



THE OBSERVER



The Astronomy Club of Tulsa's Newsletter Published Since 1937

RON WOOD ANN BRUUN JOHN LAND ED DOWNS ROD GALLAGHER JERRY MULLENNIX

Ann Brings us
Alcon 2011

Cepheid's Forecasts
Bright and Variable

Hulah Lake
Astronomy



www.astrotulsa.com

AUGUST SEPTEMBER 2011

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EDITORS NOTES

THE COVER



The Gegenschein Over Chile Credit: Yuri Beletsky (ESO) and Astronomy Picture of the Day.

Explanation: Is the night sky darkest in the direction *opposite* the Sun? No. In fact, a rarely discernable faint glow known as the gegenschein (German for "counter glow") can be seen 180 degrees around from the Sun in an extremely dark sky. The gegenschein is sunlight back-scattered off small interplanetary dust particles. These dust particles are millimeter sized splinters from asteroids and orbit in the ecliptic plane of the planets. Pictured above from last October is one of the most spectacular pictures of the gegenschein yet taken. Here a deep exposure of an extremely dark sky over Paranal Observatory in Chile shows the gegenschein so clearly that even a surrounding glow is visible. In the foreground are several of the European Southern Observatory's Very Large Telescopes, while notable background objects include the Andromeda galaxy toward the lower left and the Pleiades star cluster just above the horizon. The gegenschein is distinguished from zodiacal light near the Sun by the high angle of reflection. During the day, a phenomenon similar to the gegenschein called the glory can be seen in reflecting air or clouds opposite the Sun from an airplane.

It's that time of year again and many are packing and heading off to the annual Okie-Tex Star Party hosted by our sister group The Oklahoma City Astronomy Club.

This year the 28th annual star party takes place September 24th through October 2nd and is of course at Camp Billy Joe.

For more information or to register go to www.okie-tex.com



Recent New Members:

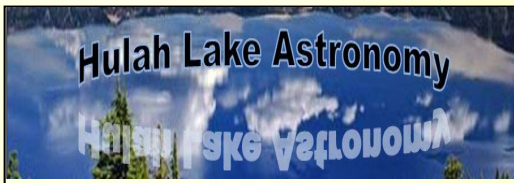
1. Debra Ingram
2. Sigh Mondloch
3. Edward Downs
4. Clyde Glandon
5. Judy Moody
6. Dale Mondloch
7. Hunter Zimmerman

Welcome All.

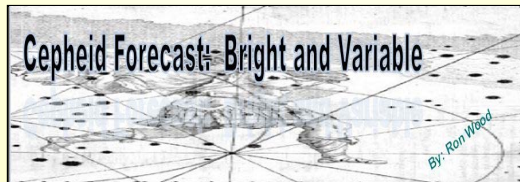
AUGUST/SEPTEMBER FEATURES



September marks the return of guest speakers. Page 3



I give my recount of two nice astronomy trips Page 5



Ron Wood brings us the Cepheid Forecast and it's a great read. Page 6



Ann Bruun tells of Alcon 2011 from Brice Canyon Page 11

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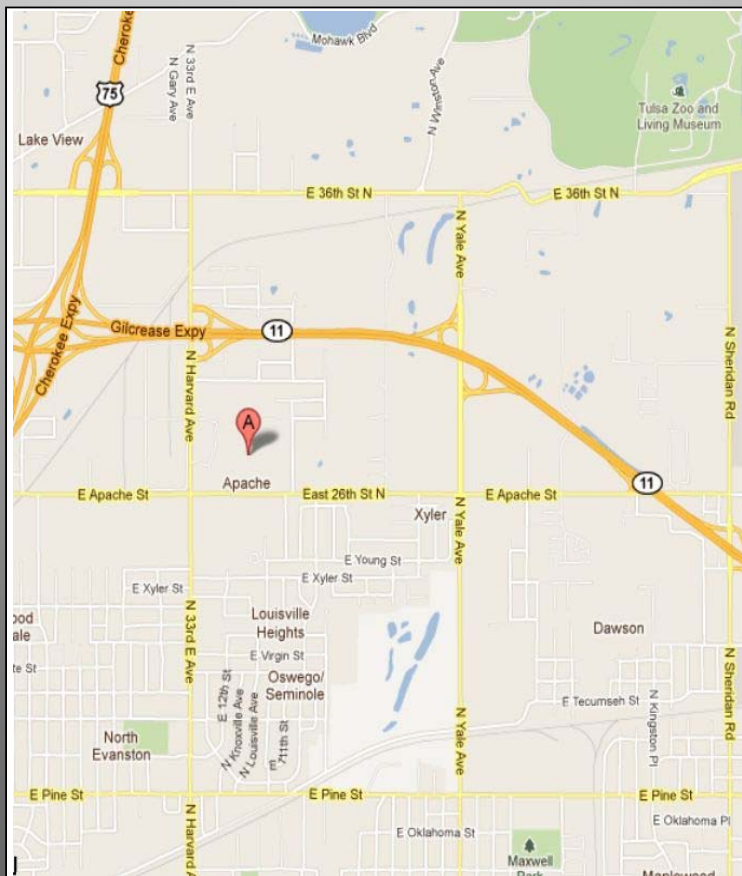
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Guest Speaker

Our guest speaker is **James Beauchamp**, a radar systems engineer at Boeing in Oklahoma City. James will be making a presentation on the use of current AllSky optical camera systems, and radio scatter for meteor observations. For the past couple of years James has been observing meteors with a USAF VHF Space Radar Radio scatter system. Recently he has added an AllSky camera to capture visual images of bright meteors along with simultaneous audio capture of their radar signature. One of his recent video captures can be seen at <http://www.youtube.com/user/desertengineer1>. Come hear and see more Sept 16.

3727 East Apache, Tulsa, OK 74115
Room 1603 Building #2 Student Union



EVENTS

EVENT	PROGRAM	WHERE	DATE	TIME
September Meeting	Guest Speaker James Beauchamp	TCC NE Campus	9-16-2011	7:00 PM
SideWalk Astronomy	Public Observing	Bass Pro	9-17-2011	7:30 PM
September Star Party	Members Night	ACT Observatory	9-23-2011	7:30 PM
October Meeting	Club Elections	TCC NE Campus	10-14-2011	7:00 PM
SideWalk Astronomy	Public Observing	Bass Pro	10-15-2011	7:00 PM

SPECIAL NOTE:

Club Elections are held every year in October and now is the time to be thinking about how to give back to your club. First and most important, let me dispel the notion many of you have. *“I can’t run for a position on the board because I don’t know enough about astronomy.”* This is absolutely incorrect, if you have a desire to improve our club and you have a little time then we need you.

Our Club is only as good as we make it and if we don’t get turn over in many of our key positions then we suffer from burn out and our club suffers. Lets make this the year that no position goes un-contested.

Here are the positions that we will be voting on.

President— Currently held by Owen Green

Vice-President Currently held by Teresa Davis

Secretary Currently held by Tamara Green

Treasurer Currently held by John Land

Besides the four Officer positions there are four Board Member at Large positions we will be voting on. These are currently held by: Tim Davis, Bill Goswick, Chris Proctor and Allen Martin.

There are also eight appointed staff positions and if you look on the back page you will see many of these are filled by the same people, not because they necessarily want to but because our participation level is low. We can change that this year with your help.

Hulah Lake Astronomy

Hulah Lake Astronomy

SEEING SPOTS IN THE SKY

By: Jerry Mullennix

We have made several trips to Hulah Lake in the last few months and two have been very memorable. We are constantly amazed at how good the night skies are and for just a little longer drive then our observatory. On the first trip; Rod Gallagher, Stan Davis, Steve Chapman, Mike Blaylock/Marylyn and of course myself went to enjoy an evening of dark skies. On this night comet C2009 P1 Garrard was the star of the night. The photo below was taken by Rod Gallagher and it really shows how nice this comet is as it fly's by M-71. (From our perspective)

Now if you examine the cover this month you may wonder why I would show a picture of the Gegenschein. OK, I know many of you need an explanation. The Gegenschein is exactly like the Zodiacal lights in that it is interplanetary dust reflected by the sun and can only be seen from dark skies, It is distinguished from zodiacal light by its high angle of reflection of the incident sunlight on the dust particles. It forms a slightly more luminous, oval glow directly opposite the Sun within the band of luminous zodiacal light. The intensity of the gegenschein is (relatively) enhanced because each dust particle is seen in full phase.

My reason for putting it on the cover was my second memorable night. Group: Myself, Steve Chapman, Brad Young and Mike Blaylock. John Land did not return after getting rained out the night before but I wish he had made the trip again. This night started off with a very bright moon that did not set until mid-night. As the moon dropped below the horizon it was like

someone turned the lights off and the planetarium on. The sky was spectacular with many objects that you would need binoculars to see from Mounds simply being naked eye objects.

I had my Celestron 14" out and we were bouncing from one great object to another when Brad walked over and said this is driving me crazy but what is that, as he pointed high in the sky? We all looked up and responded with "I don't know can't be light dome." Brad replies I know what it is, it's the Gegenschein.

Now I have seen the zodiacal lights on a few occasions but in over 30 years of astronomy I have never seen the Gegenschein but I instantly knew he was correct. It all fit, the altitude the glow and the shape. At that moment we realized just how special this site was because you almost always need a Bortle 1 or 2 site to see it. Okie-Tex and the Texas star parties are Bortle 1 sites. (Bortle is a scale used to

measure the light pollution in the sky)

One thing we have noticed several times was the later it gets the darker it gets at Hulah and we have just assumed the only light dome we have, Bartlesville is dimming. Our reasoning is because people are turning their lights off and going to bed. Bartlesville lights are visible from Hulah although not as bright as Okmulgee from Mounds and if you ignore the lower 20 degrees in that direction most objects are very good.

Now I know a few of you are starting to think about making a trip yourself and I would strongly encourage you to do so but don't go by yourself. This is for all of the reasons you should not venture to remote places alone. Now if you would like to go up with us you are more than welcome as there is plenty of room for all.



Cepheid Forecast: Bright and Variable

By: Ron Wood

How far can you see with that telescope? How many times have you heard that and what do you say? One thing can be said about the question though. It comes close to one of the most fundamental of all questions asked by professional and amateur astronomers alike: How far away is it?

To be such a simple question, finding the answer is quite difficult. Even for the nearest objects, the sun and moon, it took a long time looking at the sky before anyone had an answer. Several early Greek astronomers, using clever observations and ingenious geometrical arguments, made attempts to determine the solar and lunar distances.

Aristarchus (310 BC – 230 BC), who advocated a heliocentric model, determined the moon's distance to be 60 times the earth's radius which is very close to the true value. He did this by observing the movement of the moon through the earth's shadow during a lunar eclipse. In 1672 Cassini calculated a rather good value of 87 million miles for the solar distance based on observations of Mars and geometrical reasoning.

The determination of stellar distances, however, was going to require an altogether new approach. Newton attempted to deduce the distance to Sirius by assuming that it had the same luminosity as the sun and then comparing its

brightness to that of the sun. In 1674 Robert Hooke outlined the method of parallax for measuring the distance to nearby stars, and in 1838 Bessel used it to determine the distance to the star 61 Cygni.

Until the launch of the Hubble Telescope and Hipparchos satellite, parallax measurements were not possible for stars beyond 150 light years, which meant that most of our galaxy and other galaxies as well were out of reach. There was very little progress in cosmic distance determinations until the discovery of the period-luminosity relation for Cepheid variables in the first decade of the twentieth century.

There are several types of variable stars which are relevant to distance measurements: Type 1 or Classical Cepheids, Type 2 Cepheids also called W Virginis variables and RR Lyrae variables.

Being the brightest, and visible from the greatest distances, the Classical Cepheids are the most important. They range in size from 5 to 20 solar masses with luminosities from 1000 to 30,000 times that of the sun and periods from one to one hundred days. The term cepheid originates from Delta Cephei in the constellation Cepheus, the first star of this type identified, by John Goodricke in 1784.

The Cepheid's variability is caused by cyclic changes in the state of ionization

of the helium in the outer envelope of the star. Ionized helium is relatively opaque trapping the outflowing radiation much like the greenhouse effect. This causes the temperature to rise, making the star expand and appear brighter. But as the star expands, the ionized helium in the outer layer cools. Free electrons are captured, reducing the degree of ionization, and causing the helium to again become more transparent to the outward energy flow. The star now cools and shrinks back to its original size and brightness. But as the contraction progresses the helium is reheated and reionized. With reionization the opacity is once again increased, setting the stage for the cycle to repeat itself. This mechanism is known as the Eddington valve.

The critical discovery of the period-luminosity relationship was made by Henrietta Leavitt working at Harvard. She compiled a list of 1,777 variable stars on



Figure 1: Henrietta Leavitt

photographic plates of the Magellanic Clouds and identified 47 of these as Cepheid variables. She noticed that those with longer periods were brighter than those with shorter periods. Since they were essentially all at the same distance the apparent differences in brightness implied an intrinsic difference in luminosity or absolute magnitude. In other words the longer the period, the greater the absolute magnitude.

The consequences of this discovery were profound and far reaching. The Danish astronomer Hertzsprung immediately used known distances to nearby Cepheids for calibration, and then made the first determination of the distance to the Small Magellanic Cloud.

The American astronomer Harlow Shapley used the Cepheids to determine the distances of 86 globular clusters. Then by mapping the distances and distribution of these clusters, he deduced the size and shape of our galaxy.

In 1924 Edwin Hubble detected Cepheids in the Andromeda Galaxy and M 33 and used them to make a distance determination, settling the longstanding question of whether or not Andromeda

was part of the Milky Way. This was a momentous discovery and dramatically expanded the scale of the known Universe.

Since the discovery of the period-luminosity relationship, Cepheid variables have routinely been used to measure distances of objects from 100 to 10 million light-years away. Recent observations of Cepheids by the Hubble Tele-

scope have been used to measure the distance to the Virgo Cluster, about 40 million light-years.

There are now a number of rungs on the cosmic distance ladder, but none more important in the history of astronomy than the one found by Henrietta Levitt.

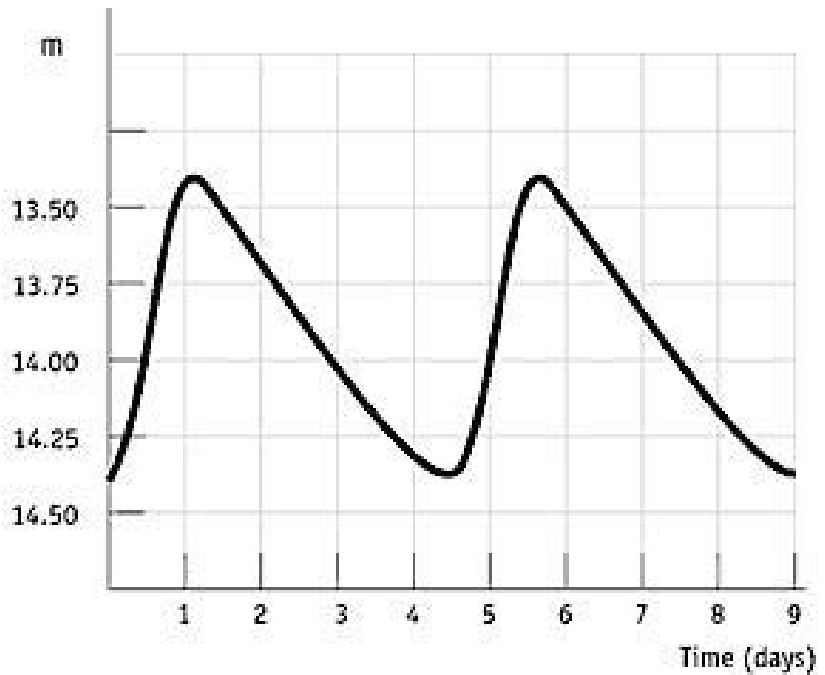


Figure 2: Typical Cepheid light curve

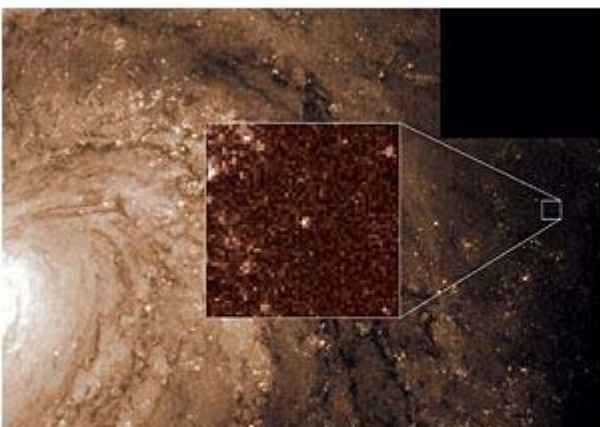


Figure 3: Hubble tracks down Cepheid variable stars in M100

SPACE PROGRAM

EDITORIAL

BY: Ed Downs

Readers of my regular "Sport Pilot" column may wonder why a guy who flies around in little LSA's has anything to say about the end of America's manned space program. Obviously, given an aviation career that exceeds 55 years means that not all of my flying was in LSA's, and I have been around long enough to have strong feelings about a program that held personal importance to me and millions of others. Allow this writer a few moments to share some observations and thoughts. I have a hunch that many others will share some the views I express. Perhaps reading my cut on the surrender of America's leadership in manned space exploration will help you take the next step necessary to get our country off the downward trend we now see in our national commitment to science and engineering.

Manned space flight is an American tradition. Kids in the 1930's and 40's absolutely knew that Buck Rogers and Flash Gordon were Americans. Early television confirmed that Buzz Corey and Tom Corbett-Space Cadet were Americans through and through. Space articles in Colliers Magazine confidently announced that space travel was possible; even if they were inspired by WWII German scientists. The early 50's saw the Colliers series compiled into the classic book, "Across the Space Frontier," an accurate blueprint for America's moon program. Georg Pal did not use a rented Russian rocket when his heroes in the classic motion picture, Destination Moon, reached out to warn America that we were losing the technological race. Junior rocket clubs formed to construct flying rockets that

were not made with the store-bought engines that we see today, but straight from books dedicated to the science of rocketry that were guaranteed to set your bedroom on fire, if improperly handled. The launch of Russia's Sputnik 1 on October 4, 1957 lit a fuse under Americans that has strongly flourished, up until now. Astrophysics and astronomy became the passion of high school students, as they made college choices. Science and engineering became a passion that spread nation-wide, as America geared up for the greatest challenge technology had ever undertaken. As Americans struggled with a weak economy and political uncertainties, a young president threw down a gauntlet that changed the soul of our nation, forever.

"We choose to go to the moon. We choose to go to the moon in this decade and do the other things, not because they are easy, but because they are hard, because that goal will serve to organize and measure the best of our energies and skills, because that challenge is one that we are willing to accept, one we are unwilling to postpone, and one which we intend to win, and the others, too."

President John F. Kennedy, September 12, 1962, at Rice University, Houston, Texas

How many readers remember that full quote? Full of hope, promise and a vision of the future. How many of you remember the sense of excitement and pride you felt. Think back to that feeling and ask yourself, "How do I feel today?" But it was not just JFK in play; it was the combined leadership of both houses of Congress. The economy was in trouble, Kennedy's own political fu-

ture was in doubt due to fiascos in Cuba, and NASA was new and unproven. But WWII was only 17 years in the background and our country was being led by the "band of brothers" that were terribly familiar with the bloody price paid for future greatness. They were not afraid to commit to a future of exploration, and what a terrific commitment it was. We now live in a technological world that simply did not exist 50 years ago. Science, engineering, invention, technological achievement and excitement were all a part of the manned space program that culminated in the Space Shuttle. And, keep in mind that for every person directly employed in space program activities, 100 others found jobs created by space technology. Entire industries emerged. It must also be remembered that the manned space program flourished during a period of enormous social change and seemingly endless war. The need for engineering and scientific excellence, when combined with equal opportunity and affirmative action programs, spearheaded the entry of minorities and women into the high paid professions with brilliant futures. Statistical analysis proves that the manned space program, especially the Space Shuttle, is second only to WWII in terms of financial and social contributions to this country. Even the most critical look at the shuttle and its heritage would disclose that it was the most successful jobs program ever created by our federal government. These benefits, including thousands of jobs, continued to flourish right up to the moment in which our politicians pulled the plug.

Media propagandists and political PR

firms would have the public believe that the Space Shuttle is being retired because it has done its job, it was time to call "mission complete" and proudly close a chapter on American history. "After all," they will say, "even the famed P-51 Mustang was eventually retired." This is true, but retirement of the P-51 from U.S. Air Force inventory did not close down the entire Air Force, including all air bases, flight training, and technological development, resulting in a complete loss of capability. There was an improved replacement waiting and the tradition of the P-51 flies with every military pilot serving today. There is no funded Space Shuttle replacement or program to pick up where the Space Shuttle has left off. Loss of the Space Shuttle has shut down our entire manned space flight program. Facilities, equipment, training, technological development, vendor support, thousands of jobs and tradition are gone. America no longer has astronauts; we have relegated these talented engineers and scientist to the roll of "passenger." A huge tax payer investment in the future has simply been tossed into the trash bin of history, and the downward ripple effect will continue for years. At some point in the future, experts and pundits will look back and ask, "what were they thinking?!"

The political leadership for the last 20 years has simply not displayed the same vision and commitment to the future as "the Greatest Generation." Short term planning, squabbling, political divisiveness and "planning for the next election" have taken the place of facing the future as a *"challenge is one that we are willing to accept, one we are unwilling to postpone, and one which we intend to win."* Instead, our leadership has surrendered our future in manned space exploration to a totalitarian government that charges \$60 million a pop to venture into space in the technological equivalent of a 1959 Chevy (no insult to GM intended). Not one penny of that money is spent in America. Public an-

nouncements are made regarding the growth of commercial space travel, of future plans for manned space flight, 20 or 30 years in the future. It must be remembered that these promises are not funded. And claiming that "commercial" space flight is more innovative and effective that the old "NASA system" completely disregards the fact that NASA never built a darned thing. Virtually every space component and engineering process was subcontracted to private aerospace companies. It has always been a privatized venture. The shutdown of America's manned space program, with no plans for a national program to replace it, has no basis in economics. The decision to move away from manned space exploration has been going on for twenty years, and now results in the destruction of a scientific and engineering infrastructure that had never existed before, and may never exist again, at least not in this country. It is purely a political decision, enabling supporters to claim that funds can now be diverted into other programs favoring special interests that control votes. Our past 20+ years of so-called leadership should be ashamed. You could have, and should have, done a better job.

Okay, I have griped about it, admired the problem and accused leadership of incompetence. America is now a second rate country, in terms of manned space flight and exploration. There is no doubt that American dollars will be welcomed by Russia until such time as China trumps both of us. The Hubble Space Observatory can no longer be maintained and will die. Now, what can we do about it? Even more important, what can you do about it?

That answer came in an unexpected encounter. This writer recently reengaged in a passion that has lain dormant for 60 years, astronomy and astrophysics. For a remarkably modest investment, the average person can visit stellar destina-

tions that would make Captain Kirk envious. The Tulsa Air and Space Museum & Planetarium presented a fine program that I attended. Upon exiting the excellent program, I was surprised to see a full lobby, waiting for a second show. Lines were quickly forming outside to take advantage of ACT (Astronomy Club of Tulsa) volunteers who were on hand to amaze attendees with an excellent view of the moon's surface. The excitement and enthusiasm were palpable! Immediately after the show, I visited the lobby displays and overheard a father talking with his 10/11 year old daughter, while gazing at a model of the Space Shuttle. The young lady was musing about becoming an astronaut. Her father took her hand and sadly explained that the U.S. manned space program was over; the last shuttle was now in orbit. The little girl asked "Why?" "Because," answered the father, "the guys who run the country don't care about the stars anymore; it's up to you now." The little girl reached out and touched the model, her eyes filling with tears.

It is this little girl's generation that will take "man" back into space. It is up to us, the grandparents, to build a fire under the thrill of exploration that our leadership has lost. We must first remember the people who made our space flight accomplishment possible. We must support aviation museums and the popularization of astronomical sciences that surround planetariums. Encourage kids to put down the computer toys and join an astronomy club, join in with amateur rocket enthusiasts, and learn to fly. Remember, a glider student can solo at age 14, and Sport Pilot has cut the cost of learning to fly by up to 70%. Take your grandkid, son or daughter, by the hand and physically lead them into activities that can shape their future and that of our country. Public schools are not teaching kids about our space flight accomplishments. This writer has talked to young folks who do not

know we have walked on the moon. Recognize that NASA still continues incredible research with deep space telescopes and unmanned space vehicles. These programs are grossly underfinanced, but are the only activities left that maintain the remaining elements of a once proud scientific infrastructure. Write, e-mail, tweet, and “facebook” your elected officials, calling for support of American manned space flight. When the response comes back extolling all our future plans, ask, “Is it funded?”

Like that father said to his daughter, “It’s up to you.” After 20 years of neglect, our present leadership thinks the final nail has been placed into the coffin of manned space exploration. It is time for you to pick up a low tech claw hammer and start pulling those nails out. I think you have one in your tool box of conscience.



Ed Downs, President of Kindred Spirits Enterprises, has been an aerospace professional for over 55 years.

With an education in mathematics and engineering, followed by advanced studies in psychology and educational methodologies, Mr. Downs was well prepared for a career that has embraced technology, communications and education. He earned his Commercial and Flight Instructor certificates at the age of 18, and worked his way up the General Aviation ladder of experience. Mr. Downs became a Pilot Instructor and certification team member for TWA when TWA brought the Boeing 747’s and Lockheed L1011’s into service. Later, he assumed the duties of Flight Operations Manager for Continental Airlines, and served as a resident Regulatory Advisor to the Airline Transport Association, based in Washington D.C. Mr. Downs has PIC time in over 140 different aircraft types, and holds ATP and Flight Engineer certificates with Turbojet type ratings. Much of Mr. Downs’s flight experience has been associated with flight test engineering and aircraft prototype development.

Author of numerous articles and papers on flight safety, test flying and aviation business opportunities, Mr. Downs has become a much sought after lecturer and public speaker. His informal, well directed seminars on a variety of aviation and motivational subjects have drawn large participant approval and enthusiastic response. His practical “how to” approach includes personal experiences and humor, while giving attendees usable tools.

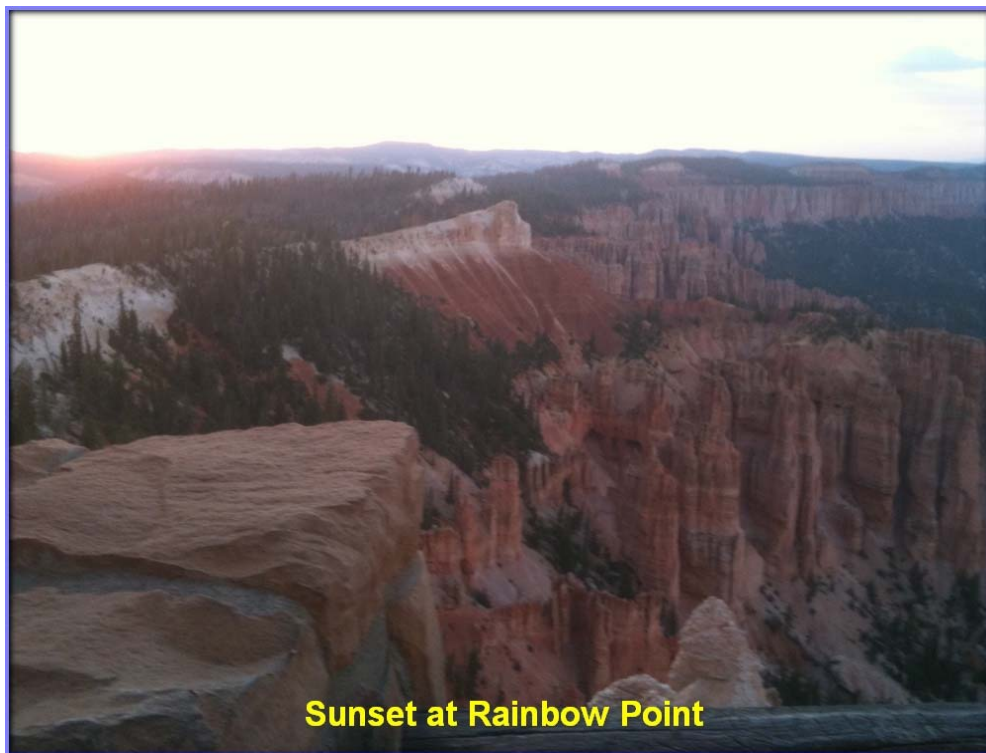
Prior to his recent retirement into the lifestyle of a full time rancher in Oklahoma, Mr. Downs was the President/CEO of the one of the nation’s leading kit plane manufacturers. He remains an active Flight Instructor in both the contemporary and Sport Pilot communities, with significant experience in the operation of flight training centers, sales and marketing firms, and aircraft service facilities. Mr. Downs personally owned and constructed a variety of general aviation aircraft.

Mr. Downs’s experience with the new Sport Pilot regulations dates back to the original Sport Pilot efforts that began in 1992 and continue to this day. He served as Chairperson of the ASTM Airplane Certifications Sub-Committee and serves on the FAA Sport Pilot Industry Advisory Group. Recently awarded the Spirit of Flight Award by the Society of Experimental Test Pilots, Mr. Downs exemplifies the spirit of research, development, flight test, and overall aviation experience that has brought about the revolutionary Sport Pilot concept.

ALCON 2011



By: Ann Bruun



Sunset at Rainbow Point

When my copy of the Astronomical League magazine arrived in early spring and I discovered the A.L. convention was going to be held at Bryce Canyon National Park, Utah and it was scheduled to coincide with the Bryce Canyon star party, it was really just too much, I had to go. I easily talked my partner into it and we booked reservations for a popup camper site at the Ruby's Inn campground before the campground was even open for the season. (Also before we actually owned a popup – but that's a different story.) I had wanted to go to the Bryce Canyon star party since I first got involved in astronomy and the ALCon (Astronomical League Convention) had always intrigued me. The convention was held at Ruby's Inn, a sprawling multi-building, multi-service, multi-everything establishment

only minutes from the park entrance. In addition to the Inn's restaurants, grocery store, camp store, souvenir shop, they have several shops across the street from the main building that reminded me of a tiny version of Wall Drug in South Dakota. It was a good spot for the convention with plenty of rooms and a large campground within walking distance.

The convention and star party started on Wednesday June 29th and ran through Saturday July 2nd. It was hosted by the Salt Lake Astronomical Society. This year, for the first time, there was a solar and nighttime observing element to the convention. Solar scopes were set up early Wednesday morning in the Ruby's Inn parking lot. The first speaker started at 9:45am with

a presentation about solar observing. Talks continued all day each day and included topics ranging from filters to dark sky preservation. There was a taped presentation of John Dobson answering questions that had been sent to him by the League. He was supposed to appear live via Internet link but due to poor health his appearance had to be taped. Alan MacRobert from Sky and Telescope magazine gave a talk on "Secrets of Deep Sky Observing" and David Eicher of Astronomy magazine talked about sketching deep sky objects. Carolyn Shoemaker was scheduled to be the keynote speaker at the banquet Saturday evening. Her relentless searching has garnered over 300 asteroid and 32 comet discoveries.



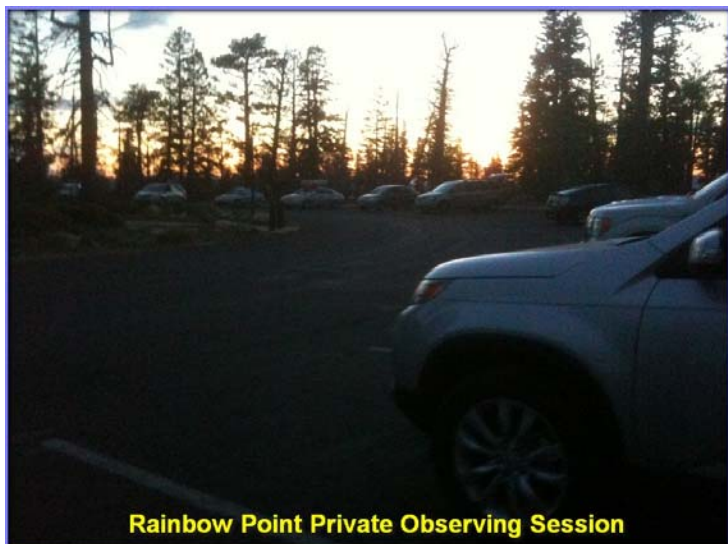
Ruby's Inn Lodge

All of the speakers were enjoyable and informative but I must admit, I was mostly there for the observing. Arrangements had been made with the park service to allow a certain number of observers to setup at Rainbow Point, the highest and most remote location in the park. Eighteen miles from the park entrance the Point is at 9000 feet elevation and we were warned to bring warm clothing. Attending the private



Conference Hall

observing sessions was contingent on volunteering at least one night at the



Rainbow Point Private Observing Session

Bryce Canyon public star party held across from the visitors center near the park entrance. I signed up for Wednesday and Thursday night at the point and Friday at the public star party.

Wednesday evening I set out for my first observing session. The weather was questionable and several people decided not to go. The wind was gusting all over the place and clouds occasionally moved through. My expectations were not high but I thought if there was any clear sky at all I did not want to miss the chance to do some observing. I didn't need to worry – the sky was awesome. Imagine the best Okie-Tex sky you have

ever seen and double it. You could easily get the sense when looking along the line of the Milky Way that the dark streaks really are dust lanes in our own galaxy. The wind made observing difficult but it was manageable as long as I did not let go of my scope. Hunting for Herschels was like shooting fish in a barrel, they just couldn't hide in that sky. Objects I had struggled to see at the ACT Observatory stood out noticeably at Rainbow

Point.

The weather the next night was perfect,

no clouds and no gusting wind. The nicer weather gave me an opportunity to linger over some of my favorite objects. M51, the Whirlpool, looked fantastic, both galaxies were very bright and the stream connecting the two was more distinct than I have ever seen it. The Lagoon and Trifid nebulae looked beautiful and M27, the Dumbbell, was unbelievably bright. Every object was enhanced by the darkness of the sky, a visual observer's dream come true.

After two glorious nights of observing at the point it was time to "pay up" and volunteer at the public star party Friday night. I was a little apprehensive following a training session required of all volunteers. A ranger instructed us on how to work the line of people waiting to look through our scopes. He advised us to talk to the people down the line and keep them engaged.

The parking lot across from the visitor's center was cordoned off and we set up in the middle of that parking lot. There were at least forty scopes of all different types and sizes. The Salt Lake club helps with the star party every year and I had already met a few of the volunteers who were also attending the ALCon. Public observing was scheduled to run from 10pm to midnight. On Thursday night the park service counted 700 visitors at the star party. I had no idea what to expect.

There was a murmur of voices waiting



Public Star Party

to get in just before 10pm. When the gate finally opened I could hear the wall of people moving toward me like a wave in the darkness and suddenly they were all around me. The energy was fantastic and everyone was thrilled with the sites they were seeing through our scopes. In addition to Americans I spoke with people from England, Germany, France, Asian countries, Middle Eastern countries and a few from I have no idea where. The action at my telescope was constant and the comments from the people about what they were seeing gave me a thrill. Before I knew it an announcement was being made that the session was over and the last bus taking visitors back to the Inn would be leaving soon. What a rush!

The convention and star party combination made for one of the best vacations I have ever had. Everyone I met was friendly and outgoing. We all had our love of astronomy to connect us. Bryce Canyon National Park is also one of the most beautiful places I have ever been. It is completely different than the Grand Canyon and just as wonderful. If you go to Bryce be sure and take your telescope. The park is open 24 hours a day and the night sky should not be missed.



Epilog

Being a fan of the movie Galaxy Quest I couldn't resist stopping by Goblin Valley on the way home from Bryce Canyon. I can report that I did not run into any minor/miners or find a Beryllium sphere but I did get to climb around among the hoodoos – very exciting!

Night Sky Star Stencil™

- **Night Sky Star Stencil™** transforms the ceiling of your darkened room into a dramatic replica of the real night sky while leaving the lighted room unchanged (no posters or noticeable markings).
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- **It's all here!** Your kit contains everything you need. The Night Sky Star Stencil (either 8- or 12-feet in diameter), adhesive, a special formula luminous paint, brush, and easy-to-follow instructions.



<http://www.ursamajorstencils.com/cgi-bin/ursamajorstencils/nightsky.html>

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ACTOMART is available to any member of the Astronomy Club of Tulsa free of charge. If you would like to sell your items on ACTOMART please contact John Land or Jerry Mullennix and we will be happy to post your products.



Hello! I attended one of your star nights at the observatory in the Fall and thought you all might be a good starting point. My husband and I have a Celestron NexStar 8 SE Telescope, along with many accessories and Eyepieces that we are wanting to sell. I just thought if anybody had any interest at all, it might be you all or your members. We have owned everything for about a year and we have used it about 3 times. Anyone can contact me if there is any interest. My contact information: Heather Thomas [918-269-6801](tel:918-269-6801) hdt12@mac.com Thank you, Heather Thomas

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STAR PARTIES WITH THE ASTRONOMY CLUB OF TULSA

**FALL STAR PARTIES IN TULSA .
WEATHERS GREAT AND IF I STAY UP LATE I
CAN SEE THE MAGIC OF ORIONS BIRTH
RATE!**

**NOT SURE WHAT THAT MEANS? COME TO A
STAR PARTY THIS FALL AND IT ALL CAN BE
EXPLAINED.**

THE TOY BOX

Here are a few new items that look very interesting. I have not spoken with anyone who has tried any of these but would welcome any review on new astronomy gear. This is not an endorsement of any of these items and the information provided is from the respective companies website.



iOptron
6F Gill St., Woburn, MA 01801
781-569-0200; iOptron.com

iOptron developed the PowerWeight (\$119) as a novel solution to the problem of bulky power packs for equatorial mounts. The PowerWeight is designed to fit on the counterweight shaft of the iEQ45 and replaces the mount's 7-pound (3.2-kg) weight, or works as an additional counterweight when using heavier telescopes. The unit contains six heavy-duty lead-acid rechargeable battery cells and is rated for 12-volts and 8 amp-hours — enough to run your mount for an entire evening. Includes power cable and AC charger.

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MEMBERSHIP INFO

Astronomy Club of Tulsa membership (\$45/year) includes membership in the Astronomical League and subscription to ACT's "Observer" and AL's "Reflector". "Astronomy" (\$34/year) and "Sky and Telescope" (\$33/year) are also available through the club. For more information contact John Land at 918-357-1759. Permission is hereby granted to reprint from this publication provided credit is given to the original author and the Astronomy Club of Tulsa "Observer" is identified as the source.

Jim "O'Toole" Millers—Astro Words of Wisdom:

"Scream like your crazy and suddenly the pad you wanted becomes available"

ACT welcomes your questions, suggestions, comments and submissions for publication. Please send all inquiries to jerry@pantherenergy.us

Night Sky Network

Astronomy Clubs bringing the wonders of the universe to the public



Astronomy Club of Tulsa

