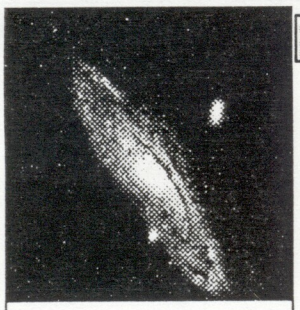
The Prairie Astronomer

January 1995 Volume 36 Issue 1



President's Report

by Dave Scherping

DECEMBER MEETING

Several key issues were discussed at the December PAC meeting, including the Nebraska Star Party, Mahoney Public Observing Nights, Astronomy Day, and the Club Telescope. Details are given below. Our guest speaker was Larry Stepp, former member and past president of The Prairie Astronomy Club. Larry now works for the National Optical Astronomical Observatories and is working on the Gemini Telescope project. He gave us an incredible presentation on the design of the telescopes and the status of the project. If you missed the meeting and wish to view the video, please contact me at 477-2596.

NEBRASKA STAR PARTY

JULY 25-30

The 2nd Annual NSP is really starting to take shape. Tom Miller is doing a great job as Chairman. In December, over 3000 NSP brochures were sent out to nearly all of the clubs in the surrounding states (& then some). We are already starting to get some responses. John Bruce has agreed to handle all of the finances for the star party, and will be setting up an NSP checking account to keep NSP separate from the club's finances.

We have invited several prominent individuals to be this year's guest speakers, including Dave Kriege from Obsession Telescopes, John Hudak from Galaxy Optics, Barbara Wilson from Houston, Emil Bonanno of Mega-Star fame, and Dr. Wakefield Dort, originator of the famous Merna Meteor theory. We are still awaiting their confirmations and have several prospective backup speakers in mind should these decline. If you want to give a presentation, contact me as soon as possible so I can start planning the Program Schedule.

Requests for door prizes have been sent to vendors accross the country .To date,

(Continued on page 3)

Next Meeting:
Tuesday, January 31, 1995, 7:30 p.m.

We had a nice surprise at the December meeting when **Larry Stepp** of the **National Optical Astronomical Observatory** in Tucson gave us an update on the Gemini 8-meter telescope project. We also saw the unveiling of the now-completed 13.1 inch Prairie Astronomy Club telescope, and more than a few members got to actually look through it (see what happens when you miss a meeting?)

The January meeting will feature club observing chairman **Doug Bell** with a presentation that was pre-empted by Larry Stepp's talk last month. According to Doug, the program is slated to be a **collimation and star testing workshop**. Doug will take the mystery out of collimating a Schmidt Cassegrain in the warmth and convenience of Hyde Observatory. This is a workshop so all SCT owners are encouraged to bring their scopes and we'll all do it together. In the meantime, everyone gets a chance to do some real life (artificial) star testing, see diffraction rings, and some how some common aberrations look in the star test.

The following is a tentative schedule of future meeting programs:

February
Mars Explorer CD-ROM Software

March
Lowell Observatory Video

April
Double Stars

Once again, if anyone wants to present a program, or has an idea about one, please contact Dave Knisely as soon as possible.

inside...

Observing Chairman's Report

by Douglas Bell

Next star party:	Friday January 27th
Full Moon:	January 30
Lunar object of the month:	The Davey crater chain
Planet of the month:	Jupiter
Messier monthly:	M78
Top 40:	M42
Deep sky:	Eskimo Nebula
Challenge:	Barnard's Loop
Errata of hte month:	Pleiades

Observing tip:

Didn't your mother tell you to wear a cap. More than half of our body heat is lost through our heads.

Quote of the month:

"I need a bigger telescope!"

Galileo Galilei, Verona Italy, 1610
Edwin Hubble, Palo Alto California, 1920
Tom Miller, Lincoln Nebraska, 1994

Lunar feature of the month:

The Davey crater chain (Catena Davey).

There are several long strings of very similar looking craters on the moon. Most are obviously a part of a collapsed lava tube complex. Nobody could quite figure the other ones out... until last July. Look near the major crater named "Davey" (what else) seven or eight days after new moon.

Planet of the month:

Jupiter

Come'on sleepyheads! The big guy has finally come around the sun (actually we've caught up) and is well placed for morning observing. Is there any sign left of SL-9? Any bets?

Top 40:

The Orion Nebula, M42

The coolest of the cool. It's a nebula! It's a double star! It's an open cluster! It's all of the above! I suppose everyone's seen this before but try again. Count the stars in the Trapezium. Follow the loop all the way around. Look for the subtle shading and (yes) color. If you've seen it a hundred times you haven't seen it all. How much can you still see for the first time?

Messier Monthly:

M78 in Orion

One of the handful of reflection nebulas visible to small telescopes. Right in the middle of Orion's chest but a rather difficult messier. Imagine M42 through a 1" telescope and you get an idea of what M78 looks like. Some relatively bright stars (the ones that shine on the nebula?) give it a little visual pizzaz.

Deep Sky:

The Eskimo Nebula

An excellent planetary in Gemini. Photos show a distinctive face surrounded by an Eskimo parka's hood. Very appropriate for this time of year. No one knows why Messier missed this one.

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The Prairie Astronomer is published monthly by the Prairie Astronomy Club, Inc., and is free to all club members. Membership status and expiration date are listed on the mailing label. Membership dues are: Regular Members...$10/yr; Family Memberships...$12/yr; Address all new memberships, renewals, or questions to THE PRAIRIE ASTRONOMY CLUB, INC., P.O. BOX 80553, LINCOLN, NE 68501. For other club information contact one of the following: John Bruce (Lincoln) 483-0389, Lee Thomas (Lincoln) 483-5639, John Lortz (Omaha) 496-1122. All newsletter comments and articles should be sent to Newsletter Editor JOHN LORTZ, 11684 MEREDITH AVE., OMAHA, NE 68164 no later than 10 days before monthly club meetings. Club meetings are held the last Tuesday of each month at Hyde Observatory in Lincoln, NE.

(Continued from page 1)
we've received four door prizes, including gift certificates from Lumicon and Spectra Astro-systems, a Sky-Glow filter from Orion, and Solar-Screen from Tuthill. Letters to several other vendors will be sent out in the next couple of weeks. One vendor, Bob Nederman from Astronomical Innovations, has confirmed he is planning on attending and displaying products.

I recently received a call from Nancy Hendrickson, editor of Clear Skies, and she confirmed she will attend and plans to mention NSP in the winter issue of Clear Skies. We should also receive great publicity in the upcoming issue of Amateur Astronomy, where Jason Stahl's article on NSP is scheduled to appear. Also, look for a mention of NSP in upcoming issues of Sky & Telescope, Astronomy, and The Reflector. Thanks to Eric Hubl and Doug Bell for submitting to these publications. Plus, we have placed NSP information on America-Online, Compuserve, GEnie & Internet.

The January 12th NSP planning meeting was a big success. The committee focused on preparing the registration packet which will be sent to all who respond to the brochures. Eric Hubl & Doug Bell will be compiling the packet. There was not exactly a huge response to the request for tee-shirt designs, however the committee reviewed the two designs that were submitted and chose one. The printers are currently working on the artwork and we should have a proof by the January meeting. Also, we have been discussing contests and awards. Awards will be given in several categories, including astro-photography, telescope making, "Name-That-Object", and the "Great NSP Deep-Sky Challenge".

If you're planning on attending NSP, be sure to REGISTER AS SOON AS POSSIBLE. If you're not planning on attending, change your plans immediately! The 1st Annual NSP was great...The 2nd will be even better. Remember, cabins are available on a first come-first served basis, so get them while they last. If you wish to get involved, please call the NSP HOTLINE at (402) 466-4170 or show up at the next NSP planning meeting, which will be held on February 2nd at 7:30 pm at Miller Seed Co, 1600 Cornhusker Hwy.

MAHONEY PUBLIC STAR PARTIES

Dates have been set for this year's Mahoney Public Observing Nights: **March 31, May 5, June 2, August 4, & September 1**. I hope you'll plan to show up at the soccer field at Mahoney State Park on these nights and support your astronomy club. Details will follow as dates get closer.

ASTRONOMY DAY

Bev Hetzel has agreed to be the coordinator of this year's Astronomy Day activities. The tentative date is May 6th. Additional details will be announced as plans are confirmed. If you would like to help out, please let contact Bev.

EARTH DAY

We have been invited to participate in Earth Day, which will be held at Antelope Park on April 22nd. We will be educating the public on light pollution and selling posters (Sattelite view of North America at night) in cooperation with Hyde Observatory. If you would like to help out, contact Eric Hubl at 488-1698 or me at 477-2596.

CLUB HISTORY

Ron Veys volunteered to work on compiling a history of The Prairie Astronomy Club. Earl Moser volunteered to be a resource. The intent is to have this completed in about a year, and present it as part of the club's 35 year anniversary celebration. Ron's not going to be able to do it alone, so feel free to call him & volunteer to help.

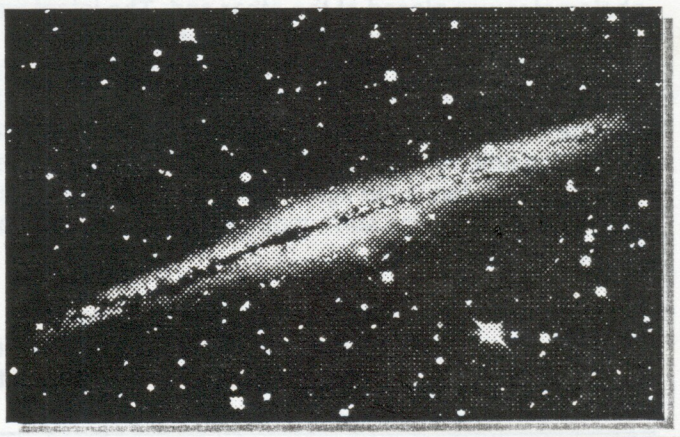
CLUB SCOPE

The club scope has been completed and was presented at the December meeting. Everyone was extremely pleased with the final product. Special thanks to all who helped out with construction and to those who made contributions. At the December meeting, the club voted to allocate $150 to purchase eyepieces and delegated the scope building team to decide which to buy. The team decided to order 2 Meade Series 4000 Plossels and 1 Televue Plossel. Also, special thanks to Les Myers for donating a Celestron Barlow

DATES TO REMEMBER:

January 31, 1995
Regular Club Meeting- Hyde Observatory 7:30pm

February 2, 1995
NSP Planning Meeting -Miller Grass Seed Co. 7:00pm



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Challenge:
Barnard's loop
A giant loop circling Orion's northwest side. A very faint object covering a hugh expanse of sky. It circles Orion's northwest side. Possibly the largest (angular measure) visible other than the Milky Way. You might need an O-III filter or an Ultra-Block and very dark skies. Good Luck!

Trivia of the month:
What is the largest telescope in the world? (Hint: The island that it's on is US territory.)

Last month's answer:
There are three supernova remnant complexes visible to small telescopes. The Crab in Taurus, the Veil in Cygnus, and the inner solar system around the Sun. That's right. Virtually all matter except hydrogen and helium (meaning you, me, and just about everything we've ever seen or touched) was created in the last years of a star's life. Everything with an atomic number greater than iron's (55) was created in the actual blast.

MEASURING REFLECTIVITY OF SECONDARY MIRRORS

Byy Dave Scherping

A few weeks ago, Martin Gaskel invited me over to measure the reflectivity of several secondary mirrors. I brought along the new Galaxy secondary from the club scope and the secondary from my 10" scope. My secondary has standard coatings (I forgot to include it when I had my primary mirror enhanced coated) and the club scope's secondary has enhanced coatings. We also planned to evaluate Martin's secondary from the famous "Tel-Poke".

Martin had borrowed a photometer from UNL to make the measurements. The test set-up was rather simple, a light source was set-up at one end of the room and the photometer was placed at the other end. The intent was to compare measurements of the amount of light the photometer gathered with and without the mirror in the light path. The photometer gives a numerical readout in voltage and has a shutter that opens and closes the front end of the unit. A lens was placed over the front of the photometer to focus the light. A red LED was placed about 25 feet away and was surrounded by black construction paper to reduce glare.

The first step was to take a measurement without the mirror in place. To do this, we placed the photometer at the distance where the LED comes to focus and then took two measurements, one with the shutter open and one with it closed. Subtracting one from the other gives the amount of light from the LED alone. (The measurement with the shutter closed is a measurement of noise and stray light). Note that all measurements were taken with all other lights in the room turned off.

We then repeated the above steps with the mirror placed in the light path, being careful to keep the distance of the light path consistent. The values recorded with the mirror in place were, of course, lower than those obtained without the mirror. The ratio of the two is the reflectivity of the mirror. The tests were conducted twice for each mirror. The Tel-Poke mirror was measured before and after cleaning, and showed a significant decrease in reflectivity when the mirror was dirty. I think when you see the results below, you'll get out the distilled water, dish soap, & cotton!

A few nights later, Jason Stahl took his secondary's to Martin's and measured them in the same manner. Jason's mirrors were coated at QSP with their Endurobrite (96%) coating. The following results were obtained for the mirrors tested:

Dave's Secondary:	84.2%	84.9%
Club Scope Secondary:	94.4%	93.9%
Tel-Poke (dirty):	72.2%	
Tel-Poke (cleaned):	83.0%	
Jason's Secondary's:	95.9%	
	95.3%	

A Book Review

by Dave Knisely

ROUND IN CIRCLES
Poltergeists, Pranksters, and the Secret History of Cropwatchers

by Jim Schnabel
$19.95, Published 1994 by Prometheus Books, Amherst, N.Y.

During the 1980's, a mysterious phenomenon known as "Crop Circles" began to develop in certain rural areas of southern England. These large swirled circular patterns of mashed-down plants began to puzzle farmers and a few researchers, while exciting the imaginations of others. The news media eventually got wind of the circles, and after that, their number exploded, even spreading to beyond the British Isles. Explanations for their formation ranged from whirlwinds, helicopters, and plasmas, all the way to Flying Saucers and New-Age spiritual manifestations. Only a few skeptics seriously considered the possibility of hoaxes. Enter Jim

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Schnabel, an American science writer based in England, who in 1991 took a serious look at the phenomena, and began to do some behind-the-scenes investigation into the circles and the people involved with them. What finally emerged from his research is the book "CROP CIRCLES", a fascinating tale of mystery, personality conflicts, and embarrassing high jinks on the fields of England.

Unlike many books, Crop Circles tells a true story from beginning to end, without attempting to support or debunk the Crop Circle Craze outright. It gives the reader the true feel of being immersed in the phenomena as it happened, rather than being presented with just the facts all at once. Like a mystery novel, it introduces characters at the time each becomes involved, and gives a brief biography of the more prominent ones, telling how they became swept into the crop circle phenomenon. And, like a good novel, it doesn't reveals the truth until the proper time. This does make the first part of the book drag a bit for those who are just interested in the facts, but it does give the reader a unique look at the way different people approached the mystery. The list of individuals covered includes irate farmers, UFO believers, psychics and new-age gurus, numerous journalists from all over the world, a few scientists, skeptics, and even prominent members of the British government. Schnabel even covers a sinister "shadow" group of individuals to keep things lively. Everyone is involved in a mad scramble to understand, profit from, or, at least to cope with crop circles. Exact dates and times are covered, but they are done in a minimal and subtle manner, preserving the "novel" feel of the text. In many cases, the events are presented using the actual accounts given by the involved characters, rather than the author's interpretation of the facts. The most fascinating interplay between characters comes from two prominent groups of players: the Meadens, lead by meteorologist Dr. Terrence Meaden, and the Delgadonians, (followers of Mr. Pat Delgado, Colin Andrews, and several others). Meaden attempts to apply a natural "Vortex" explanation to the formation of crop circles, while Delgado's group is firmly in the extraterrestrial or unworldly camp. The connections, conflicts, legal wranglings, and confusion of these two groups are the real meat of the book. Each group has its own difficulties keeping up with the phenomenon, as the circles become more numerous and complex in form as time goes on. And, as you skeptics out there might suspect, an unlikely pair of suspects becomes very important when it comes time to tie things up. I won't spoil the book by telling you the "real" story behind the circles, but I will say that the ending is very embarrassing to almost everyone involved.

CROP CIRCLES is an enlightening chronicle of the rise (and eventual decline) of the crop circle craze, and I highly recommend it to both skeptics and open-minded individuals. It shows just what can happen when a phenomenon really gets out of hand.

STARHOPPING WITH A DOBSONIAN ??

By Dave Scherping

Quite often I hear people say it's difficult, or impossible, to starhop with a Dobsonian telescope. It's probably not their fault though, for typically these people don't have Dobs. Most likely, this myth stems from the abundance of literature on selecting telescopes that seem bound and determined to convince the telescope purchaser he needs an equatorial mount. In the same breath, they attempt to convince you that you must also get into astrophotography. They convinced me when I bought my first scope. It was a great little scope with a sturdy equatorial mount, but I could have got more aperture in a Dobsonian for the same amount. Don't get me wrong, equatorials have their advantages; they're a necessity for astrophotography and very handy for tracking at high power. But what I want to bring out here is that for typical visual observing, Dobsonian scopes are not as limited as you may be led to believe.

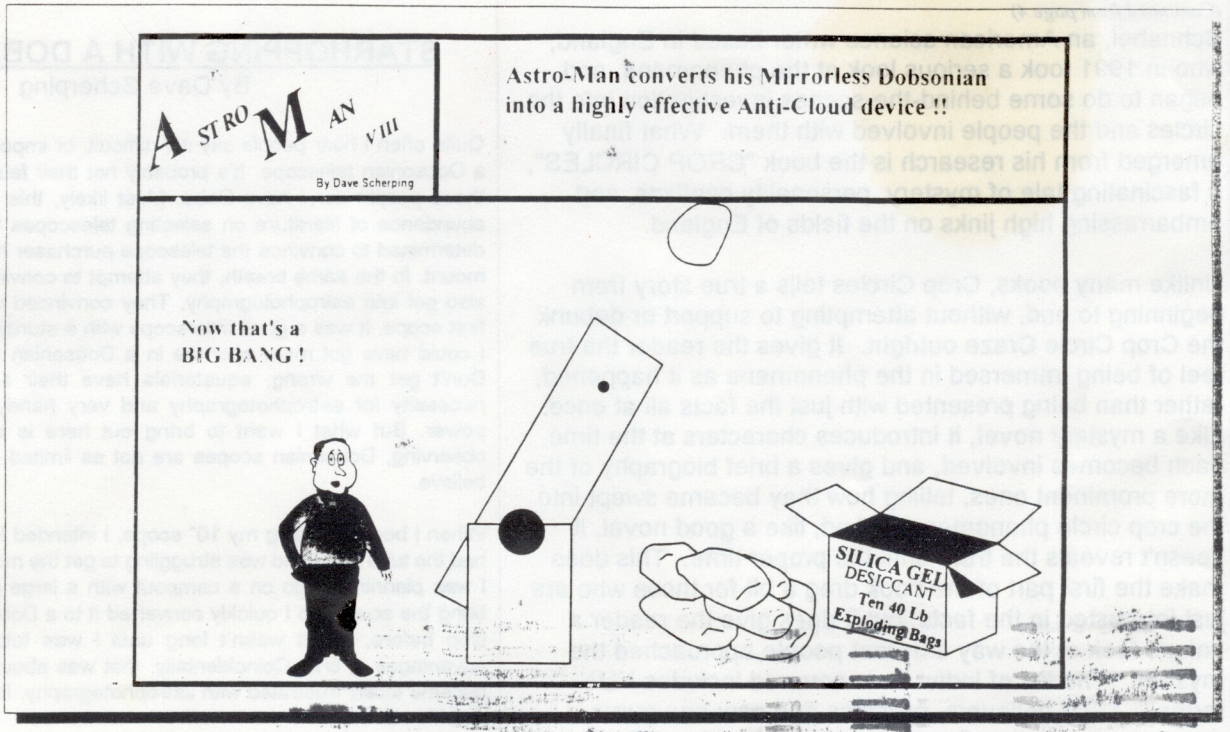
When I began building my 10" scope, I intended for it to be equatorial. I had the tube done and was struggling to get the mount working correctly. I was planning to go on a campout with a large group and wanted to bring the scope, so I quickly converted it to a Dob. I had never owned a Dob before, but it wasn't long until I was totally convinced of the advantages of one. Coincidentally, that was about the same time that I became totally frustrated with astrophotography. It's now four years later and it's still a Dob.

Getting back to starhopping with a Dobsonian telescope. the most common statement I hear is that star maps are laid out in RA & DEC and so the scope needs to move in RA & DEC to starhop. I often think of the analogy of following a treasure map. The map clearly shows which direction is north. It also shows a tree and a rock and shows that the treasure is half way between them. To find the treasure, I don't need to calculate how far east and then how far north I need to go; all I need to do is go half-way between the rock and the tree. It works the same was with starhopping. You just move the scope in the direction you want to go. A Dobsonian moves smoothly in any direction you push it (except near the zenith where it becomes very "Alt-Azimuthish").

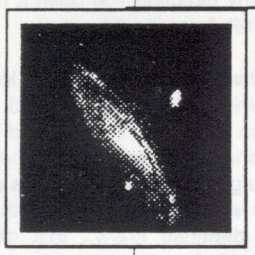
In star hopping with a Dob, the first thing you need to do is locate a known object, such as a bright star, which can be related back to the star chart. Then figure out the orientation in the field of view, and decide which path you want to take to the destination object. This is where you "hop" from one star to the next until you get there. Note that this path is not always in a direct line between the star and the object; rather, it's better to identify patterns of easily identified stars that get you progressively closer to the object. Thus, it's important to pick a starting point for which there are a sufficient number of stars between it and the object.

Another valuable skill is being able estimate distances and angles. This comes with practice. Also, you need to have a pretty good idea of the true field of the eyepiece you're using. This can be determined by dividing the apparent field by the magnification or by timing how long it takes for a star to drift across the field of view. (stars drift at approximately 0.25 degrees per minute).

Starhopping is a very useful skill to develop. Most objects, especially the brighter ones, can be easily located with a finder scope or a telrad (followed by a little bit of scanning around). To locate faint objects, on the other hand, you will often need to starhop. The other alternative is to find the object with setting circles, which is the best way to find objects if you don't want to accidentally learn your way around the night sky.



For Sale: 18" f/5 reflector housed in a 10x20 ft. building on the OAS observing site. Telescope has a Galaxy primary mirror, a 4" 1/25 wave secondary, a heavy Poncet mount, and a 5" f/5 refractor finder. It won the Mechanical Excelence Award at a recent Texas Star Party. The building has a split roll-off roof, carpeting, panaled walls, astronomy pictures, a couch, and a stereo. Will take best offer over $3000. Might consider selling items seperately, but prefers to sell as a unit. Call Roger Besch at (402)486-1977.



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P.O. Box 80553
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OMAHA, NE
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Old Glory
USA G
For U.S. addresses only
First Class Mail

Next Meeting
January 31, 1995

94027 9/95 FS 08
Mr. Earl Moser
P. O. Box #162
Hickman NE 68372

JAN

Please Notice: If there is an asterisk on your mailing label it is time for you to renew your PAC membership!

inside...

PRAIRIE ASTRONOMY CLUB PROFIT & LOSS STATEMENT
For Fiscal Year 12/ 1/93 Through 11/30/94

INCOME/EXPENSE		
INCOME		
Atlas Site Fees		285.00
Donations		12.00
Dues		812.00
Hyde Income:		
Donations	419.47	
Kalmbach Payments	40.00	
Sales	724.38	
Sales Tax	46.62	
Total Hyde Income		1,230.47
Interest Earned		122.35
Kalmbach Publishing: Astronomy Subscriptions		302.00
Member Sales		858.79
Sky Publishing: Sky & Tel Subscriptions		840.00
TOTAL INCOME		4,462.61
EXPENSES		
Astronomical League		165.25
Astronomy Subscriptions		324.00
Atlas Site:		
Insurance	250.00	
Real Estate Tax	51.22	
Atlas Site - Other	26.63	
Total Atlas Site		327.85
Club Donations		25.00
Dues & Subs		50.00
Hyde Expenses:		
Inventory	536.28	
Sales Tax	33.75	
Trust Fund	604.36	
Total Hyde Expenses		1,174.39
Misc. Expenses		69.08
Nebr Star Party		72.46
Postal Expense		68.60
Sales to Members		736.35
Sky & Tel Subscriptions		920.00
Telescope Project		288.61
TOTAL EXPENSES		4,221.59
TOTAL INCOME/EXPENSE		241.02