps from the IAUCs

by Matt Delevoryas



This past month (that's mid-calendar month to mid-calendar month) of Circulars saw what seems to be a record crop of Kuiper Belt object discoveries. We're not talking about taking many deep images, stacking them, adjusting them relative to each other so anything which happened to be moving more or less like a Kuiper Belt object would be stacked on all the images, and declaring that a hundred more bright spots than chance gives showed up, so there exist a hundred Kuiper Belt objects in the field. Even if that argument is absolutely valid, this month we're talking about 28 individual objects, with enough observations for preliminary orbits allowing them to be observed again! The designations bestowed were 1999 CV₁₁₈ - 1999 CN₁₁₉, 1999 CW₁₃₁ - 1999 CA₁₃₂, 1999 CP₁₃₃ - 1999 CR₁₃₃, and 1999 DA. (Yes, those of you paying attention are right that the first half of February did see well over 3,000 asteroids reported.) More amazing than the large number of Kuiper Belt objects was that all of them but the last were all observed by the same people, C. Trujillo, J. X. Luu, and D. Jewitt using the 3.6m Canada-France-Hawaii telescope on Mauna Kea, with a CCD. (The last one, 1999 DA, was also observed by the same equipment, but with a shift change: observers M. Holman, B. Gladman, J. J. Kavelaars, and A. Morbidelli, and measurers M. Holman, J. J. Kavelaars, and B. Gladman!) Jewitt and Luu are the folks who started this Transneptunian Object discovery business. Most of these objects have barely been observed long enough to get a hint of the actual shape of the orbit. Many are just assumed to be in circular orbits until more measurements arrive (moving this slowly, it takes a while to get misplaced even with the wrong orbit!). However, 1999 CV₁₁₈ appears to be in a 3:5 resonance with Neptune, 1999 CY₁₁₈ is probably in a 3:4 resonance, and 1999 CE₁₁₉ is currently being assumed to be in a 4:5 resonance, although no object has yet to be seen clearly to be in such an orbit. 4:5 was just the best guess for an orbit which fit the data but which didn't involve having encounters with Neptune which would keep us from finding it still in such an orbit. For 1999 CZ₁₁₈, Brian Marsden

Continued...

B&P's from the IAUCs... from previous page

writes in MPEC 1999-D28 that a milestone of a sort had been reached. "This is the 100th Transneptunian Object (or Transneptunian candidate) announced since the first success of the modern search program in 1992." He continues (noting that so early, orbits and distances are rather questionable), that probably 1999 CZ₁₁₈ is now 48.78 a.u. from the sun, and "it appears that this may be the first solar-system object ever observed at a heliocentric distance beyond 48 AU." (The observations gave an R magnitude of 24.3.)

As concerns the Pluto debacle and asteroid (10000) conundrum described last month, the number (10000) has now been bestowed quietly. The number went to asteroid 1951 SY, a main belt asteroid first observed September 30th, 1951 at Palomar Observatory, by A. G. Wilson, presumably during the making the Palomar Observatory Sky Survey. It was also reobserved as 1980 TS₂. Its orbital properties seem undistinguished, but eventually we should hear how its history is distinguished.

Did You Miss... from page 17

can meet the needs of our growing membership. Unfortunately it takes money to do all this and money has yet to spontaneously generate. The main goal of the HAS is to promote and teach each other astronomy. We need a dark sky observatory site to do this. I suggest that these are worthy goals to pursue and should be worth your serious consideration.

For videos contact:

Bill Leach
Kingwood College
20000 Kingwood Dr.
Houston, Texas 77339

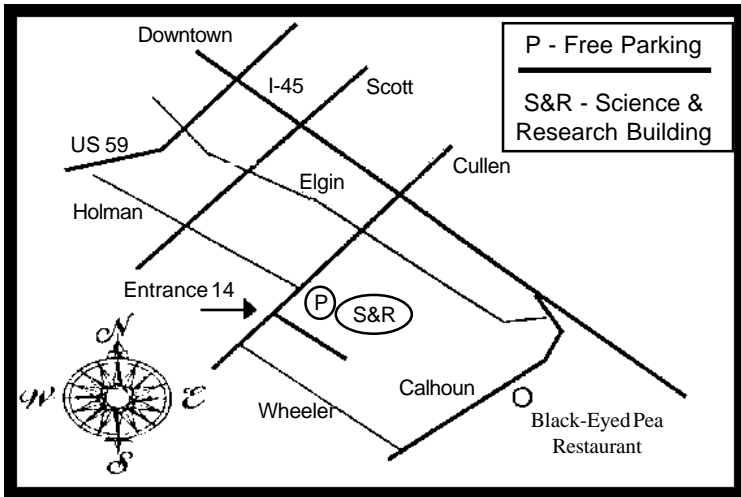
bill.leach@nhmccd.edu

281-312-1650

Special "Help" Volunteers

Any member who wants specific information on a subject listed below may call the individual listed. If you have a moderate knowledge of a special subject and would be happy to have others ask you about that subject, let the editor know and your subject, name and phone will be listed in *GuideStar* in the future. Note that we have listed a few possible areas where you might volunteer, but, of course, you are not limited to these. You can also have a specialty which is a sub-group of another. Note that the number of names for any subject is not limited to only one person. Also see the "Ad Hoc Committee Chairpersons" on the inside front cover and the "Special Interest Groups Listing" article.

<u>Subject</u>	<u>Name</u>	<u>Phone</u>
Asteroids	Barbara Wilson	281-933-1289
Astrometry	Richard Nugent	713-910-5945
Astrophotography	Steve Goldberg	713-721-5077
Beginning in Astronomy	Peggy Gilchrist	281-558-1190
	Amelia Goldberg	713-721-5077
Comets	Kenneth Drake	281-367-1592
	Don Pearce	713-432-0734
Computers	Matt Delevoryas	713-795-0808
	Leland Dolan	713-529-0403
	Ricardo Palmeira	713-669-1409
Cosmology	Ricardo Palmeira	713-669-1409
Deep Sky	Larry Mitchell	281-448-8700
	Barbara Wilson	281-933-1289
Double Stars	John Blubaugh	713-921-4275
Drawing (Sketching)	Scott Mitchell	713-461-3020
Herschel Objects	Larry Mitchell	281-448-8700
History, Astro'y - General	Leland Dolan	713-529-0403
	Ricardo Palmeira	713-669-1409
History, Astro'y - Amateurs	Tom Williams	713-526-2868
Mathematics, Astronomical	Richard Nugent	713-910-5945
Messier Objects	Novice Committee (see inside front cover)	
Photometry	Tom Arnold	281-495-0142
Radio Telescopes	John Hiatt	713-464-4010
Satellites, Artificial	<open>	
Solar Observing	Larry Mitchell	281-448-8700
Spectroscopy	Tom Arnold	281-495-0142
Thin Crescent Moons	Don Pearce	713-432-0734
Variable Stars	Barbara Wilson	281-933-1289
	Tom Williams	713-526-2868
Video	Larry Mitchell	281-448-8700



General Membership Meeting

The Houston Astronomical Society holds its regular monthly General Membership Meeting on the first Friday of each month, unless rescheduled due to a holiday. Meetings are in Room 117 of the Science and Research Building at the University of Houston. A Novice Presentation begins at 7:00 p.m.. The short business meeting and featured speaker are scheduled at 8:00 p.m. Also typically included are Committee Reports, Special Interest Group Reports, current activity announcements, hardware reviews, an astrophotography slide show by members and other items of interest.

Board of Directors Meeting

The Board of Directors Meeting is held on dates scheduled by the board at 7:00 p.m. in Room 106 of the Space Science Building at Rice University. Call StarLine for Board Meeting information. Information provided to GuideStar will be published. The meetings are open to all members of the Society in good standing. Attendance is encouraged.

GuideStar Information

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