

SPECTRUM

Northern Cross Science Foundation Newsletter

November 1998

LOOKING UP

Nov. 5 Thursday
Astronomy 101
7:00 PM
General Meeting
7:45 PM
Carlson Tool & Mfg.

Nov. 18 Wednesday
Board Of Directors
7:30 PM
Jeff Setzer's House

Astrofest 98

By Jeff Setzer

Photos by Kevin Bert

This year's Astrofest was different than what I was used to. There were more people there than I have ever seen before; I don't know the number, but it had to be pushing 1,000. Also, instead of going down there to look through other people's big scopes, I'd be letting other people look through my big scope. And, for the first time, I wasn't terribly concerned about the weather, because this year I'd be spending the following week under the dark skies of rural Kansas.

It was a tight squeeze to get the van into "Camp NCSF," and actually, we were kind of in a half-row, between two larger rows of cars. Kevin and Dan Bert already had their tent, canopy,

and outdoor kitchen set up. Loren Krug came with them, but he was going to be



Daytime activities looking at the main hall at Astrofest included vendor tables and swap tables .

in a cabin so his gear was stowed elsewhere. For the first time, I didn't set up a
(See FEST on page 2)

Pike Lake Sees Progress

By Brad Plaumann

Photos by Brad Plaumann

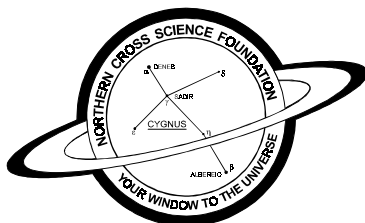
On Thursday, October 18th an informative meeting was held at Pike Lake State Park headquarters to discuss the installation of a permanent housing for the 20-Inch Panarusky Telescope at the park. Two NCSF Members, Harold Rogers and Brad Plaumann, met with Pike Lake Superintendent John Wald and DNR Regional Land Services Supervisor James P. Morrissey.

These DNR representatives were informed on the topics of the NCSF group, the nature of our program and charter, and our current affiliation with Pike Lake. Mr. Mor-

rissey inquired as to our attempts to secure other locations for the observatory, but seemed agreeable to the project when we outlined the merits of such topics as the relatively dark skies, proximity to public and educational groups, and the advancement of the astronomy program already in place at the Pike Lake.

Brad displayed a 1/16 scale concept model of the proposed building so the participants could more easily visualize the building's two-room split level concept and the roll-off roof. Mr. Wald felt

(see Progress on page 5)



A Publication Of
The Northern Cross
Science Foundation

October Minutes

By Kevin Bert

The October meeting of the Northern Cross Science Foundation was held in the conference room of Carlson Tool & Mfg. in Cedarburg. The Astronomy 101 class preceded the business meeting.

President Jeff Setzer opened the meeting at 8:40 p.m. to over 23 people.

Brad Plaumann gave a report on the financial status of the checking and savings account. Several transactions took place having to do with the Panarusky Telescope.

Kevin Bert acknowledged two new members that contacted him. Gary and Jean Detlaff from Mayville. They were in attendance at the September meeting.

Kevin gave a brief update on the 20-inch Panarusky Telescope. He re-

ported that the primary mirror was 2 weeks behind schedule and mechanical components were progressing. The September 26th showing of the telescope to the contributors was a success. An additional \$250 was received to put towards the scope.

Al Steinberg reported that the recently donated 10 foot Dome was now sitting on his property. It is in 2 main pieces and will be needing some work before it is assembled. You should contact Al if you are interested in helping. 644-8089.

Jeff Setzer reviewed the upcoming events for the month.

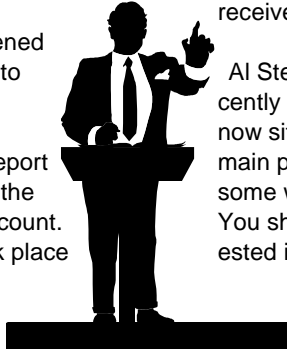
It was noted that telescopes for the October 31 Harrington Beach Halloween Hike should be set up at the upper parking lot near Pucket's Pond by 6:00 p.m. Jeff asked for help for an additional public event scheduled at TJ Middle School in Port Washington

on October 15th. There would be three groups of about 25 5th graders. The cloud date is the following week, the 22nd. Jeff was in contact with Grafton Elementary school. They were looking for a person to talk about astronomy on February 26th from 12:30 p.m. to 2:30 p.m. Mike Matthies volunteered.

Dan Prosser asked if the club would like to reschedule the clouded out ABC viewing night. Most people were in favor to do it sometime next spring.

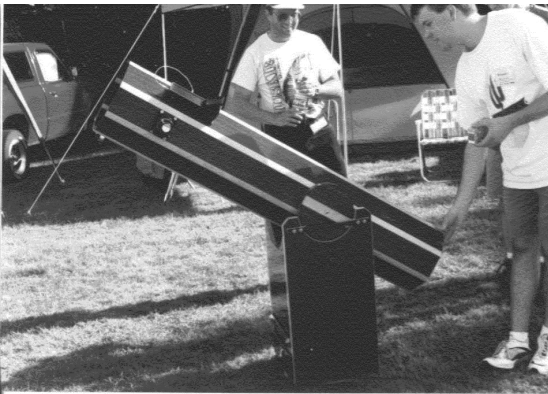
The business meeting was closed by Jeff Setzer at 9:00 p.m.

Respectfully submitted,
Kevin Bert, Secretary



(FEST from page 1)

tent or reserve a cabin bunk: I figured I'd sleep in the van if it rained; other-



Excellent craftsmanship working with two different types of wood went into this impressive 10" dobsonian.

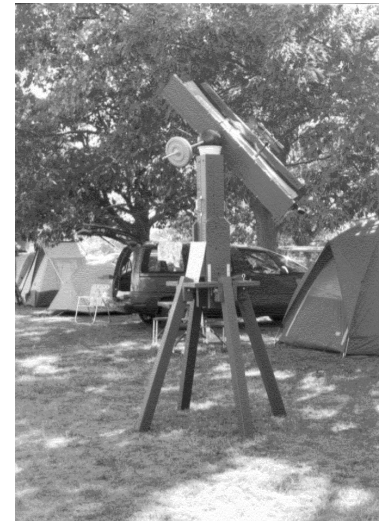
wise, I'd just observe through the night. I brought my cot to crash in during the day.

The swap tables had been open earlier on Friday, but when I got to the camp-

grounds, most of them were shut down for the evening. You might as well count on the swap tables being open every day of Astrofest, instead of just the "official" day (Saturday). Such a pity to have to walk through aisles and aisles of astro-goodies all weekend!

Friday night was clear, but I decided to leave my scope in the van. While last year's observing with the group was fun, some of us did miss looking through all of the other telescopes on the field. So this year, we renewed our tradition of wandering around as a group of vagabond observers in search of open eyepieces. We were rewarded with views through some extraordinary telescopes, including several Astrophysics refractors and large Newtonians. It was also neat to be able to look through A.L. Wood's Stevick-Paul Telescope. The SPT was recently "discovered" by two people independently. It is a tilted-component reflector design that uses only spheri-

cal surfaces. Mr. Woods is well known as one of the early converts to TCTs, and he has displayed several fine ex-



The mount for this scope uses a bowling ball in a dog dish!

amples of Schiefspiegler in the past. You can always pick out his scopes on the observing field because they are all

(See FEST on page 4)

Background On The 20-Inch Panarusky Telescope

By Kevin Bert

Photos by Kevin Bert

Over 15 years ago the Northern Cross Science Foundation thought it was time to look at building a bigger and better telescope. The heart of any telescope is the optics. The club's previous telescope had a 12.5-inch reflecting primary mirror and a Newtonian focus that could gather 1,400 times the light of what the human eye alone could see. A 20-inch (or .5 meter) was the size finally agreed upon for the new telescope, with a Newtonian and Cassegrain focus. Wheels were set in motion to construct this telescope, capable of not only general pleasure viewing for members and the public, but serious research work. The .5 meter would have over 2.5 times more light gathering power than the old telescope.

Northern Cross Science Foundation member Bob Sedgwick had made his own telescopes over the years. He was a retired engineer from the Kearney and Trecker Corporation, a large machine tool builder. Bob drew up an impressive set of plans for the 20-inch telescope. It would be constructed of 1/2 inch steel plates and weigh in at over 2,000 pounds. It received unanimous approval from the club members.

To get the project under way, a number of fundraising efforts were started with some success. Member Alvin Panarusky was extremely enthusiastic about the project. He stepped forward and purchased the raw glass blank for the primary mirror to start the project. Club members that have had some experience in making telescope mirrors wanted to try their hand at grinding and polishing the primary mirror themselves to save costs. At that time it was decided that the 20-inch would now be named the Panarusky Telescope.

Member Carl Edquist, president of



Contributors pose next to the assembled Panarusky Telescope. From left to right: Lyman Weber, Bob Sedgwick, Alvin Panarusky, "Happ" DeWitt, Joe Reibold, Harold Rogers, Lynn Gerdes.

Before any machining could be done, the steel plates needed to be welded together into the main components. "Happ" DeWitt, an experienced welder that also worked at Carlson Tool, offered his services in fabricating the weldments. A number of skilled craftsmen from Carlson tool worked on the project, often after hours on their own free time.

Manufacture of the Panarusky Telescope had progressed slowly and in spurts over the following years. It was partially due to the success of Carlson Tool and their busy work load that made it hard to free up the necessary machines.

Carlson Tool and Manufacturing offered time on their metal cutting machines to do the necessary work on the components of the telescope as the club purchased materials. When time permitted there would be opportunity to machine parts for the project.

Jerry Edquist is now the President of Carlson Tool. He is following through on the commitment to complete the necessary work on the telescope.

Club members brought the primary mirror to about 80% completion. In order to
(See 20-Inch on page 6)

PANARUSKY TELESCOPE SPECIFICATIONS

PRIMARY MIRROR DIA.	20.0 Inches
OPTICAL CONFIGURATION	Newtonian/ Cassegrain/ Coude'
PRIMARY MIRROR FOCUS	90.0 Inches
CASSEGRAIN FOCUS	270.0 Inches
HUMAN EYE EQUIVALENT	3,600
RESOLVING POWER	.23 seconds of arc
TUBE LENGTH	95.0 Inch
ZENITH HEIGHT	12 ft.
MOUNTING	Equatorial Fork
CLOCK DRIVE	12 Inch diameter Worm Gear
WEIGHT	2,160 lbs.

(FEST from page 2)

the same color orange!

see our little camp in the "half-row" of cars. So that's two years in a row where Kevin's mount gets much-deserved praise from the masses at

regarding the scheduling, so we ended up waiting in the dining hall twiddling our thumbs until the presentations started. By that time, I was getting worried that the sun would go down before I got a chance to shower and set up the Star-master. So, about halfway through the door prizes, I told the others that I was leaving. Now, everyone in the NCSF that's ever gone to Astrofest knows that I have never won a door prize, ever, in the 15 years I've been attending. And I commented to that effect when they looked at me with that "must be present to win" expression. Well, I walked out the hall and back to my van. I could hear everything because they pipe the audio into the camp loudspeakers. In the middle of setting up, I hear "okay... the next door prize is a rubber eyeguard...and the winner is...Jeff Setzer of Brown Deer, Wisconsin. <cheers and applause> Jeff Set...what? He's not here? Ok...draw another name!" So that was my big moment, and I missed it. At least I know that I don't have to stick around for those drawings until Astrofest 2013.



A refurbished Alvan Clark refractor mounted on an Astrophysics mounting. It is set up with a special device for viewing the sun called a Herschel Wedge.

Other people headed off to bed at various times, while I found myself in the van around 4:00 AM on Saturday. I woke up around 7:00 AM, and got out to snag breakfast. Since I paid in advance for the meal, I certainly wasn't going to miss it (although those of you who know me realize that I don't miss many meals no matter who's paying). It was very tasty, and although I wanted to wait for the others to come by on donut patrol, I could just *feel* the swap tables open up. Their siren song led me outside for the first of many shopping trips that day. Remembering my recent trip to the Nebraska Storm Party, I purchased a lot of reading material for the coming week in Kansas, just in case. I also finally got a solar filter for one of my scopes (the ETX), so now I can pretend I'm interested in the sun during the weekdays.

The astrophoto contest was uninspired, in my opinion. I didn't even remember to cast a vote. There were a lot of excellent telescopes in the contest, including Kevin's "Hercules" binocular mount. Last year, the judges passed it over and this year, the judges didn't even do that! Apparently, they didn't

Astrofest, but gets ripped off in the end. Oh, well: they say, "three's a charm."

After



Dan Bert checks out the movement on a 6" homebuilt refractor. It is modeled after a telescope described in a book written by Richard Berry.

the dinner, they got right into the door prizes. Our plan was to shower right after dinner, but things were unclear

We stayed around the camp for the second night, which was clear until early Sunday morning. After another breakfast and morning shower, we broke

camp. Again, this year was different, because instead of following Kevin and

(See FEST on page 6)

(Progress from page 1)

the building's features and esthetics were in line with the park's architectural guidelines and especially liked the secondary lower room to be used for educational presentations to the visiting public and school groups. He also informed us that a 40 stall parking area is being planned for construction, primarily for cross-country skiers, at an area near the site proposed for the observatory, providing favorable access, yet removed enough that vehicle headlights should not be an observing detriment.

Mr. Morrissey took with him two Polaroid photographs of the model to assist in further inquiries by his staff. Lasting approximately 90 minutes, the meeting was very preliminary in scope, with many details and issues to be resolved, but was very promising as Mr. Morrissey stated, "Given what you've shown me so far, I don't see a need to build any walls in front of you."

Of course, this was one of many steps required in the forwarding of this project. We must now consider a major fundraising or corporate grant campaign and assemble a building committee to implement a more detailed proposal of the buildings requirements and generate a set of architectural plans to evaluate the cost of this project. As we finalize these details, we will be able definitive answers to Mr. Wald's very welcome question, "When do you think you'll be breaking ground?"

It's beginning to take shape!



A look at the 1/16 scale concept model of the roll-off roof observatory as it would appear when closed up. The walls remain open to allow for viewing the construction details



The same view of the observatory with the roof retracted to the north to expose the 16' x 24' viewing area and Panarusky Telescope.

Leonids Meteor Shower

By Michael Woods, Post-Gazette Washington Bureau

The Leonids are a celestial river of rocky particles, most smaller than a grain of sand, left in the trail of Comet Temple-Tuttle each time it swings past the sun. Solar energy heats the comet's core, spinning off an immense cloud of dust that lingers in the comet's orbit.

Every November, Earth's own orbit crosses paths with the debris and frag-

ments collide with the upper atmosphere at a speed of 44 miles per second. Friction heats them to a white-hot glow, visible as "shooting stars." From Earth, the particles appear to originate in the constellation Leo, hence the name Leonids.

The coming encounter is unusual because on Feb. 28 Comet Temple-Tuttle made its closest approach to

the sun in 33 years, adding a new batch of debris to the detritus of previous passages.

Comet Temple-Tuttle's last close passage to the sun was in 1966, when some observers saw more than 100,000 meteorites per hour.

William H. Ailor, director of the Center for Orbital and Reentry Debris Study at

(See **Leonids** on page 7)



Who said that the pipe mount was dead. This one worked great!

(FEST from page 4)

crew back to Wisconsin, I went the opposite way and headed for the Great Plains Star Party in Scopeville, Kansas. In next month's issue of Spectrum I will fill you in on all the details.



One of the many sturdy refractors in the observing field.

(20-Inch from page 3)

facilitate completion of the project, it was decided to have the primary mirror finished professionally and concentrate on finishing the mechanical parts of the telescope. Again Alvin Panarusky volunteered to cover the cost to finish the primary mirror.

As it stands now, the telescope is temporarily set-up for your inspection, final fitting of a few more components and to complete the final balancing when the optics arrive. It will then be dis-assembled to prepare for painting. When re-assembled it will have the minimum amount of components to be able to operate with the Newtonian focus. The Cassegrain mirror, computer positioning, CCD imaging equipment and other components will be added in the future to bring the telescope up to all the capabilities envisioned in the original design.



"Happ" DeWitt welding 1/2 " steel plates together to form the Fork.

locating the clubs existing 16-foot domed observatory over the years. They all turned into dead ends. It was disheartening to find out that getting land donated for free would end up costing a lot more than the club could afford. All the red tape in re-zoning, septic considerations and access roads all needed to be paid for before a building could even be started. A search for hooking up with an already established organization seemed to be the direction to take.

Pike Lake State Park has been one of the club's regular sites to hold their public viewing sessions with portable telescopes. The club has a good relationship with the park and both benefit from

the activities. Member Harold Rogers was instrumental in setting up the Solar System trail there. It is a scale model of the solar system that starts with the Sun the size of a bowling ball, and stretches over 1/4 mile to Pluto.

The superintendent of the park, John Wald, was interested when we told him of our need for a permanent home. Negotiations are currently underway with the state park to see if it's feasible to build a structure there.

STRUCTURE TO HOUSE THE TELESCOPE

A building to house the finished Panarusky Telescope has evolved since the original proposal to squeeze it in the clubs existing 16-foot domed observatory. During the early design stages of the telescope, the scope's size was based on fitting it into that dome. It was later felt by the majority of the members of the Northern Cross that to better entertain and educate larger groups of people, a bigger structure would allow this to be done more easily. Plans for a roll-off roof design have been drawn up and final approval for the structure should be finished this year. It would have room for storage of equipment and a 16x24 foot viewing area when the roof is fully retracted.

PERMANENT SITE

Several avenues were explored on re-

(Leonids from page 5)

Aerospace Corp. of El Segundo, Calif., predicts the Leonid stream will "sandblast" more than 500 communications, weather, and spy satellites. But Ailor admits that predicting the Leonids' intensity is a guessing game. It may prove little different than a dozen other meteor showers that pelt Earth largely unnoticed each year. Although some astronomers believe the real pelting won't happen until 1999, others say it will occur next month, beginning with a noticeable increase in shooting stars in the evening sky around Nov. 14 and end Nov. 20.

November 1998 and 1999 may be the last chances in a lifetime to see a major

Leonid storm. Calculations indicate that Jupiter's gravitational pull will alter Comet Temple-Tuttle's orbit in 2029, so that it moves farther away from Earth.

To see the Leonids: Find a dark site unobstructed by trees or buildings, dress warmly and bring a reclining chair. Start watching about 50 degrees up the eastern sky around 1 or 2 a.m. Nov. 17 or Nov. 18. Best viewing may occur in the hour or two before dawn.

Astronomy 101

By Kevin Bert

The November meeting 101 topic will be "Telescope Maintenance ." Al Steinberg will demonstrate how to clean a telescope mirror and the proper way to clean eyepieces. You shouldn't be afraid to clean them periodically. It does make a difference in the performance of your optical system.

The highlighted constellation will be Cassiopeia.

The December 101 topic will be on "Time "by Kevin Bert. His highlighted

constellation will be Ursa Minor.

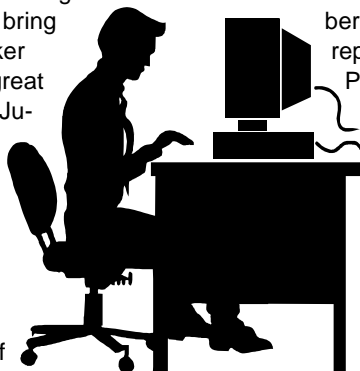


From The Editor

By Kevin Bert

Greetings fellow star gazers. I hope you've had a chance to get outside to do some viewing. The cooler temperatures bring dryer, and often darker skies. This will be great for deep sky views. Jupiter and Saturn are at good viewing positions too. They will look good even under bright skies.

Jeff Setzer has the lead article on one of



the summer star parties that he attended. Astrofest will come first with the Great Plains star party in December. Brad Plaumann gives a report on the latest meeting at Pike Lake.

The background on the 20-Inch Panarusky Telescope, that starts on page 3, was sent to newspapers prior to the contributors showing last month. I thought it would be nice to include it in the Spectrum so all members know the story behind

CURRENT CLACK

Welcome New Members

Gary and Jean Detlaff from Mayville, Steve Schowalter from Jackson,

Building Committee Started

At the last board meeting a building committee was started for the roll-off roof design observatory to house the 20 Inch Panarusky Telescope. If you are interested in joining the committee contact Jeff Setzer. As of now, no date has been set for the groups next meeting.

Panarusky 20" Telescope

The 4.0 inch secondary mirror was received from eOptics a few weeks ago. It has since been shipped to QSP in California, and will arrive back near the time of our November meeting. It was decided that the club should purchase the mirror un-coated and pay the extra money to have QSP apply a special high reflective, enhanced coating. This will, in effect, make the telescope capable of collecting more light. The spider for the secondary holder is in place. The holder itself is next on the list of things to make.

School Viewing Nights

A number of school viewing programs were given at the end of October. Homestead High School, TJ Middle School, and Erin Middle School. A special thanks to all those involved in the planning.

Work Crew Needed

The NCSF Observatory dome will need a final cleaning and coat of paint before the snow flies. A work date is set for Saturday November 7th. We will be asking for volunteers at the November Meeting. If you're interested contact Kevin Bert at 375-2239.

the telescope.

Be sure to see Brad Plaumann if you want to start or continue the club's group rate of Astronomy Magazine.

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Nominations for Officers

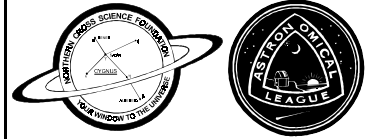
We will be taking nominations of Northern Cross members to replace the two outgoing board members whose terms have expired. Elections will take place at the December meeting. Remember that this is a three year term. The specific officer positions will be determined amongst the board members themselves. Board members who served for 1998 are Jeff Setzer, Dan Prosser, Kevin Bert, Brad Plaumann, Rod Nabholz, Al Steinberg, and Scott Kroeger

Astronomy Magazine Subscriptions Are Due !

It's that time of the year to start a new subscription, or renew an existing one to Astronomy Magazine. Remember that this only happens once a year. Even if you are getting Astronomy and will not expire for several months you still need to extend your subscription now. Get your \$24.00 for 1 year of Astronomy to Brad Plaumann at the November meeting, or mail him at the address under officers at the left. It is important to get him the money as soon as possible so as not to delay any of the issues.

SPECTRUM

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