

The Sidewalk Astronomer

Newsletter of the Sidewalk Astronomers Summer 2004



NGC 5194 and NGC 5195
Arp 85

Jane Houston Jones is a long time member of the Sidewalk Astronomers. Along with her husband Morris, she has recently started a new Sidewalk group in Pasadena, Ca.

As regular readers of *The Sidewalk Astronomer* "must have noticed" Jane is a constant source of interesting articles on both general astronomy and sidewalk experiences.

Jane Houston Jones Awarded 2004 G. Bruce Blair Medal

Dr. Gilbert Bruce Blair was born September 13, 1879 in Blairsburg, Iowa and studied at both Tabor and Washburn Colleges in Kansas. He continued his graduate work at University of California, Chicago and Kansas majoring in Physics. He held a fellowship at Lick Observatory too. Dr. Blair taught astronomy at Washburn from 1907 to 1919, and then moved westward, where he taught at the University of Nevada in Reno until his death in 1949. In 1936, Dr. Blair organized the Astronomical Society of the University of Nevada. He is the founder of the Western Amateur Astronomers. <http://www.waa.av.org/>

Dr. Blair envisioned a grand meeting, to be held once a year, which would bring western amateur astronomers together to exchange ideas and to meet each other. The first Western Amateur Astronomers conference was held at USC in August 1949. 200 delegates from 23 organization attended. It rained! A month later Dr. Blair died of a heart ailment. Dr. Blair's obituary ran in the October 1949 Sky and Telescope magazine.

The sixth WAA Convention was held in August 1954 at the Josephine Randall Junior Museum in San Francisco and was hosted by the San Francisco Amateur Astronomers, who hold their meetings at the Randall Museum today. The WAA presented the first G. Bruce Blair Medal to Albert G. Ingalls, editor of the Amateur Telescope Making books. The G. Bruce Blair medal was designed by Eastbay Astronomical Society member Frank Kettewell, who was a cartoonist for the Oakland Tribune. The seventh convention was held in 1955 at Yosemite National Park. A.L.P.O founder Walter E. Haas received the second WAA G. Bruce Blair Medal.

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The Best Day in My Life by Polina Siomina

This is a most beautiful and important day! We have observed Venus. When I saw this small and black "drop" creeping in front of Sun, the bright giant, I was so inspired. We used 3 telescopes and camera. I so hope the photos will be good. At 1:15 p.m. Venus only touched the Sun and at 19:20 p.m. it left our star.

When we tired of observing, we went out from observatory and talked, discussing many science problems, and laughing, remembering the best moments from the history of our club. It seems to me that I've known my friends from club since my birth. It was a good chance today to know them better. But I understand that my life is a part of the club and science and without which I cannot image the future.

This day is a stimulus to reach more and more...the next time it will be possible to observe Venus is 8 years later, it will be December. I don't think the weather for next observance will be as pleasant. But I wait...

I wait and save forever the 8th of June in my heart.

Note: Polina is a high school student in Krasnoyarsk. There is a related article on page 11.



One August evening in August evening in 1998, science teacher Dennis Erickson took his large telescope to a busy street corner in Chicago and shared the view of the Moon with passersby. Little did he realize where this simple act would lead! He got such a favorable response that when school began, he started the Sidewalk Astronomy Club to involve his students in the experience.

The club is comprised of students at The Latin School of Chicago and several local amateur astronomers. On clear nights, members take telescopes out to the street corner and invite the public to view the wonders of the night sky. Sidewalk astronomy has become a great means for bringing together people from all walks of life—the homeless, businesspersons, and students all gather around the telescope and discuss astronomy. For safety reasons, the telescope is always set up on a busy street corner, and several adults always accompany students.

Danielle Friedland, the current club president, sums up a typical viewing session: “The public response has been fantastic. The last time I went out to the corner, every single person who looked through the telescope exclaimed ‘Oh, wow!’ There were several instances of groups being hesitant to look through the telescope. In all those cases one or two brave souls looked and convinced the rest of the group to look, with the same result: ‘Oh, wow!’ or ‘Thanks for sharing the view!’”

Many people remarked that they could not see many stars. Due to light pollution, only the craters of the Moon, the rings of Saturn, and the moons of Jupiter can be seen clearly, even on the clearest nights. To help the public understand why this was true, we learned about light pollution and informed viewers about our findings.

LIGHT OF NIGHT

Light pollution affects many organisms on Earth. For instance, night lighting causes trees to retain their leaves past autumn. Birds migrate out of season and sing in the artificial light of the night. Female sea turtles avoid brightly lighted beaches when they lay their eggs because the hatched turtles, instinctively heading for the perceived light of the Moon and the sea, end up wandering down streets. Even humans can be blinded by glare when driving automobiles, and pedestrians who are blinded by glare from streetlights are prey for criminals. Aesthetically, light pollution robs the human race of the beautiful night sky.

Club members explain the causes of light pollution to sidewalk viewers, who often want to know how they can help. Light pollution is caused by wasted light—light traveling upward and to the side—from streetlights. This over-lighting wastes energy and money (more than a billion dollars a year in the United States) and creates the orange-tinted sky that many city dwellers have come to know as the night sky. There is a simple solution to this light pollution—a shade placed over streetlights so the light only goes where it is needed: down. Club members pass out information to the public about lobbying local government for laws that require shaded lights. In the fall of 1998, the Sidewalk Astronomy Club worked with the city of Chicago to have six streetlights near the school replaced with shaded lights. The effect is dramatic; the new lights do not send any light upward and can barely be seen from the side. This type of light, known as a full cut-off light, greatly reduces glare and waste. Because more light is reflected downward, the street and sidewalk are actually brighter than without the shade. A view of these two types of lights (shaded and unshaded) from a distance clearly illustrates how disturbing light pollution is—a picture truly is worth a thousand words! The International Dark-Sky Association (IDA) has been working on the light pollution problem for more than 10 years. The association’s website (www.darksky.org) contains photos of good and bad lighting and features examples of laws passed by various states and cities that require shaded lights. The club is a member of the IDA and represents its Chicago section.

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STAR GAZING FOR THE BOY SCOUTS

This past May, members of the LA Sidewalk Astronomers and the LAAS took their telescopes to a boy scout outing and made quite an impression. Below is a portion of the thank you letter we received.

“Just wanted to say “Thank You” for your time on Saturday. Both children and parents thoroughly enjoyed the knowledge you shared and views you provided. I know my own children talked about it for some time, especially the comet! Thanks to all of you.

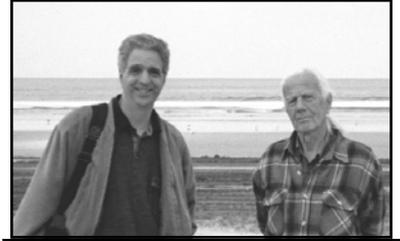
Special thanks for Bob Alborzian who kept changing the position of his telescope whenever someone asked him to, which was every five minutes, and Mr. Galileo who made it all possible. You folks are awesome.”

Ana Busse—Recognition Chair, Pack 948

“Universe—The Cosmology Quest” Premier

The Sidewalk Astronomers hosted the world premier showing of the documentary film “UNIVERSE—*The Cosmology Quest*” in Los Angeles on March 4, 2004. This ground-breaking and often controversial film was enthusiastically received by members of the audience, both those familiar with the history and content and by those being exposed to these ideas and circumstances for the first time. (The film is reviewed on page 9).

Several of the scientist and personalities involved with the film attended both the screening and the reception that followed. Coming from Italy, Germany, Alabama, New Jersey, and New Mexico were director/producer Randall Meyers, Dr. Halton Arp, Dr. Jack Sulentic, Eric Lerner, Dr. Anthony Peratt, and of course John Dobson (we were lucky enough to have him here in LA already). Also attending were Dr. and Mrs. William Napier from the University of Armaugh and Walter Murch, film legend and planetary theorist.



Randall Meyers and John Dobson

It was a great opportunity for many of the Los Angeles Sidewalk Astronomers to ask questions of those in the film. “UNIVERSE” raises many questions and all of the scientists were more than willing to try to answer whatever questions our members had.

Los Angeles Sidewalk Astronomer (and JD’s yearly Death Valley camping companion) Patty Domay provided the catering and donated a great deal of her time, and thanks to her the reception a great success.

Two days later, Randall Meyers, John Dobson, Dr. Halton Arp, and Eric Lerner all attending screenings in San Francisco at the Randall Museum. Carol Straus and Phil Rice of the San Francisco Sidewalk Astronomers did a fantastic job of arranging the screening and reception that followed. Audiences in San Francisco liked the film as much as the ones in Los Angeles.



SA’s Youth Coordinator Katy Haughland and Dr. Halton C. Arp

Before returning to Italy, Randall Meyers and John Dobson traveled to San Diego for a private screening with Drs. Geoff and Margaret Burbidge and their staff. Once again, reception was extremely positive.

John’s Dobson’s Schedule 2004/2005

Unless otherwise noted, contact Donna Smith for more information

July 1– Aug 4: Teaching at the Univ. of Oregon and Crater Lake Star Party . *Contact Garth Eliassen*

Aug 4–Sept 20: Teaching telescope/cosmology in Connecticut and speaking at various locations on the East Coast. *Contact Andy Pineros*

Sept 21–Dec 20: Teaching telescope and cosmology classes in San Francisco

Oct 8-19: Teaching telescope making and attending cosmology conference in Gubbio, Italy. *For more information: www.astronomiadigitale.org and www.gubbioastronomyweek.org*

Nov 12-17: Conducting telescope workshops at the International Congress of Amateur Astronomers in Coyhaique, Chile. *For more information: www.educarchile.cl/personas/congreso2004*

Dec 26–Jan 1: Death Valley Star Party

Jan 1– March 30: Teaching telescope building and cosmology classes in Los Angeles

History 1803 by John Dobson

A few thousand years back, in India, we had the old five element theory in Sanskrit. Those elements were five forms of energy perceivable by our five senses. But when that notion went on to Greece around 600 BC, the Sanskrit was very badly translated and it was thought that the five elements were five “things” like earth and water, fire and air. But the Sanskrit *cannot* be translated that way. *Vayu* means wind, not air, and *Tejas* means that which shines, not fire. *Agni* means fire.

In 1803 an English chemist, John Dalton, borrowed the word elements from the older theory because “The alchemists couldn’t show their ware,” and used it as we use it now for the chemical elements of the atomic table.

In 1805 another chemist, Prout, noticing that the atomic weights went up stepwise, suggested that all the chemical elements were made of hydrogen. That was some sixty years before we had the atomic table, and it was more than a hundred years before we knew that one chemical element could be made into another.

When I was kid in the 1920s it was still taken for granted that the chemical mix of the Universe had been given at the time of creation, if there was a creation, or had been around forever, if there was a forever. No one thought then that the other chemical elements could have been made from hydrogen.

By 1930 we knew that the chemical mix of the Universe was changeable, and the Big Bang cosmologists thought they could get the mix from the Big Bang. But they couldn’t. then, in the 1950s, M. Burbidge, G. Burbidge, Fowler and Hoyle wrote a paper on the “Synthesis of Elements in Stars.” They pointed out that in smaller stars like our Sun the hydrogen is fused first to helium, then to carbon and oxygen. But in larger stars, where the temperature is higher, the fusion continues through silicon, sulfur, etc. to iron which collapses to a neutron star with such a release of energy that the outer portions of the star are blown away. The heavier elements are made in the supernova explosion itself, and are also scattered far and wide.

By then the European physicists knew that the physical Universe is made out of hydrogen. But no one knew where the hydrogen came from. The Big Bang people wanted to get hydrogen from the Big Bang, but they had no source for that. The Steady State people wanted to get the hydrogen from the “C field,” but they had no source for that.

If we want to understand the *origin* of the hydrogen we’ll have to go back again to those old physicists in India. They said there has to be, underlying what we see, and existence not in time and space, changeless, infinite and undivided. If, by mistake, we see that as in time and space, the changeless, the infinite, the undivided must show through in what we see. You can’t mistake your friend for a ghost without seeing your friend. As I see it, the changeless shows through in *physics* as inertia, and the infinite and undivided show through as the electrical and gravitational energies.

Those old physicists said the Universe is made of energy. I think that that energy shows through in the physical world as hydrogen and what it does. It’s not as though the physical world is made of something else.

Those old physicists spoke of three spaces, the Consciousness Space, the Mind Space, and the Great Space. As I see it Shiva-Shakti represents the perceived in the Consciousness Space where there is on a *duality*, the perceiver and the perceived. The Mind Space I take to be the genetic space where we are involved in a *plurality* of interpersonal relationships. The Great Space I take to be the space of our physics where we see an electrical *duality* against a gravitational *plurality*, without being involved in either one.

It’s only the physical world in the Great Space that’s made of hydrogen. And there, in the Great Space, only the hydrogen arises by *Vivarta*, by the mistake. Everything else in the physical world arises *from* that hydrogen by *Parinama*, by transformational causation. Chevies don’t arise by *Vivarta*, they come from Detroit.

**“You have to have at least graduated high school to believe in the "Big Bang" Theory, because in high school three things happen:
First, you’re persuaded the impossible is possible,
Then you become persuaded the possible is probable,
Finally you become persuaded the probable is certain.
It takes at least 3 years for this. Children will never buy everything came from nothing.”**

John Dobson

Making a Mirror by Jeff Newsome

It took only a few nights of viewing the night skies thru a 4.25" aperture telescope to convince me that I *need* to see the universe with "bigger eyes"! After all, if you can see "that much" with even a small mirror, think of what must be observable with a larger mirror, I mused. The evenings of Nov., Dec., and Jan of 2003-2004 pass by with frozen feet and fingers (and the "occasional" whiskey sip!) and great views of Jupiter and Saturn, the Orion Nebula and Andromeda Galaxy, all the while nurturing the concept of moving into a bigger scope.

As I began to sift through the mountainous debris pile of astronomical gadgetry and **go-to** contraptions on the internet and in the backs of periodicals, I stumble across the "Dobsonian" telescope. The deceptively simple operational appearance, as well the relatively low – cost of these instruments immediately captures my attention. A Google search for "Dobsonian telescopes" brings me to the story of the remarkable John Dobson and the story of the Sidewalk Astronomers.

Sifting through the writings on his web page, both by and about him, I am captivated by not just his commitment to pushing the envelope of understanding in both the Cosmological and Astronomical world, but also by his desire, it seems, to accomplish more with less. His approach to telescopes, incorporating his deceptively simple mount, made from basic construction products, with high end optics (hopefully!), stand in marked contrast to the never ending spiral of "must have" equipment, fostered by an increasingly consumer oriented society. Don't think, just buy!

"What an amazing individual he must have been" I think to myself, assuming that anyone of this caliber, who has had this kind of impact on such a science as astronomy, must have long since passed on, just shortly after Galileo. I mean, they just don't make 'em like that anymore, do they? But wait, they didn't have plywood back then! Lo and behold, further scrutiny of his web page reveals that, not only is John, at 89, still actively teaching Cosmology classes and lecturing all over the world, he's scheduled to teach a telescope/mirror making class in Los Angeles, my brothers hometown, in February/March of 2004.

Mirror making? Is it possible that a slothful creature such as myself, could possess the skills to produce an instrument of high optical capability? You don't know if you don't go so I quickly made the decision to explore this phenomena first-hand. Unemployment has its advantages, so scheduling, at least for me, was a non issue. It was, however, an issue for my brother who I'd be staying with as he was set to move out of his digs come early March. How to resolve this I wondered? I e-mail Donna Smith of the Sidewalk Astronomers, John's "agent" and "organizer" ("Call Donna and ask her " John would often say, " I don't know what I'm doing tomorrow!") to glean more info on the coming classes. I've decided I'll show up in town early, pay for the class, do as much as I can on my own, and hopefully hook up with John from time to time for pointers when necessary. Donna gives me the phone number for John at the Vedanta Center and suggests I call him directly to work out any details. Call him directly? I've been sifting through his writings and looking for someone who could possibly translate all of this philosophical and scientific jargon for me, and I'm supposed to call him on the phone??? What do you say to Einstein? I settle on a "hello" and explain the situation to him. I needn't have worried as John, as Donna said, is very approachable and enthusiastic, though some of the articles about him have suggested a brusque attitude, at least where mirror instruction is concerned. Let's face it. Anyone who has done instructing of any kind for any length of time experiences the "burnout" syndrome. I'll try to keep my visits brief.

Perhaps the greatest impediment in making a mirror, for me, comes not in figuring out which strokes to use during the parabolizing process, (though that will prove to be an exercise in patience development and tenacity) but in coaxing my aging (1983) Toyota pickup, with in excess of 200,000 miles to its credit, from my home in Driggs, Idaho down to Los Angeles, and back again. The truck leaks so much oil it has been declared a disaster area in the state of Idaho. The Exxon Valdez tanker spill in Alaska seems tame by comparison to the destruction left behind by this vehicle's passage. Nonetheless, I cast off onto the highways one beautiful February morning, in the spirit of the Wright brothers, who must have felt a similar twinge of apprehension when launching their plane at Kitty Hawk. Will this beast fly, I wonder? Three hours later in Tremonton, Utah I check under the hood to gauge the situation. Doesn't seem to be leaking. One check of the dipstick shows why. The oil is completely gone!! It is moments like this that test the metal and mental acuity of the adventurer. With a case of oil in tow, I press on, like an elk in rut, dazed but determined!

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Arp 27 in Ursa Major
NGC 3631



Arp 317 In Leo
NGC 3623 & 3627



Arp 337 in Ursa Major
NGC 3034

Trip to Brenig Reservoir *by Dave Owen*



After conferring, by phone, with Dave Thomson on the morning of Mon 29 Dec we decided to take the TROK 30 inch Dobsonian to Brenig Reservoir, in North Wales, that evening. This would be our last chance to observe in relatively dark skies before the Moon began to set too late.

I arrived at Brenig, with Geoff Regan and Dave Robinson, at about 21:40 to find that Dave Thomson, assisted by his rocket making friend Sean, had almost assembled the TROK 30 scope. Phil Harman and Steve King turned up about 20 minutes later with their friend Ian. Ian brought his Meade 125 scope. Unfortunately, due to the lack of a dew cap, this quickly dewed up.

After a mostly sunny day we were disappointed to find that mist was starting to rise from the reservoir, especially later in the night. However, we still had a 30 inch telescope and the Orion nebula was very bright and billowy. Saturn was an exquisite collection of 3 rings and a multi banded globe. Steve even said that he could see the elusive Encke division in the outer A ring. For me, on my second look, Saturn seemed strangely blue? This was due to frost forming on the primary and secondary mirrors. After all, it was about -6 degrees centigrade! Desperate measures were called for. A 12 volt hair dryer, attached to a car battery, soon dried out the secondary mirror.

For the primary mirror, Dave Thomson decided to fire up a gas stove and put it in the rocker box, while keeping the tube covered with its cloth shroud! Eventually, this worked. We were able to get a good, but not great, view of the Crab Nebula before the mist eventually became so bad that we decided to dismantle the 30 inch and relocate a few hundred yards further up the hill.

By this time, about 01:30, we were down to me, Geoff, Dave and Dave. Soon we were busy again with the hair dryer and gas fire trying to remove the frost. If you put a hair dryer over a gas fire you can generate even more heat. Unfortunately, as we noticed some plastic melting on the hair dryer, it went pop and refused to give out any more heat. Good job we had a spare hair dryer eh?

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Sidewalk Astronomy

continued from page 2

HIGH SCHOOL STARS

In addition to working on the light pollution issue, The Latin School of Chicago is becoming one of the leading astronomy high schools in the nation. Club members announce viewing events at school assemblies, and the issue of light pollution is taught in science classes.

Students and teachers take astronomy to the streets

As evidence that astronomy awareness is increasing in the school and community, a group of students and teachers recently viewed the Leonid meteor shower, and the school now offers three astronomy courses—planetary astronomy, cosmology, and special projects in astronomy. Adult viewing sessions are offered as part of the school's Live and Learn evening school, and club members plan to spend a week at a New Mexico observatory that features charge-coupled device imaging. The school now has five faculty members with astronomy backgrounds, and club members are exploring the possibility of using one parent's farm as a dark sky observing site. The club was awarded a \$10,000 Toyota Tapestry grant for the project: "Reducing Light Pollution through Sidewalk Astronomy."

The grant was used to purchase a computerized telescope, a special lowlight video camera, and several smaller telescopes for use at sidewalk viewing sessions and in astronomy classes. Future plans for the club include meeting with city officials to introduce and pass a light pollution law that requires all new lights to be shaded and of the proper brightness. A club website (sites.netscape.net/dericksondennis) informs others about club activities. The site displays viewing dates, times, and places. Before and after photos of the replaced lights as well as photos of the people and telescopes at viewing sessions are shown.

Outreach efforts have taken other directions as well. In a 30-minute appearance on a Chicago FM radio talk show, club members Danielle Friedland, David Stone, Betsy Tangora, and David Tanimura discussed the sidewalk sessions and the issues of light pollution. This project has successfully combined science learning with positive change for the community. The public now recognizes the need to reduce light pollution, and viewers realize that there are other issues in addition to the loss of the night sky to light pollution—issues of public safety and energy savings. Club members are proud that the Latin School of Chicago is becoming known as the "astronomy school," and people appreciate seeing the wonderful views of the universe.

Dennis Erickson (email: derickson@latinschool.org) is a science teacher at The Latin School of Chicago, 59W. North Avenue, Chicago, IL60610; Danielle M. Friedland is a sophomore at The Latin School of Chicago and president of the Sidewalk Astron-

SIDEWALK ASTRONOMY IN CHILE *by Francisco Mardones*

With respect to sidewalk astronomy in Chile, I founded our group here in Coyhaique six years ago and we have held many public observations and events. The observational conditions here are very severe due to the fact that the best time to observe is when the snow and clouds have disappeared—"the frozen sky" as we say. Our main recommendation is of course, "don't touch the eyepiece." I speak from experience, when I first saw the Patagonia sky, I touched the eyepiece. Two things occurred, the first was a terrible pain in my left eye and the next was that the eyepiece and my eyelid were one and the same!

Our first major goal was the 1998 Leonids. Oh, that was a great spectacle, a wonderful experience. Hundreds of golden fireworks in a moonless night, God was on our side - this night was without wind, the temperature was warm—a lot of emotions we had when we saw these lights in the southern sky at 3 am. We didn't take any pictures, we were as statues, immovable, with our fixed, overflowing eyes on that sky. That



Leonids haven't repeated that magnificent show since, but there is the opportunity this year.

When the people see for the first time the Moon, they can't believe what they see on the Moon's surface, but the biggest surprise for them is Saturn and its rings. We can see in their faces a light of gratitude.

Well, I run with my emotions...

Francisco Mardones is conducting the Amateur Astronomers of Chile, International Congress in Nov. John Dobson will be speaking. For more information visit www.educarchile.cl/personas/congreso2004

Telescope Making in Texas



This June, the Fort Worth Sidewalk Astronomers held telescope making classes at the University of Texas/Arlington. Classes were taught by Tim Black and John Dobson.



For more information on telescope making classes in Texas or for upcoming events with the Fort Worth SA, call Tim Black or Sandra Milfeld or visit their website at: www.geocities.com/fortworthsidewalkastronomers



RChA—Red Chilena de Astronomia Promotes Sidewalk Astronomy by Eduardo Unda-Sanzana



"The Red Chilena de Astronomía" (RChA, Chilean Astronomy Network), an internet association of amateur astronomy groups in Chile, recently added a "Sidewalk Astronomy" section to their website. Some of the Chilean amateur groups have been doing sidewalk astronomy for a long time, and several of the youngest ones are beginning to take their telescopes out to the street too. As most of the RChA members are already committed to public service astronomy through school programs and other forms of community outreach, sidewalk astronomy is a natural addition to their activities.

The address for the Sidewalk Astronomy section of the RChA's website is www.rcha.cl/espanol/observacion/sidewalk/index.php and at least one of the individual clubs has added sidewalk astronomy to their section of the RChA website at <http://www.rcha.cl/espanol/observacion/sidewalk/rastro.php>.



"Making a Mirror

Two days after arriving in L.A., I make my way over to the Vedanta Center, where John Dobson will be giving a lecture on Cosmology, to be followed later, by the introductory Telescope Making Class. Many who have attended the morning services at the Vedanta Center stay on to listen to John's talk. An engaging speaker with a dynamic presence, Dobson thoroughly captivates and engages this audience, leaving myself somewhat in awe of this obvious force on the planet. It is there at the lecture that I meet more Sidewalk Astronomer members, Bill Scott, Bob Alborzian, and Donna Smith. Lunch break ensues and finds several of us jammed into two cars heading to Denny's, where Dobson helps himself to the marigolds out front in the restaurant's gardens while we wait to get in. Inspired by this display, I sample some myself. Cheaper and tastier than what followed!

Back to the Vedanta Center and Bill Scott's house, where John goes over telescope basics for the un-initiated, and a discussion on focal lengths and ratios and how they figure into the mirror making process. We adjourn to the sheds out back where Bill and Bob run, just a few of us now, through the "tools" of the trade so to speak. Various glass blanks, zip log bags of different sized grinding grits, Teflon bearings for the now classic "Dobsonian" telescope mount, brass tubing for use in the focuser, and the "sono-tube" pressed cardboard concrete forms that house the primary and secondary mirrors and have become one of the trademark features of Dobsonian telescopes.

Bob Alborzian gets a couple of us started on an eight inch piece of glass, with a six inch piece of glass used as a "tool" to carve or "hog" out the middle of the glass that is to become the mirror. The smaller, one inch thick, round piece of glass stays on the bottom, 60 grit carborundum sprinkled in between the two with a little water thrown in to aid in the process and away we go, grinding the glass together, extending the stroke somewhat of the glass on top so that its middle is worn away by the edge of the glass tool on the bottom. Called a "wet" this process is repeated several times, with both pieces of glass being rinsed when the abrasive properties of the grit wear out. Wet the glass, sprinkle on a teaspoon or so of carborundum, and grind away. Very soon, the process begins to feel a lot like work but there is something very meditative about pushing glass and you quickly begin to settle into a rhythm and pace.

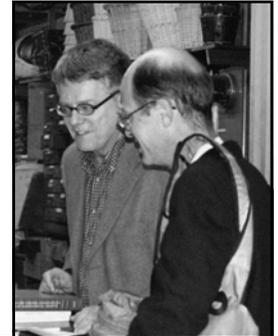
After this introduction, we sift through the mirror blanks already on hand and settle on a 14.5 inch porthole glass for my mirror project. I had originally wanted to attempt a 12" scope, but none were readily available and Bill offers me a great deal on the 14.5". It's badly chipped on the backside (how much this may have affected the final figure of the mirror is yet to be determined) but this only affects directly a small portion of the mirror side, so I opt to take a stab at it. (I can't recommend this for future mirror makers as the glass tended to slide around because the undercut/chipped portion allowed the glass to slide around while working on it due to the lack of contact with the nails I had used to hold it in place. This caused an unevenness in stroke, which is a contributing factor in astigmatism). For the tool, an eight inch piece of glass is available so I put that into use. (traditionally, a full sized tool or 3/4 sized tool would be used as this tool often becomes the pitch lap used in polishing. A full or 3/4 sized pitch lap not only polishes faster, but it keeps the figure of the glass more spherical, and helps minimize errors such as "turned down edge" and astigmatism. This all becomes painfully obvious to me later on! Operating in the spirit of utilizing what's available, Bill loads me up with the various grits, my two pieces of glass and I'm off to my brother's tiny garage for an education in mirror fabrication.

*Note: Part two of this article will appear in the next issue of **The Sidewalk Astronomer***

“Universe—The Cosmology Quest”

“UNIVERSE—The Cosmology Quest” a new documentary film by Randall Meyers, exposes the dissatisfaction and controversy in much of the scientific community regarding the currently popular Big Bang Theory, contrary to what is put forward to the general public. While much of the film is intensely personal, director/producer Randall Meyers has still managed to maintain some sense of objectivity by repeatedly pointing out how little is known and only briefly touching on alternative theories.

The first half of the film, while dealing with observational problems of Big Bang Theory, (mostly discordant redshift), is an insightful look at what happens to scientist who dare to oppose these popular theories. Told through the personal stories and opinions of many leading cosmologist and popularizers (Dr. Halton Arp, Drs. Geoffrey and Margaret Burbidge, Dr. Jack Sulentic, John Dobson, and in some of the last footage of him, Sir Fred Hoyle), the film explores the politics of scientific study and illustrates how scientific results are only as impartial as the scientists producing them.



Astronomer Jack Sulentic and SA Pres. Bill Scott

Starting with Einstein, Dr. Geoffrey Burbidge relates and explains the history of cosmology through Hubble and the general acceptance of the Big Bang Theory and sets the stage for Dr. Halton Arp to discuss the personal and professional difficulties that arose from his being unable to accept what very well could be one of the largest mistakes in modern science. Illustrated with extraordinary computer animated graphics, even those with an elementary understanding of astronomy and physics will be able to grasp the conflicting observations and circumstances which led to the current argument. Each interview builds on the last, adding more scientific information and more weight to the idea that there has been an incredible rush to a questionable conclusion.



Dr. Geoffrey Burbidge and John Dobson

Part two of the film starts in a somewhat different direction. The focus is now on plasma and we are again taken thru the history of this area of study. Dr. Anthony Peratt and Eric Lerner, again with easily understood language and graphic animations, explain what we know about plasma and how and when we learned it. Explaining the conflicting theories of Birkeland and Chapman in the past, the film puts the current Big Bang theory into historical perspective. Birkeland’s theory of vertical currents was based on experiment and observation, while Chapman’s idea of horizontal currents was a purely mathematical approach, much like current big bang cosmology (Birkeland was right).

When episode two shifts into the theoretical weaknesses of the Big Bang Theory, only the strongest (or most heavily invested) believer will survive. Dr. Jayant Narlikar, Dr. Jean Claude Pecker, and Lerner take it down point by point, explaining how at each step, new theories must be introduced to support the original theory, ending up with assumption upon assumption (epicycles). They refute the “solutions” of dark matter and dark energy, and explore the questions of the element abundance leading Narlikar to predict “the Big Bang Theory will collapse under its own weight of assumptions and a more neat interpretation of the universe will emerge.”

Witnessing them dismantle the Big Bang, you wonder how it has survived this long. Lerner brings it back into the realm of universal personal experience with “some people say science is a method of asking questions of nature, and if that’s true, then we can say big bang supporters are people who won’t take no for an answer.”

The film raises many questions and doesn’t really offer any answers. It took a lot time and going into space before Chapman’s plasma theories were rejected, and you have to wonder what it will take to demolish the Big Bang.

While many of these astronomers, physicists, and philosophers are outside of the mainstream, opposition to the Big Bang Theory is growing. As John Dobson would say about the origin of the universe, “how can you get something out of nothing?”



Eric Lerner and LA Sidewalk Astronomer Lilian Aguilar

Who (and where) Are the Sidewalk Astronomers?

The Sidewalk Astronomers send out approximately 500 newsletters and recently I was surprised when someone heard that figure and replied "that's all?" After I thought about it, it was a very natural question. Look at any club's website or do a search for sidewalk astronomy on the internet and there are hundreds of groups and people mentioned in articles, and many of them refer to either John Dobson or the Sidewalk Astronomers. Yet, few of them are known to us and fewer still are connected to the club.

This goes back to the origins of the club when John would tell people to build a scope and go out and show others. Good idea, there's nothing wrong with that, and we certainly don't want people to feel they have to join the club or pay dues to practice sidewalk astronomy, but it would be nice to have some kind of connection. We get inquiries from people all over the world, wanting to know if there is anyone in their area out on the street or in some public venue. Chances are there are, but who and where?

I ask all of you to encourage anyone involved in sidewalk/public service astronomy to let us know, whether they are individuals or other astronomy clubs. They don't have to pay dues if they don't want to join, but at least we can add them to our database and to our network. We all share the same goal of showing the sky to anyone who wants to see it. We also encourage everyone to copy the newsletter, or parts of it, and hand them out to those you meet at astronomy events. Imagine what we could all gain by sharing our information, experience and knowledge.

Another aspect is that while many of those doing sidewalk astronomy know us, we don't know them. So for those of you on the mailing list, if you are interested in having people contact you for information, please let us know. Often I do have someone in a particular area but its hard to tell if they are someone who once looked thru one of our scopes or if they are one of the founders of the Sidewalk Astronomers. It would be great to know who "we" are.

This is the last newsletter we will do exclusively on paper, the next issue will be available on the internet also. Please be sure to send in your renewal form and mark how you wish to receive it next time. The cost of printing and posting the newsletter was the last barrier to expanding our network of sidewalk astronomers.

Trip to Brenig Reservoir *by Dave Owen*

continued from page 6

It was now about 02:25, but what did we care? Our main concern was that some of the mist had followed us up the hill from the reservoir and was spoiling our attempts to hunt down faint galaxies. We took a look at Jupiter with a 35mm eyepiece, about 130x, and then switched to a 26mm. This gave about 175x and, as well as showing the Great Red Spot, also revealed a small, non circular, dark spot on the disk. Jupiter's moon Io also hung tantalisingly on the limb, having just emerged from behind Jupiter.

We took a quick look at a trio of galaxies in Leo, M65, M66 and NGC 3628. However, the best object of the night, for me, was the small, but very rich star cluster NGC 2158, on the edge of the much bigger and brighter M35 star cluster, in Gemini. This can be quite difficult to resolve into stars with smaller telescopes, but it was now a rich powdery glow of points of light against the blackness of the sky. Beautiful.

The Eskimo Nebula, also in Gemini, was next. This is a very bright planetary nebula and showed lots of detail, although not as much as it might have shown in a sky less plagued by mist. Our final object was M51, the face on spiral galaxy in Canes Venatici, just below the tail of the great bear. Dave Thomson and Geoff both said that they could see the spiral arms, but they were too ghostly for me to convince myself that I could see them. Unlike on a previous visit to this site with the same telescope in a much clearer sky.

Well, that was the end of our observing, but our real adventure was about to start. We had no major difficulty in going down the icy road to the reservoir. However, going up again caused us major problems. Both my car and Dave Thomson's got stuck just before we crested the steepest part of the hill. Dave unhitched the trailer, turned it around, it almost slipped away from us here, and then drove downhill, with the trailer attached, to try again. This time, both cars got up the hill and, at about 04:30, we were on our way home. Perhaps next time we should pack about 30 pounds of salt? And a few more hair dryers?

Dave Owen

Transit of Venus by Sergey Karpov

The weather in the morning of June 8th quite unexpectedly got cloudless, though granulation was seen only in some moments near the center of disc and steadiness was not excellent.

The skies were clear only during transit, just as it ended, the rain and storm started - this is the second surprise. So the weather was on our side in this day.

One more surprise is that the light arc which was especially awaited at 2 and 3 contacts was hardly seen, only during 3-d contact. I don't know how Lomonosov could discover the Venus atmosphere in 1761 in similar conditions. Maybe our filter was too dense and luminescence of atmosphere was faint and adsorbed by filter.

We received 2 groups from TV during June 8th and our former students, Konstantin with coworkers from his company and Dima Petrov (who came from Moscow for 2 days) also joined us. There were a lot of people, students, their parents...

For all it was unforgettable day. *Krasnoyarsk, Russia*

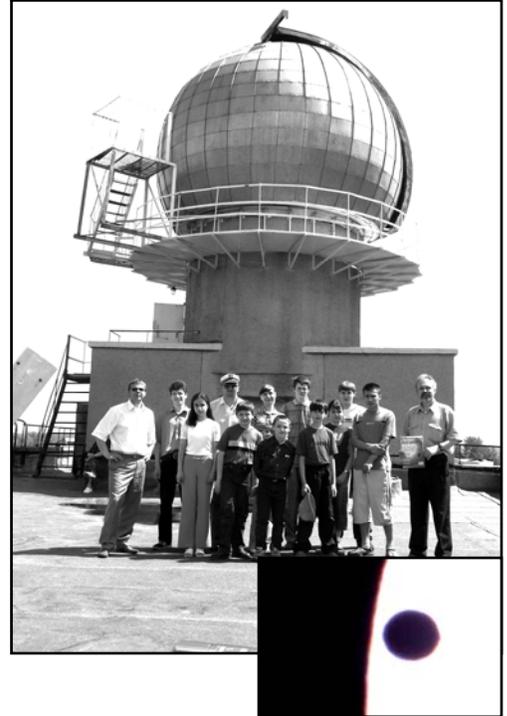


Photo of Krasnoyarsk Astronomical Club and one of the images they captured of the transit.

G. Bruce Blair Medal *continued from page 1*

Fast forward to the 2004 Riverside Telescope Makers Conference and Astronomy Expo. Imagine my thrill as I walked to the stage and received the 2004 WAA G. Bruce Blair medal! I was surrounded by many past winners as I received this year's award.

When I went through the award winners list from the past 50 years http://www.waa.av.org/Blair_recip_99.html, I discovered that I knew over half of the awardees personally and admired or was inspired by all of them. Dr Haas inspired me to not just look at the planets but to study and sketch their features when observing through

my telescope. Clifford Holmes inspired me by his infectious joy of amateur astronomy. Paul Zurakowski inspires me every day to help others build telescopes the best they can. Betty Neall and Denni Medlock, the only other two women Blair medal winners set a high bar for me and remind me that it is important for women amateur astronomers to encourage the stars of tomorrow. I could go on and on...

Current WAA president Jack Borde, received the G. Bruce Blair medal in 1987, the year I discovered amateur astronomy. 1987 was the year I became an amateur astronomer, first by learning about different types of telescopes then by joining an astronomy club. The following year, I took a deep breath and signed up for John Dobson's telescope making class in San Francisco. A few months later, I was spending all my free time looking through f/7.3 10-inch Stardust, which I still use today. Like countless thousands who preceded me, I got my start as an amateur astronomer at the hands of John Dobson, so I dedicate this award to John for the years of wonder that he has brought into my life. Every day he inspires me to ask a question, answer a question, or take my telescope out on a local sidewalk and share the wonder of the universe with others. Thanks, John!

Jane Houston Jones
34.2048N 118.1732W, 637.0 feet

Looking Back...

It isn't always necessary to look to the night sky to see into the past. The following is an excerpt from the Winter 1985 newsletter of the San Francisco Sidewalk Astronomers.

"The summer tour to Canada went off according to schedule. We had been invited by Alberta Culture to tour the provincial parks of Alberta, Canada through the month of August, which we did. But by the time we knew for sure that we were going, it was too late to get a big enough crew together to take the motor home and the twentyfour incher; so we took John Dobson's van. We had it re-painted California orange, loaded it up with his 18 incher (The Little One), Stellatope (an 11 incher with a long focal ratio) and a small sun telescope, and left for Crater Lake National Park on July 10th. We stayed there for nine or ten nights with good weather and a great deal of enthusiasm among the views and the audiences of the slide shows. At Crater lake, which is a volcanic caldera left by a volcanic explosion some fifty times as big as St. Helens, our minimal crew had the help of the rangers and a family of Sidewalk Astronomers, and we pulled on very well. One night we were slated for rain; so we put the telescopes indoors for the night, and left there in the morning. That left us free to leave the observing site because we didn't have to watch the telescopes in the sun to see that no one got hurt by turning them toward it. Our minimal crew of two hiked and hitch hiked round the crater rim and down to the lake, and with a great deal of help from our friends, got a boat ride around the lake. It is nearly two thousand feet deep in spots and is the clearest body of water on this continent. The unbelievable blue of the water, best seen on a clear day, looking down into the lake with the sun at your back, is due to the scattering of the shorter wavelengths of the sunlight by the water. It is the same process that makes the clear sky look blue, and makes the Earth look blue from outer space, and the depth of the blue depends on the clarity of the scattering medium. The blue of Crater Lake is very unusual.

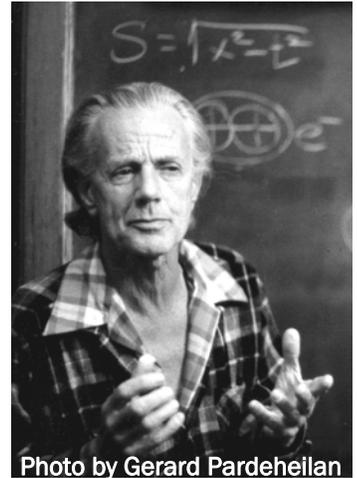


Photo by Gerard Pardeheilan

From Crater Lake we went to Tacoma, Washington, and attended a convention of the Northwest Region Astronomical League. John Dobson spoke there on Cosmological Fossils. He also spoke, on similar subjects, at Bremerton and Seattle. Then, just before leaving for Alberta, we went for a star party up Mt. Ranier to 6,200 ft. we first set up at Sunrise Point at 6,100 ft., and waited for the overcast to clear. But as time went on, clearing seemed less and less likely; so we threw the 18 incher back into the van and went on up the road a couple of miles to a clearing just over the overcast. There we had fabulous skies, really quite extraordinary. Although there was some turbulence down near the horizon where Jupiter swam, the star images overhead were miniscule through The Little One, and the astronomers had a ball. It seems they are not accustomed to looking through telescopes of that size under such clear, dark skies, and they said they would never be the same. Unfortunately, the Celestron 14 and some of the other equatorially mounted scopes were too difficult to move after setting up at the lower elevation and remained under the overcast for the rest of the night. Meanwhile, we got back to Tacoma by dawn, slept for a while, packed our life support system back into the van and left for Canada." John Dobson

EVERYBODY'S GOT TO SEE THIS by José María Palandri

I am writing from Argentina to let you know that Mr. Dobson's efforts to make astronomy a subject for everyone are worthwhile. I am a math-science teacher and telescope maker (Dobson 16"-Dobson 8") thanks to Spanish-speaking astronomy forums where information is generously shared. It was from one of these forum members, poet and telescope maker Juan Meneguín, that I learned glass could be cut with sand and a pot. That was the starting point for a very low budget telescope.

I am currently working at a primary school from a very poor area in Rosario (second largest city in Argentina) and with my 13 year-old students we have cut glass (with sand and a metallic pot), found material in the rubbish, and we are now making a low budget Dobsonian telescope (around u\$15).

Continued on page 13



Sacramento Sidewalk Astronomers

Douglas Wolfe and Franklin Anderson have been the core of the Sacramento Sidewalk Astronomers for several years. Along with the Cary and Dawn Chleborad of the SVAA, they hold telescope making classes on a regular basis.



People often ask us why we do what we do. Look here for the answer.

The Sacramento Sidewalk Astronomers operate at 16th and Broadway, near the Tower Theater. Our schedule is informal, impromptu and tied to the phase of the moon. Mostly we can be found on the Saturday of the full moon, and the Saturday before that. We usually arrive near sunset and go home before 10. Everyone is invited to join us. If you have a telescope, bring it. If not, we would still love to see you. We usually have more telescopes on hand than we have people to operate them, so you can have a turn at operating a scope if you like.



That's me, Douglas Wolfe, behind Cary's hand. Paul Massie looks on.

This couple had just come out of a movie and decided to walk over to see what the excitement was about. She has found something interesting and so, it would appear, has he.



EVERYBODY'S GOT TO SEE THIS

CONTINUED FROM PAGE 12

We have already finished 14 Newtonian telescopes (130 mm F8). These days we are organizing star parties where children show the sky to their families (many of them illiterates adults) through their own telescopes!!!!!!

Unfortunately, it was not the State that was our benefactor, but lots of Latino-Americans astronomers, among them, Mrs. Silvia Smith from www.cielosur.com who has kindly offered space web to make our project known. The complete process and photos of our low budget Latino-American Dobsonians are available at <http://www.cielosur.com/recursos/recursos.htm>

I would like to go on making telescopes in poor schools, bridging the gap between ordinary people and the stars. I would be really grateful if anyone could give any information on organizations which may help us. Together with my friend J. Meneguín, we are planning to write a manual on how to build a low budget Dobsonian. We would like to call it "*Everybody's Got to See This*". Mr. Dobson has inspired us and given us the tools to inspire other Latino-Americans in need of cooperation and hope.



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The Sidewalk Astronomer

is the official newsletter of the Sidewalk Astronomers.

To submit articles, they should be emailed to dsmith1055@earthlink.net or mailed to the main office in Hollywood.

The Sidewalk Astronomer

is printed at least twice a year and sometimes quarterly, depending on the amount of submissions.

Website:
www.sidewalkastronomers.com

Anyone wishing to contact John Dobson or send him a message, should email it to his website:

www.johndobson.org
or mail it to the Hollywood office.

Please do not send anything to John's San Francisco address or leave him voice messages on his phone. As he is gone 10 months of the year, the voice message will not be retrieved and mail will be unopened for several months. We will be sure to forward your message to John, wherever he is.

2004 Financial Statement

BALANCE SHEET

This Fiscal Year-to-date

ASSETS

Checking/Savings	\$6775.35
Petty Cash	\$ 38.45
Inventory/glass supplies	\$ 311.20
TOTAL ASSETS	\$7125.00

LIABILITIES & EQUITY

Opening Bal Equity	\$ 156.63
Retained Earnings	\$5222.64
Net Income	\$1745.00
TOTAL EQUITY	\$7125.00

PROFIT & LOSS

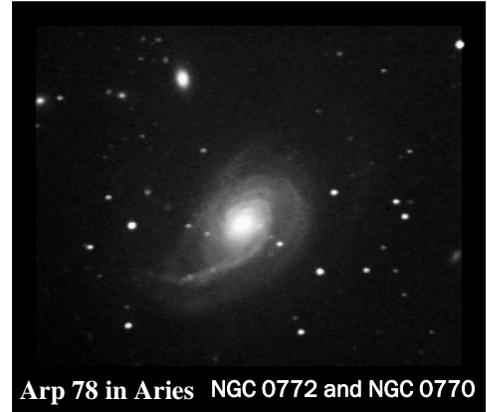
Ordinary Income	
Dobson Contributions/Unrestricted (Plans, books)	\$ 53.00
Dobson Contributions/Restricted (Direct donations)	\$ 749.00
Membership Dues	\$ 395.00
Non-inventory telescope supplies	\$ 213.57
Inventory telescope supplies	\$1,753.84
Travel reimbursements	\$ 150.00
TOTAL INCOME	\$3,314.41

Expenses	
Advertising	\$ 20.00
Internet costs	\$ 605.00
Telescope supplies	\$ 774.13
Refunds/Misc. expense	\$ 169.55
TOTAL EXPENSE	\$1,568.68
NET INCOME	\$1,745.73

UNIVERSE—THE COSMOLOGY QUEST DVD AVAILABLE

You may view trailers of both episodes of this documentary at www.universe-film.com.

Anyone purchasing the film through the website should be sure to write "Sidewalk Astronomers" in the comments section of the order form. Those who ordered dvds at the premier screenings should have received them. We apologize for the delay in production and appreciate your understanding and patience. If you did not receive your dvd, please notify us through the website or call 818-599-4134.



Arp 78 in Aries NGC 0772 and NGC 0770

Nominations for 2005/2006 Officers and Board Members

It is time again to elect officers and members to the Board of Directors. Please complete the following form and mail to the office or send the information to dsmith1055@earthlink.net by Sept 1, 2004. Ballots will be sent out in October with the Winter 2004 newsletter . Only dues paying members may nominate themselves or others for office. If nominating someone other than yourself, please include contact information so that we can verify they accept the nomination.

NOMINEE _____

CONTACT INFORMATION (email or telephone number) _____

NOMINATED FOR:

PRESIDENT _____ VICE PRESIDENT _____ SEC/TREASURER _____ BOARD MEMBER _____

NOMINATED BY : _____

The Sidewalk Astronomer

Newsletter of the Sidewalk Astronomers

1946 Vedanta Place
Hollywood, Ca 90068

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dsmith1055@earthlink.net

Everyone should see. Everyone should understand. What we do for ourselves is a waste. What we do for others is beauty. Those who help others to see will see. Those who help others to understand, they indeed will understand.

J.D.

Billions of eyes are waiting...

Sidewalk Astronomers Membership Form

NAME _____

ADDRESS _____

CITY/STATE/ZIP _____

TELEPHONE _____

EMAIL _____

New Membership or new contact information _____ Renewal with no changes _____

I am enclosing a check for \$15 for dues for 2005 _____

I am not enclosing a check but would like to remain on the mailing list _____

I no longer wish to receive information _____

I prefer to receive information by post _____ email _____

Please return completed form to:

Sidewalk Astronomers 1946 Vedanta Place, Hollywood, CA 90068

