OBSERVER

For Larry, With Love

BUBBLES IN THE WIND

Not far from open cluster M52 lies the violent stellar region that spawns the Bubble Nebula (NGC 7635.) A massively hot 8th magnitude central star blows the celestial winds that created and continue to fuel the Bubble's HII emission nebula colors. Located in the constellation Cassiopeia, the Bubble was discovered in 1787 by Friedrich Herschel. Image comprised of h-alpha, red, green and blue data totaling nine hours.

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7.....Last quarter moon
14..... Daylight Saving Time begins
15.....New moon
20..... Spring equinox (finally!)
23.....First quarter moon
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30.....Passover

MARCH SKIES *by Dennis Cochran*

Amaze your neighbors and confound the kids! Make a moon-measuring device and show 'em our satellite at moonrise and again at the zenith. Its size will be the same, even though it looks twice as big near the horizon. This is one of those psychological phenomena, like seeing straight lines (canals) on Mars, which I myself have done back in the days of Lowell, Heinlein and Cave, but not since spacecraft proved they weren't there. Recently, there was a letter to one of the astro mags from a group of amateurs who had done this Moon measurement, and now there's an entire article about it in the March *Astronomy* on page 58. One fellow wears a Renaissance costume while doing it. In our club one of our members could make the device while another wears the costume to make the observation. I can think of two candidates right off the cuff. Incidentally, that article is actually about measuring the 10% perigee-apogee difference in the moon's size.

From a little farther out in space, Saturn rises at 8 P.M. on March 1st with the full moon, and by the 21st reaches opposition, showing a 20" disk. The rings are not tilted much yet. Mars is already in the sky just east of the Gemini twins when Saturn comes up and will dim down by half during the month. Its mid-solar system neighbor, Jupiter, is essentially out of sight until late summer.

Another solar system denizen will be visible in the head of Leo between Algieba, the reddish gamma star and the epsilon star at the end of his mane

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PRESIDENT'S CORNER

This will be my last contribution to the President's Corner. This issue of the *Observer* is dedicated to President Emeritus, Larry Brooks. He passed away on January 10. Photos and remembrances begin on Page 6. I met Larry in 1999 at what is now the Denver Museum of Nature and Science. He was staffing a table for the Denver Astronomical Society (DAS) and demonstrating what happened to objects such as flowers and bananas when socked in liquid nitrogen. The discussion that followed centered around astronomy. Larry invited me to the next E-Board meeting which I described in the February edition. For those who have not read it, I briefly described hearing a debate regarding future plans for Chamberlin Observatory, lead by Ed Kline after which the Edmund G. Kline Dark Site (EGKDS) is named. Larry was President of DAS. While the discussion was lively and conflicting views expressed passionately, the best part was adjourning to the local restaurant for breakfast and camaraderie. Larry made this new member feel fully a part of the society from the start. Larry loved outreach and teaching those who wanted to know and he always did the right thing. I'll always remember him.

As I said in my previous column, the decision not to seek a second term was difficult for me. I hope no one thinks of me as being disinterested by not running for a second term. The Denver Astronomical Society will always be important to me. So with my tenure drawing to a close, I would like to take this opportunity to not only pass the guidon to the incoming President (elections post-date this article), but to also remark on several achievements by Denver Astronomical Society members, astronomy and space science.

DAS PRESIDENT, RON MICKLE
Photo courtesy Ron Mickle

I am very thankful for the support I have received and would like to cite a few specifics here. A special thanks goes to Frank Mancini. Frank has been a personal friend for years and I thank him for always providing good, solid counsel in both financial matters and the business of administration of the DAS. How he tolerated me, I'll never know. In addition, a huge thanks to Keith Pool, who tirelessly, and without complaint, carried out the duties of Vice-President. I can't say enough about Brad Gilman, our Treasurer, except that the Executive Board seriously needs to consider amending the Bylaws (again) to make Brad a permanent fixture on the Board, so he can't leave. Ron Pearson, aka #1 and Secretary, has been part of the historical foundation that the E-Board has used in making its decisions. To E-Board members Galileo (Jack), Joe, Tim, Norm, David, Steve, Dan and Wayne, you have been incredibly supportive to me and I appreciate it. I hope that by keeping the E-Board meetings on track and within a two-hour window, ± two hours, served all of us well.

Some of the achievements the DAS enjoyed this past year include the installation of a new focuser on the Clark-Saegmuller 20-inch scope immediately following last E-Board on February 5, 2010. The DAS continued to see solid numbers of guests to our Open House and Public Night events, due to Public Night staff's willingness to commit to nine nights monthly. This is a testament to the dedication of our volunteers. The revision of the DAS Bylaws was undertaken by Steve Solon, with the final document approved and signed during the January 8 E-Board. Steve put a lot of effort into the rewrite AND kept it on track during subsequent meetings to amend proposals. Steve, your effort and work are appreciated. Also during the past year, we've reduced the mailings of The *Observer* from around 300 to approximately 170. I appreciate the membership who elected to receive the DAS newsletter electronically. This decreased the

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Society Directory

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Joe Gafford
Frank Mancini
Norm Rosling
David Shouldice
Tim Pimentel
Steve Solon
Dan Wray
Wayne Green, Past President
President Emeritus, Larry Brooks

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Ron Pearson (Chair)
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IDA Representative:
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Email: *coloida@hotmail.com*

Public Outreach Committee:
Ron Mickle (Chair)

Student Astronomy Chair:
Naomi Pequette (Chair)

Finance Committee
Frank Mancini *(303) 663-5263*

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Denver Astronomical Society
Chamberlin Observatory c/o Ron Mickle
2930 East Warren Avenue
Denver, Colorado 80210

The Executive Board conducts the business of the DAS at 7:30 p.m. at Chamberlin Observatory. Please see the Schedule of Events for meeting dates. All members are welcome.

www.denverastro.org

MARCH SKIES *(CONTINUED FROM PAGE 1)*

TREES OF CHRISTMASES LONG PAST

Certainly one of the most striking of the winter deep sky wonders is the Christmas Tree Cluster/Cone Nebula region in northern Monoceros. The tree's shape comes from star cluster NGC 2264, topped off by the cold gas and dust pillars of the Cone Nebula in this inverted image. For scale, the Cone is approximately 6.5 light years tall and lies a bit beyond the cluster that ignites its nebulous fire, at an average distance of 2550 light years. This black and white image comprises 2 hours of h-alpha and 1 hour of luminance data through an 80mm refractor.

(aka "the sickle".) That's Vesta, the fourth asteroid to be discovered. Its path takes it towards Epsilon during March. It's a binocular object with a magnitude in the 6.x range; it may take more than one observation to notice its motion.

If you're looking at Leo rising in the east, you can see the M65-66 pair of spiral galaxies, with neighbors NGC 3593 & 3628, all bunched up below the theta star at the 90-degree corner of Leo's aft triangle. You might spot these deep sky objects while participating in the planned Messier Marathon on the weekend of the 13th. The huge Virgo galaxy cluster is just east of this region. During the marathon, you'll have to go there to find M84, 86 & 87, elliptical galaxies at the center of the cluster.

In past months we've spoken of the brilliant star, Sirius, southeast of Orion. Several star clusters are in its purview: M41, just south of it in the body of the Big Dog, and M46-47, east of it in the middle of nowhere. Mentally draw lines east from Sirius and south from Procyon in Canis Minor and where they cross, go up a hair to find this Messier duo. Smaller clusters abound in the Dog, but are hard to discern from the starry background.

North of the zenith, the galaxy pair M81 & 82 are well placed west of the Big Dipper. Draw a line from dipper stars Gamma to Alpha and keep going the same distance farther to find these two galactic smudges. Another northern sight was shown on p. 70 of *Astronomy* and should inspire our astro-imagers: captured by Don Goldman, IC 1795's complexity and color are amazing, and the 3-D appearance of light fighting through the dark dust adds drama to the scene. This is part of larger IC 1805, the Heart Nebula, located a short way north of the Double Cluster, off the high end of Cassiopeia. What can you see of it visually?

Remember those "Bad Things That Can Happen to You Whilst Observing?" The third entry in our sophomoric series is obvious and may have happened to you already: Hypothermia. It gets cold these nights out under the dome of space. If you're setting up on the field and notice that your quiet neighbors seem to be stuck in various grotesque positions, it's time to put on the rest of your clothes, drink that hot liquid and then be a mensch and help your neighbors to repair to a warm building or a car and live to observe another day. At least the vermin and the snakes won't bother you on a night like this.

Our March Open House takes place on the Vernal Equinox, the beginning of Spring, on Saturday the 20th. Our Annual Banquet replaces the General Meeting on Saturday the 27th. See the announcement in this issue for details.

PRESIDENT'S CORNER *(CONTINUED FROM PAGE 2)*

number of printings, stamps and administrative supplies significantly every month.

Looking at astronomy and space science, I refer to a quote by President Thomas Jefferson, who once wrote, "I like the dreams of the future better than the history of the past." This is not to say we should not learn from the past. I would hope that the international community, specifically the United States, would look beyond the International Space Station (ISS) or a lunar base. Over 40 years ago, we proved we could land Americans on the Moon and return them safely. The ISS continues to validate what we learned from Skylab and Mir regarding human existence in space. And we continue our space travel using the same chemical propulsion principals we used over 40 years ago. It's time to dedicate significant resources to the development of new propulsion technology, such as plasma jets, laser and solar sails, nuclear fusion, and electric propulsion, to name a few.

A return to the moon, as a way to Mars, may be a necessity to explore sustained existence on another celestial body, but using the L1 libration point between the Earth and the Moon as a launching point to Mars appears to be more viable. As amateur and professional astronomers, and scientists from other disciplines, we would be well served by incorporating the scientific method into our discussions, thereby avoiding the pitfalls of personal opinions when trying to manipulate empirical data.

Finally, the most important attribute of the Denver Astronomical Society is not the person who leads it, but its membership, and the President cannot lead without member support. My sincere thanks to all!

Clear skies,—*Ron Mickle*

DAS 2010 Spring Banquet

You are cordially invited to the Denver Astronomical Society's Annual Banquet. Our presenter this year is long-time DAS member and friend Dr. John Bally.

This year's banquet will be held on Saturday evening, March 27 from 6 to 9 pm at the Columbine Unitarian-Universalist Church, 6724 S. Webster St., Littleton (see map). The buffet style banquet dinner will feature Italian and Mexican food catered by Angie's Family Restaurant in Littleton. Cost per person is **$20.00**. Any left-over funds will go to the DAS General Fund.

After the installation of your 2010-11 DAS Officers and E-Board members, Dr. John Bally will present "Cosmic Natural Selection."

Please indicate the number of people in your party, and their choice of meals on the form below. Clip off the form for mailing so you will have this sheet for reference. Please include a *check payable* to the "Denver Astronomical Society" and mail the form and check to Brad Gilman at the address:

Brad Gilman
DAS Treasurer
ATTN: Spg Banquet
7003 S. Cherry St
Centennial, CO 80122-1179

Feel free to email me or Brad if you have any questions. – *Ron Mickle, President*

---------- (Detach ----------

DAS 2010 Spring Banquet (Mail with payment to: **Brad Gilman, 7003 S. Cherry St., Centennial, CO 80122-1179**)	
Name	
Address	
Phone	
Email	

Menu Choices

Italian	How many?		**Mexican**	How many?
Chicken Alfredo			*Enchiladas (chicken)*	
Baked Manicotti			*Chili Rellanos*	
Total meals x $20 =	$		***Total meals x $20 =***	$

GRAND TOTAL (Amount of enclosed check made out to "**DAS**"):	$

Includes salad, bread, beverages & dessert

ANNUAL SPRING BANQUET SPEAKER

Cosmic Natural Selection

John Bally
Department of Astrophysical and Planetary Sciences
Center for Astrophysics and Space Astronomy

Recent observations have shown that the universe is not only expanding, but that the expansion is accelerating. Apparently, ordinary matter makes up only about 4% of the "stuff" in the visible cosmos; the rest is made of mysterious "dark" matter (23%) and "dark energy" (73%) which drives the accelerating expansion of space (also called Einstein's cosmological constant).

I will first discuss the evidence for this emerging view of the cosmos. Then I will review some of the speculations that scientists have about the nature of the "Big Bang", its relation to the properties of matter and energy on the sub-atomic level, and why the universe appears to be so hospitable to life (the "anthropic principle"). In one of these speculative models, proposed by Lee Smolin, large black holes make new universes, and these universes follow the rules of Darwinian "cosmic natural selection." I will argue that in this picture, a small cosmological constant ("dark energy") arises naturally and maximizes the ability of our universe to reproduce.

About the Speaker:

John Bally first became interested in astronomy as an amateur astronomer in the Bay Area in California during his pre-college days. He did his undergraduate studies at the University of California at Berkeley, then obtained his PhD. in millimeter-wave radio astronomy at the University of Massachusetts at Amherst in 1980. He joined AT&T Bell Laboratories for 11 years as a Member of Technical Staff, working in the Radio Physics Research Department at Crawford Hill in Holmdel, NJ with the group that discovered the Cosmic Microwave Background.

While at AT&T, he studied interstellar molecular clouds, the outflows and jets produced by forming stars, and built sensitive mm-wave receivers. He participated in several expeditions to the South Pole in Antarctica to set-up the first permanent astronomical observatory there. Since 1991, he has been a professor of astrophysics in the Department of Astrophysical and Planetary Sciences at the University of Colorado, Boulder. He has made extensive use of the world's major observatories such as the Hubble, the facilities of the National Optical Astronomy Observatories, and the facilities on Mauna Kea in Hawaii, such as Gemini and Caltech Sub-millimeter Observatory. His current research includes the formation of stars and planetary systems, the first blind search for dense, dusty clumps that may soon or are currently forming clusters of stars. During the last decade he has concentrated on massive star and cluster formation. He has recently re-kindled his interests in cosmology and is exploring the Lee Smolin hypothesis of "cosmic natural selection" in which black holes produce universes. This theory may provide an `explanation' for the so-called anthropic principle and for the small but non-zero value of the cosmological constant. This highly speculative and "risky" research direction is a natural outgrowth of his interest in massive stars, the most massive of which form stellar-mass black holes at the ends of their lives.

Dr. Bally is an avid skier, and owns a home in Breckenridge, CO. where he operates a small observatory (photo at left).

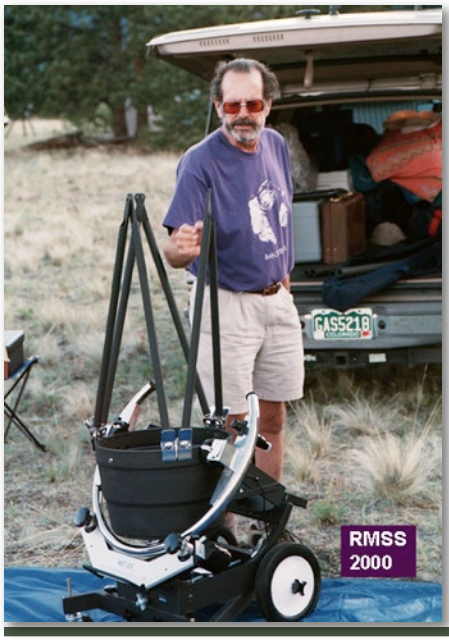
GOODBYE, BELOVED FRIEND

The day I met Larry, my life's journey changed forever. I developed an interest in astronomy with comets Hale-Bopp and Hyakutake and took a few classes at DMNS, including binocular astronomy with Larry. I was enthralled with his comprehensive tour of the sky. Larry shared many stories, including his good fortune in meeting Carl Sagan. As the night wore on I realized I was the only remaining student. He sensed my hesitation to end the evening and invited me to an open house at Chamberlin.

A few weeks later during my first visit to the observatory, Larry jumped up and greeted me warmly. Wasting no time he asked what my favorite night sky object was and I replied, "M57." He led me outside to a beautiful 20-inch Dob and asked Greg Marino if he would move the scope to the glorious Ring Nebula. Greg obliged us with a view I'll never forget. Larry then took me upstairs to the venerable 20-inch Alvan Clark, but honestly I can't recall what we gazed upon, I was so taken with the instrument itself. As the night came to a close, Larry gave me one of the greatest gifts I ever received; he asked me to assist at public nights and apprentice on the Clark. Leaving the observatory that night I felt I never needed to win the lottery. I just had. Still to this day, I can't believe my good luck.

TRIBUTE TO OUR LARRY

All photos by (alphabetically) Joe Gafford ,Bill Ormsby and Steve Solon.



Larry became my mentor and shared his love of public outreach astronomy. I stumbled through my first public night talk and afterwards he gave me a few pointers with a heavy dose of support. Years later, I invited Larry to dinner to express my gratitude. I'm sure this wasn't out of the ordinary for him as he impacted countless lives through his work at the college and his interests in caving, meteorites and skiing.

Larry was a gem of a man. I remember him most for his affable, generous character. Larry gave me the world, the stars and a life forever inspired by his spirit. Clear skies my dear friend. With much love, Carla. *Carla Swartz*

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After the DAS signed the lease agreement for the EGKDSS, the DAS had to obtain a zoning change to allow the club to develop the site. This zoning change was called a "Use by Special Review". Drawings and documents were prepared by this writer and submitted, reviewed and corrections made. The next step was to post a notice at the site advising the adjacent property owners of the zoning change and a hearing with the Arapahoe County Commissioners. The Notice listed the date, time and location of the hearing on a 40" x 48" board.

Larry offered to help me erect the sign at the site. We met at a Village Inn near I-225 & Parker Road, and proceeded out to Henry Weisensee's (the Landlord) home. I introduced Larry to Henry and advised him of the sign and why the DAS was posting the Notice at the site. Larry and I then continued out the site and together the sign was assembled and Larry helped pound the stakes into the ground to hold it place.

At the hearing Larry gave a presentation for the DAS to the County Commissioners. After receiving the zoning change, I gave Larry the drawings and other documents required to obtain a Building Permit, which he submitted to the Arapahoe Building Department. When the permit was issued, development at the site began. *Wayne Kaaz*

****

Quite the guy, our Larry Brooks was. When I first came to a DAS General Meeting in late 1993, Larry showed an enthusiasm for astronomy that I'd rarely seen, a genuine love for all things night sky-ish—just the formula I was looking for in an astronomy group. He also demonstrated an off-the-wall, devious sense of humor, one of those "over-the-top-of-the-glasses" kinda things—right up my alley—so we became instant friends. He encouraged my becoming acquainted with the Clark and joining a Public Night team as Operator and Lecturer. Several times, we 'tag-teamed' the PN presentations, tossing back and forth to each other during the old-style slide shows; his laughing during our rare blunders was infectious. At the time, Larry was a bit bigger than in later years, and this added a certain joviality to his manner, one that was already overflowing with a love for people and a desire to see them become intoxicated with the stars.

When I began the Dark Site Project (later, the EGKDS) in 1996, Larry was all over the idea and jumped, whole body first, right into the middle of it, with newer-member, Ed Kline.

Now, on that note, few of us will ever forget the great Brooks-Kline debates over everything from the possibility of dark matter existence to the quality of coffee at Village Inn. Larry, ever the gentleman, (and because he realized the value of an early adjournment to E-Board meetings) graciously let Ed (sometimes) win the discussion. He was just that kind of guy—ever-generous, ever-present, ever- involved, ever-passionate.

After the stroke confined him to a wheelchair (sort of), Larry remained a huge fixture in the DAS. I will always hear that distinctive "Heeeeyyyyy!" as Dan Wray wheeled him into a General Meeting or Open House. The quintessential "Yes Man," Larry may have had a severely restricted vocabulary in his final years, but the three words he always answered questions with was, "Yeah, yeah, yeah!" —just the kind of guy he was. Thus, we have a pretty sizeable hole in our troupe of sky gazers now.

Well, Larry, no chairs hold you any more, and if the Great Beyond offers the chance, let us know, with the twinkle of a star, that you're doing fine. We will surely miss you, always. *Steve Solon*

****

Larry and I became good friends in his later years. He started volunteering in my lab at the U. S. geological Survey, helping search Mars using data from the Mars Global Surveyor, Thermal Emission Spectrometer (TES). We spent many hours discussing Mars and what we might find in the data. We did find several minerals, including olivine, hematite, and pyroxenes. A hematite deposit at Meridiani Planum was previously found by TES team members and that led to its selection as a landing site for one of the Mars rovers. We found hundreds of smaller such sites scattered all over Mars, and Larry helped.

Larry then got interested in large format photography, and we went out several times together photographing with our 4x5 cameras. I remember one beautiful day in the bristle cone pines on Mount Evans. Larry and I photographed for a couple of hours there. A few weeks later, Larry had his stroke and I never saw the images he obtained from that day. I wonder how they turned out?

Larry was always happy and always saw the best in people and in life. I miss him. *Roger Clark*

****

Where can I start? This is the most difficult bit of writing I've attempted for The *Observer.* Larry was a good friend that I gained in DAS, and of course, Larry did all he could for the DAS. I'd known Larry for about 20 years. My remembrances when we first met, around 1989 or 90, was that he knew little about astronomy

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GOODBYE, BELOVED FRIEND *(CONTINUED FROM PAGE 7)*

and didn't even have a telescope, but he wanted to learn astronomy. At the time we didn't have as formal a training process to be a telescope operator of the 20-inch Clark in Chamberlin, and Larry quickly volunteered to train and operate the giant telescope for Open Houses. I joined DAS about 1987 and in 1988 we had a huge event of "Mars Madness" during the closest opposition of Mars in decades. We had good weather (unlike Mars Madness 2003) and up to 2000 people went up to look through the 20-inch and view with members telescopes on the South Lawn. Dave Trott, who was President of DAS at the time, developed a reputation for quickly moving that many people up and down the ladder giving them a very brief view of Mars—a rumor started he pushed an 'ol lady down the ladder one night. ;) After he joined in about 1990, Larry started working the Open House nights and he was almost the opposite of Dave, letting children linger especially long at the eyepiece and asking them questions of what they saw and coaching them on what they should be looking for. The volunteers on the floor, which included me, would get frustrated with Larry cause the lines got longer and longer. Larry wanted everyone to really get a good look and see more than just fuzzy blob of a planet or faint fuzzy star cluster. When he joined DAS he jumped in with two feet up to his neck and in 93 was elected President and served two years.

During Larry's first term as President I think he still didn't own a telescope and was still learning the basics of Astronomy. When new person would say they didn't know anything about Astronomy, Larry would tell them he didn't either. The term was somewhat tumultuous as this was the start of establishing a more formal Public Night program. Prior to this time the Public Night Operators were almost a separate entity from DAS with little oversight or coordination. This was changed by establishing a real budget and organized structure within DAS for Public Night. In the mid-90's Larry served on the e-board and Ed Kline headed up the committee to find a DAS dark site with George Jones, who was President and real estate agent and Larry VP in 98. We spent a year or more 'trying-out' a site or two. Ed and Larry would argue some detail or option or another but both had a great time afterward over coffee and Larry always ordered "dry-wheat-toast, no butter" at the Village Inn. We called it styrofoam as a joke. But it was apparent Larry had heart problems when he had stents put in. Larry served as President again from 1999 into 2002 and by then he had several telescopes and always loved getting new ones and new equipment—Dan Wray keeps telling me how many more he had. It was another rough road (ad astra aspera—"It's a rough road to the stars") during that period, with the new Dark Site being developed. The Dark Site needed fund raising and construction of pads and warming hut. Dr. Stencel had taken the reigns of Directorship and established a more formal training program and policies for Public Night operators and had plans for a major change in direction and use of Chamberlin. The PN volunteer staff grew as did DAS membership which jumped from around 100-150 to over 200. Many new faces also joined the e-board during that period including Carla Swartz, Frank Mancini and Ron Mickle. Larry also started collecting meteorites with Dan Wray's help. He started passing on his enthusiasm for meteorites to kids and adults during a Colorado Astronomy Day we held at Boettcher Hall and one of those he infected was my son Neil, who was about 11 at the time. Larry's enthusiasm for Astronomy and operating the Chamberlin 20-inch caught Carla Swartz in its grip and she quickly became a PN scope operator and then VP. And then one day Dan Wray calls to tell me that Larry was in Swedish Hospital ICU, found a day or so after suffering a major stroke.

Most of you know and share the Larry we've known since since his stoke in 2002. His enthusiasm was not effected or his desire to learn more and share Astronomy, meteorites and his friendship. These things continued unabated by physical disability. If anything he had more of these attributes and gave us all more reason for having fun with him. At his memorial service the music played was the *Wimoweh* song and a country western song. *Wimoweh*—now that I could see, because it was a fun little song, but I had no idea

Larry liked country western music. It was a fun surprise he had for us even at our last chance to say goodbye to him.

My friend Larry Brooks leaves a long legacy with us in DAS. He demonstrated that anyone with a real interest in what some call the oldest profession, can not only learn the basics of astronomy as a science , but learn with fun and enjoyment the night sky and all the Universe has to offer. What made Larry special was he then quickly turned that around and could infect others with enthusiasm as well as lead and coordinate the activities of this Society where we all share our love of the night sky. Larry shows us that when you join DAS you can make life-long friends that share your interests, ingore your failings and that it hurts like hell when we lose them.

The country western song played at the service reminded me of Willie Nelson's recording of a gospel hymn—I first found it in the back of the Lutheran hymnal we sang in church occasionally: *Uncloudy Day* which to me has become an Astronomer's hymn—if you substitute the word night for day;

Enjoy the unclouded nights and days my friend. Following are the first two verses and chorus:

"They tell me of a home far beyond the skies
And they tell me of a home far away
They tell me of a home where no storm clouds rise
They tell me of an unclouded day

Chorus
The land of cloudless days
The land of an unclouded sky
They tell me of a home where no storm clouds rise
They tell me of an unclouded day

They tell me of a home where my friends have gone
And they tell me of that land far away
Where the tree of life in eternal bloom
Sheds its fragrance through the unclouded day"

Ron Pearson

****

My first memory of Larry in the DAS was the winter of 1990. He showed up at a star party at the Missile Site wearing jeans, tennis shoes and a short coat, no hat. I walked up to him introduced myself, and told him he was going to freeze his ass off.

Later, he said he did but wasn't about to leave. I now have the heavy blue down parka that he bought for star parties.

I was president in 1990-91 and Larry was on my board. We became friends and in 1993 made plans to attend the Texas Star Party together. We decided then that a long road trip would make or break the friendship. We had a great time and found that we were totally compatible. From then on we were together a lot. I introduced him to the world of minerals, meteorites and caving. We rode bikes together and did 3D cave photography. I always said that he never collected anything until he met me. Actually he collected telescopes and all the goodies that go with them. He always said that working for Cathie at S&S was an economic loser. When payday came he usually owed her money.

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ABOUT THE DAS

Membership in the Denver Astronomical Society is open to anyone wishing to join. The DAS provides trained volunteers who host educational and public outreach events at the **University of Denver's Historic Chamberlin Observatory,** which the DAS helped place on the National Register of Historic Places. First light at Chamberlin in 1894 was a public night of viewing, a tradition the DAS has helped maintain since its founding in 1952.

The DAS is a long-time member in good standing of the **Astronomical League** and the **International Dark Sky Association.** The DAS' mission is to provide its members a forum for increasing and sharing their knowledge of astronomy, to promote astronomical education to the public, and to preserve Historic Chamberlin Observatory and its telescope in cooperation with the University of Denver.

The DAS is 501 (c)(3) tax-exampt corporation and has established three tax-deductible funds: the Van Nattan-Hansen Scholarship Fund, the Public Outreach Fund and the Edmund G. Kline Dark Site Fund. To contribute, please see the bottom of the membership form for details (found on the DAS website: thedas.org).

More information about the DAS, its activities and the special tax-deductible funds is available on the DAS website at *www.denverastro.org.*

GOODBYE, BELOVED FRIEND *(CONTINUED FROM PAGE 9)*

After his stroke in 2002 we continued to go to the meetings of the many clubs he enjoyed and to the gem and mineral shows. He was very independent and I kept losing him. He liked doing his own thing and when I caught back up with him he would show me his purchases, usually purchased for less than the asking price. I told him I was going to put a flag and a beeper on his wheel chair so I could keep track of him.

The hardest thing was the loss of his speech, he was such a social animal. He really did love people and found ways to communicate. In spite of his handicaps he had a very positive attitude and a joy for life. He had many friends and touched many lives. He will be missed. *Dan Wray*

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Hands down, this is the most brutal issue of the *Observer* that I've ever put together (how long have I been doing this, anyway?). I knew Larry for more than 20 years and my sadness is profound. I thank everyone who contributed to this and the support from Steve Solon (Larry always told me that you and I would be the best of friends, and he was right, as always) for encouraging me to keep going and get this one wrapped up. Undoubtedly, it will be late and I cannot apologize.

Nor can I think of much to add to the above wonderful testimonials and remembrances. I was Larry's V.P. for a year (maybe two, I'm not sure), but will never forget the multitude of midnight and 1:00 A.M. phone calls back and forth regarding everything from black holes to the politics of the DAS and, God forbid, the United States. We solved the world's problems over and over again until his stroke, and then I could no longer understand what he was saying. His support and friendship during the very challenging period of my childrens' "young adulthood years"—well, suffice it to say, I'll never forget how he helped me get through it. Oy, and how he made me laugh! While I cannot remember the joke itself, I'll never forget sitting at Village Inn while he blew shredded napkins through his fingers all over the table. Something about a chicken, I think (I made him repeat it twice)—I almost fell out of my chair laughing. If he'd been music, he'd have been Johann Sebastian Bach's *Brandenburg Concerto No. 3 in G, BWV 1048* (preferably Café Zimmermann's interpretation), and there are only a handful of people I can say that about. I only hope that someday someone might say that about me.

When I received the e-mail from Dan Wray titled "Larry Brooks," I felt paralyzed. I think it was 12 hours after receipt before I mustered up the courage to open it, but I had a harsh feeling that I knew what it was going to say. For many days (and still yet) all I could think of was a W.H. Auden poem (a couple of verses follow):

"Stop all the clocks,
cut off the telephone,
Prevent the dog from
barking with a
juicy bone,
Silence the pianos and
with muffled drum
Bring out the coffin,
let the mourners come.

Let aeroplanes circle
moaning overhead
Scribbling on the sky
the message
He is Dead.
Put crepe bows round
the white necks of the
public doves,
Let the traffic
policemen wear
black cotton gloves. . ."

However, Larry would probably have preferred me to "shake it off and buck up, babe,"—and to be more uplifting. So on that note, I'll finish this with a bit from my favorite author—and Larry, save me a stool in heaven—when I get there, I'll buy the beers. I am blessed for knowing you. *Patti Kurtz*

"Day is ended, dim my eyes,
But journey long before me lies.
Farewell, friends! I hear the call.
The ship's beside the stony wall.
Foam is white and waves are grey;
beyond the sunset leads my way.
Foam is salt, the wind is free;
I hear the rising of the sea.

Farewell, friends! The sails are set,
the wind is east, the moorings fret.
Shadows long before me lie,
beneath the ever-bending sky,
but islands lie behind the Sun
that i shall raise ere all is done;
lands there are to west of West,
where night is quiet and sleep is rest.

Guided by the Lonely Star,
beyond the utmost harbour-bar,
I'll find the heavens fair and free,
and beaches of the Starlit Sea.
Ship my ship! I seek the West,
and fields and mountains ever blest.
Farewell to Middle-earth at last.
I see the star above my mast!"

John Ronald Reuel Tolkien

NASA'S SPACE PLACE

FLIPPING THE LIGHTS ON COSMIC DARKNESS

A Space Place Partner Article

Exploring the universe is a bit like groping around a dark room. Aside from the occasional pinprick of starlight, most objects lurk in pitch darkness. But with the recent launch of the largest-ever infrared space telescope, it's like someone walked into the room and flipped on the lights.

Suddenly, those dark spaces between stars don't appear quite so empty. Reflected in the Herschel Space Observatory's 3.5-meter primary mirror, astronomers can now see colder, darker celestial objects than ever before—from the faint outer arms of distant galaxies to the stealthy "dark asteroids" of our own solar system.

Many celestial objects are too cold to emit visible light, but they do shine at much longer infrared wavelengths. And Herschel can observe much longer infrared wavelengths than any space telescope before (up to 672 microns). Herschel also has 16 times the collecting area, and hence 16 times better resolution, than previous infrared space telescopes. That lets it resolve details with unprecedented clarity. Together, these abilities open a new window onto the universe.

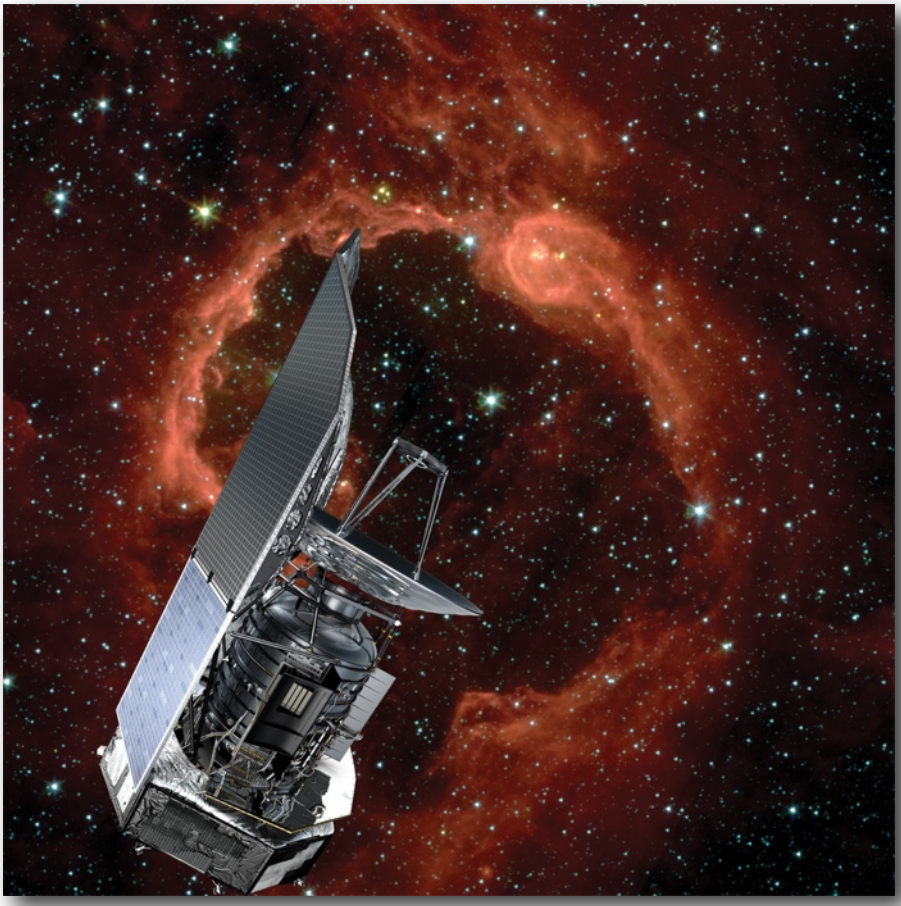
"The sky looks much more crowded when you look in infrared wavelengths," says George Helou, director of the NASA Herschel Science Center at Caltech. "We can't observe the infrared universe from the ground because our atmosphere blocks infrared light, and emits infrared itself. Once you get above the atmosphere, all of this goes away and suddenly you can look without obstruction."

Herschel launched in May from the Guiana Space Centre in French Guiana aboard a European Space Agency Ariane 5 rocket. Since then, it has expanded the number of distant galaxies observed at far infrared wavelengths from a few hundred to more than 28,000. And with the instrument testing and system check-out phases finally completed, the discoveries are only now beginning.

Beyond simply imaging these dark objects, Herschel can identify the presence of chemicals such as carbon monoxide and water based on their spectral fingerprints. "We will be able to decipher the chemistry of what's going on during the beginnings of star formation, in the discs of dust and gas that form planets, and in the lingering aftermath of stellar explosions," Helou says.

And those are just the expected things. Who knows what unexpected discoveries may come from "flipping on the lights?" Helou says "we can't wait to find out."

Herschel is a European Space Agency mission, with science instruments provided by a consortium of European-led institutes and with important participation by NASA. See the ESA Herschel website and the NASA sites at *herschel.jpl.nasa.gov, www.herschel.caltech.edu,* and *www.nasa.gov/mission_pages/herschel.* Kids can learn about infrared light by browsing through the Infrared Photo Album at The Space Place, *spaceplace.nasa.gov/en/kids/sirtf1/sirtf_action.shtml.*



THE HERSCHEL SPACE OBSERVATORY

The Herschel Space Observatory has a 3.5-meter primary mirror, allowing astronomers to see colder, darker celestial objects than ever before.

This article was provided courtesy of the Jet Propulsion Laboratory, California Institute of Technology, under a contract with the National Aeronautics and Space Administration.

IT'S MARATHON TIME!

The "official" DAS Messier Marathon will be held at the EG Kline Dark Site on Saturday night and Sunday morning, March 13-14, with the possibility of re-scheduling to the previous night depending on the forecast. Marathoners who observe more than 70 objects and submit their logsheets to Darrell Dodge for verification will receive a DAS Marathon Certificate and be acknowledged at the Spring banquet. Checklists for the Marathon will be available at the DS. Any DAS member who tries a Marathon at any time during March and April can receive a certificate. Please don't submit Marathon checklists for the full AL Messier Club Certificate.

DAS SCHEDULE

MARCH

5 E-Board meeting at Chamberlin Observatory (Begins at 7:30 P.M.)
12-14 EGK Dark Sky weekend (Messier Marathon!)
20 Open House at Chamberlin Observatory (Begins at 7:00 P.M.)
27 DAS Annual Spring Banquet and installation of officers (Begins at 6:00 P.M.)

APRIL

9 E-Board meeting at Chamberlin Observatory (Begins at 7:30 P.M.)
16-18 EGK Dark Sky weekend (another Messier Marathon?)
24 Open House at Chamberlin Observatory (Begins at 7:00 P.M.)
23 General Meeting at D.U.'s Olin Hall (Begins at 7:30 P.M.)

Public nights are held at Chamberlin Observatory every Tuesday and Thursday evenings beginning at the following times:
March 9 - April 14 at 8:00 p.m.
April 15 - September 1 at 8:30 p.m.
September 2 - March 8 at 7:00 p.m.
Costs to non-members are: $3.00 adults, $2.00 children.
Please make reservations via our website (www.denverastro.org) or call (303) 871-5172.

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