

# SPECTRUM

Northern Cross Science Foundation Newsletter

May 1998

## LOOKING UP

May 2

\*\* National \*\*

Astronomy Day

4:00 PM

Nichols Observatory

May 7

Astronomy 101

7:00 PM

General Meeting

7:45 PM

Carlson Tool & Mfg.

May 8-9

NCRAL Convention

Des Moines Iowa

May 20

Board Of Directors

7:30 PM

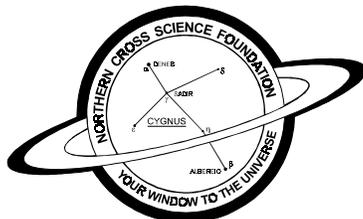
Jeff Setzer's House

May 23 & 24

Public Viewing

9:00 PM

Pike Lake State Park



A Publication Of  
The Northern Cross  
Science Foundation

## Double Stars, Pt. II

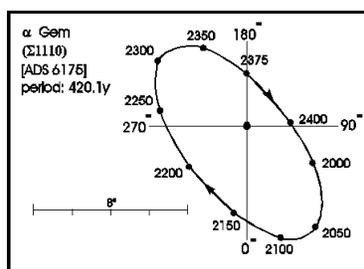
By Dan Bert

A double star is any 2 stars that appear together in the sky. More than 1/4 of all stars in the sky are double stars. They can be gravitationally bound or merely optically aligned. They may be far enough apart to be seen as a double with the naked eye or so close that only a large telescope will resolve them. Sometimes, they may appear to be only a single star, but have a hidden companion revealed only by a spectroscope or by its periodic wobbling motion; even then it can still be called a double star.

There are various kinds of double stars. One type is called an optical double, where the stars are actually great distances from each other but just happen to lie along the same line of sight from our perspective. One example of this is Delta Herculis. Most double stars are true physical systems, meaning the stars are gravitationally bound and orbit each other. They revolve

around a common center of gravity in periods ranging from a few years to many millions of years. These are called visual binary stars.

Once the orbit of such a star is determined it



Castor's 420 year orbital period

is possible to calculate the mass of each of the component stars. Generally, the closer the stars appear to be, the faster they move in their orbits. Many years must pass before some visual binaries will actually show any noticeable changes.

Castor, for example, is a visual binary who's member stars are widening, while other binaries may be rapidly closing. Most wide binaries show no or very little orbital motion since accurate records of measurements began only a century and a half ago. The only reason they are assumed physically bound is because they share a common proper motion. Many more years of observations will be needed before pairs like Mizar and Po-

(See **Double** on page 2)

## Dust Off Those Binoculars

By Rod Nabholz

At the April Meeting the NCSF introduced a new entry level observing program. This program is designed for beginners and experienced observers alike. It is designed to take advantage of astronomical equipment that people already own, binoculars.

The Binocular Messier Club is a program set up by the

Astronomical League to reward people who observe 50 Messier Objects, and record their observations. When you complete your observations, your log and name are forwarded to the Astronomical League and you are rewarded with Certificate and mention in the League newsletter.

(**Bino** from page #)



(See **Bino** on page 2)

# April Minutes

The April meeting of the Northern Cross Science Foundation was held in the conference room of Carlson Tool & Mfg. in Cedarburg. The newly introduced Binocular Messier hand-outs preceded the business meeting.

President Jeff Setzer opened the meeting at 8:10 p.m. to 24 people. Jeff commented on the clubs web site changes and invited any members with internet access to check out the changes. The site will



post the Go – No Go for National Astronomy Day in addition to the Nichols phone number. Jeff is now settled in after his move. Note his new address on the back cover.

Kevin Bert asked if everyone received their newsletters on time and in good condition. No one reported any problems. He commented that material for the focuser cage had been acquired for the Panarusky 20" telescope.

Brad Plaumann gave the financial transactions and final status of the checking and savings accounts.

A lengthy discussion on Astronomy Day followed with members signing up for activities.

The business meeting was closed by Jeff Setzer at 8:55 p.m.

Respectfully submitted,  
Kevin Bert, secretary

You say that is fine for you experienced folks, but as a beginner, finding 50 of those faint fuzzies seems like a life long project. What if, on a monthly basis, you were provided a detailed star map showing the location of 6 objects, well placed for viewing during the coming month, and each month you could compare notes with the veterans and the other beginners on what you saw (or didn't see) and be sent out again with a new map, more knowledge, more experience, to try 6 new targets? Averaging just 4-5 objects per month, in just 12 months you will have

earned your certificate! And by the way, probably picked up a great deal of knowledge of the night sky, observing techniques, and just how much darn fun it is to be out observing!

How do you get started? First you will need a set of binoculars. It is recommended, and the program is set up for binoculars of at least 35mm in aperture (the "35" part in the 7 X 35 stamped on many binoculars). Other suitable common sizes are 7x50, 10x50, 8x40 etc. Try to avoid the mini binoculars like the 8x24 or 10x25. They just don't gather

enough light to make the experience fruitful. Next, simply come to our meetings and get your monthly targets and star map. At each meeting we will identify last month's targets, answer your questions and give you some hints about the current month's assignment.

Now lets get out there and do some observing!

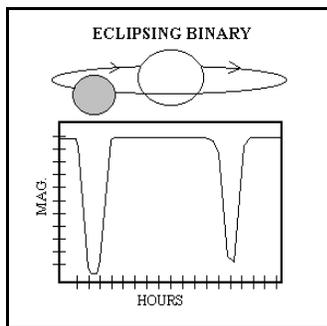
( **Double** from page 1)

laris can be positively called visual binaries, stars who's orbits are known.

The second category of double stars are those that are too close to be resolved with a telescope. One way that they can reveal themselves is with the use of a spectroscope. A spectroscope is a device that examines the spectrum given off by the light of the star. It then tells you if the star is moving towards you (blue shift), or going away from you (red shift), by the movement of the spectrum lines. The star's companion reveals itself when the spectrum lines appear double, indicating there is not one, but 2 stars present. This method only works with stars

whose orbits are near edge on to our line of sight. These types of stars are called spectroscopic binaries. An eclipsing binary is also a spectroscopic binary but the orbital plane is exactly in

our line of sight. One star eclipses the other causing the light intensity to drop at regular intervals. An example of this type of binary would be Algol in Perseus.



Another type of binary star is called a spectrum binary. For this type of binary you also use a spectroscope to examine the pattern of lines not the movement of the lines. Hot stars and cool stars display different patterns of spectrum lines. A single star that shows both patterns of hot and cold in the spectrum is then assumed to be a binary star.

The last type of binary star is an astrometric binary. Sirius is an example of this type of double, where you can detect an unseen companion by noticing a wobble in the proper motion of the primary star.

The first of the many double stars that were discovered by astronomers were regarded as celestial curiosities. Many years later we now realize that they make up a very substantial part of our galaxy's population.

NOTE: Part. 3 will discuss how to observe double stars and different terms and concepts associated with observing. It will also talk about the double star Astronomical League award you can get by observing a certain number of doubles.

# National Astronomy Day

By Kevin Bert

This is the last reminder before the event takes place. I hope all members will plan to attend what will be our biggest public event of the year.

As a person who has been involved with Astronomy days over the years, I am particularly excited about this one. The scope and magnitude of this event has reached a new high. Publicity for the event has reached new and expanded levels. An array of daytime activities have been scheduled. A record number of telescopes will be there

this year thanks to the number of new members that have joined along with other astronomy enthusiasts from other groups. In theory everything should make this years event great.

Ultimately the success of the event will be determined by how many people from the public attend and participate in the event. More attendees gives us a better chance to spread our name around and possibly recruit new

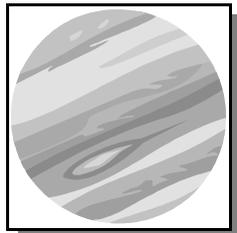
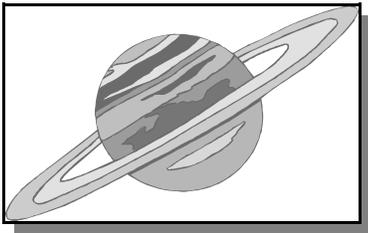
(See **National** on page 4)

# Astronomy 101

By Kevin Bert

The May meeting 101 topic will be the "Gas Giant planets." These planets have a non-solid surface, so our observations are confined to the

upper levels of their atmosphere. The planets would include Jupiter, Saturn, Uranus and Neptune. I will concentrate on what can be seen through the telescope.



The June 101 topic will be on "Preparing for a Nights Observing."

# From The Editor

By Kevin Bert

Things are continuing to run smooth with the Spectrum. Having a week off gave me some extra time to get things together. I am still checking out a few places that could do the printing.

The second part of a story on double stars by Dan Bert is the lead article. Look for the final part that includes information on the Astronomical Leagues double star program. Anyone interested in sending me SPECTRUM articles on any club activity or astronomical subject you are researching would be appreciated.



Check out the Kalmbach book list. They are all great deals.

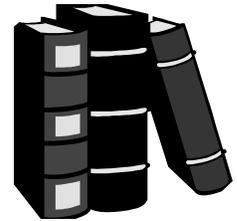
A copy of the membership roster is enclosed with this issue. Please look it over and let me know if there are any mistakes. Also let me know if you are not receiving the quarterly Reflector of the Astronomical League.

Good news on the Panaruský 20" telescope. The primary is at Nova Optics in Utah. It might be finished and back by the end of July.

## CURRENT CLACK

### ISDC Meets In Milwaukee

The 17th Annual International Space Development Conference is happening on Memorial Day weekend, May 22 through May 25th. See last months Spectrum for details.



### Kalmbach Books For Sale

The NCSF is selling out the remaining Kalmbach books listed below at our reduced club cost.

QTY	Title	List Price	Club Cost
3	Phillips Color Star Atlas	\$19.95	<b>\$10.97</b>
1	40 Degree Miller Planisphere.	\$ 9.95	<b>\$7.45</b>
10	To Know the Stars.	\$7.00	<b>\$5.25</b>
5	THE MOON: Observing guide for Backyard Telescopes.	\$11.95	<b>\$6.57</b>
5	The Best Deep Sky Objects Card.	\$2.00	<b>\$1.00</b>
1	Peterson's Field Guide to Stars and Planets.	\$24.95	<b>\$18.71</b>
5	Beginners Guide to Amateur Astronomy	\$19.95	<b>\$10.94</b>

Rod Nabholz is willing to be the person to handle the distribution at our meetings. Any interested parties could call Rod at 338-8958 or e-mail him at rnabholz@execpc.com

He will set aside their book.

### Work Crew Needed

To help remove the peeling paint from the NCSF Observatory. We will then need to address any repair work and apply new paint. We will ask for volunteers at the next meeting.

## 1998 OFFICERS

**President - Jeff Setzer**  
8142 N. 66th Street  
Brown Deer, WI 53223  
414/355-3698  
jeffrey.setzer@gxsc.com

**Vice President - Dan Prosser**  
1857 Blackfoot Ct  
Grafton, WI 53024  
414/375-9087  
pprosser@execpc.com

**Secretary - Kevin Bert**  
2292 Ridgewood Road  
Grafton, WI 53024  
414/375-2239  
kevin.bert@mixcom.com

**Treasurer - Brad Plaumann**  
4266 N. 88th Street  
Milwaukee, WI 53222  
414/535-0219

*(National from page 3)*

members. As it is with so many of our events, the weather will probably be the determining factor. We should still have a good crowd if it is cloudy because of all the daytime activities. Please bring



those telescopes if it's cloudy. We still need them for the daytime display. Rain is the only thing that could possibly cancel the event.

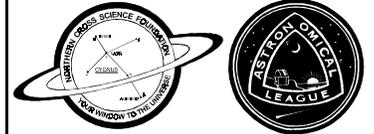
I have one request for people bringing telescopes. Get there early enough to set up and take a little time to research some of the objects that you will be viewing so you can answer a few basic questions about them if someone asks.



**Check out our great site  
On the World Wide Web  
<http://www.gxsc.com/ncsf>**

## SPECTRUM

SPECTRUM is published by the Northern Cross Science Foundation, Inc. A non-profit organization based in south eastern Wisconsin and a Member of the North-Central Region of the Astronomical League.



**Send inquiries to:**

SPECTRUM  
2292 Ridgewood Road  
Grafton, WI 53024

SPECTRUM  
2292 Ridgewood Road  
Grafton, WI 53024

