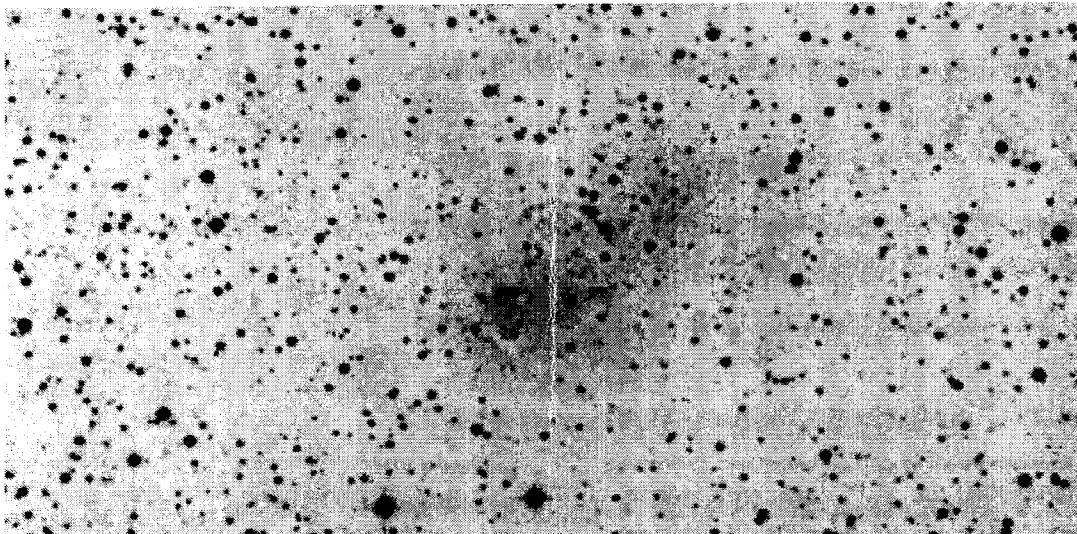


# *Saskatoon Skies*

**The Newsletter of the Saskatoon Centre  
of the Royal Astronomical Society of Canada**

**Volume 29, Number 12  
December 1998**



Index Catalogue 10 (IC10) is a dwarf irregular galaxy in the Local Group. Even at its small, disorganized size, it is still visible in amateur telescopes. See Scott Alexander's article for details. The photo is a negative from the Space Telescope Institute's Digital Sky survey. North is up. The photo is 15' wide.

**DUE TO CHRISTMAS – NOTE THAT THE NEXT  
GENERAL MEETING WILL BE ON DECEMBER 14<sup>TH</sup>!**

## RASC Calendar Happenings

Date (1998-9)	Event	Contact	Telephone
Dec 11	U of S Observatory Tour (Youth & Juniors) 7:45pm	Sandy Ferguson	931-3184
Dec 12 - 14	Geminid Meteors - peaks Dec 13/14	Rick Huziak	665-3392
Dec 14	RASC General Meeting - 7:30 pm	Erich Keser	374-4262
Jan 15	Junior Astronomers Meeting - 7:30 pm	Sandy Ferguson	931-3184
Jan 18	RASC General Meeting - 7:30 pm	Erich Keser	374-4262
Jan 22	Youth Astronomers Meeting - 7:30 pm	Sandy Ferguson	931-3184
Jan tbd	Gastronomy Dinner (stay tuned!)	Les Dickson	249-1091

## The 1999 RASC Calendar is Still Available.

This edition features a larger size, 10 by 12.5 inches (was 8.5 x11). Also, all photos are in colour for the first time. The 1998 edition was the "Best Calendar" winner in the Ontario Printing and Imaging Association's annual competition. The same high quality has been retained in the new, larger, 1999 version. Copies will be available for sale at the December meeting. Excellent Christmas gift! Contact Jean Dudley <[Dudley@siast.sk.ca](mailto:Dudley@siast.sk.ca)>

**U of S Observatory Hours** - the U of S Observatory will be open to the general public on Saturday evenings from 7:30 pm to 9:30 pm from December to February. On clear evenings visitors may view Jupiter and its moons, the colourful Alberio binary star system, the Hercules star cluster and Saturn and its rings through the 6" refractor. Free admission. More info -call 966-6429.

**Note the early date for the December General meeting - avoid the Xmas rush - we meet this month only on the SECOND Monday - December 14th. See you there!!**

# Saskatoon Centre

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# IN THIS ISSUE

	page
Calendar of Events, Calendars & U of S Observatory Hours	2
President's Report - by Erich Keser, President	4
Holmes and Watson Go Camping - by Brent Gratius (from the Internet)	5
Fundraising with Firefly Books - by Jean Dudley	5
Letter to the Editor	6
Sky Buys and Mirror Sells	6
Book Review - The Whole Shebang - by Larry Grenkow	7
Junior Astronomers/Youth Update - by Sandy Ferguson	8
November's National Council Meeting - by Sandy Ferguson	9
A Cool Galaxy and Star Clusters in Cassiopeia - by Scott Alexander	11
The Sleaford Page - by Rick Huziak	12
The RZ Cassiopeia Controversy - by Rick Huziak	13
The Messier, Finest NGC and Herschel 400 Club	14
Minutes of the November 16 <sup>th</sup> General Meeting - by Al Hartridge, Secretary	15

*Saskatoon Skies* is published monthly by the Saskatoon Centre of the RASC. Distribution is approximately 140 copies per issue. *Saskatoon Skies* welcomes unsolicited articles, sketches, photographs, cartoons, and other astronomy or space science articles. Articles can be sent by mail in any format to the Centre's mailbox. Submissions may also be sent by e-mail - preferred as plain unformatted ASCII text files without line breaks. Images sent by e-mail should be attached .GIFs or similar. Send e-mail submissions to the editor at [huziak@SEDSsystems.ca](mailto:huziak@SEDSsystems.ca). Submitted materials can be returned upon request. A separate subscription to *Saskatoon Skies* is available for \$12.50 per year. Articles may be reprinted from *Saskatoon Skies* without expressed permission (except where otherwise stated), but source credit is requested. DEADLINE for submissions is the 26th of each month. *Saskatoon Skies* accepts commercial advertising. Please call the editor for rates. Members can advertise non-commercial items free of charge.

## President's Report

by Erich Keser

As 1998 draws to a close, we can look on a great deal that we accomplished this year, and also at things that we could have done better, and still have to do. A lot of it can be looked at in relation to what may one day be seen as our Centre's most concrete accomplishment, in the final years of this century (and the twenty ninth year of its existence).

Almost exactly a year ago, we connected up the power to our Warm-up shelter, signaling the end (for that year) of a heroic effort by many members of our Centre to turn our new site into a really usable site. We'd moved that massively constructed little building, re-anchored it, pulled out wire which had been in the ground at the Rystrom Site for over a decade and re-inserted it in new conduit. All our hard work really paid off, as our new site ended up being used many dozens of times over the following months.

This spring and summer, our site development efforts got a big shot in the arm when David Cornish pulled off a near miracle by soliciting the donation of over \$1500 worth of astronomical items for raffle prizes. More than that, David demonstrated that our Centre really can raise money, that much of the public really does have some interest in astronomy, and most important of all, that virtually our whole membership is eager and ready to help, if we just give them a way of doing so. Almost every single member, and many supporters, sold tickets; often dozens of them in our great Astronomy Raffle, and we sold every single one to raise over \$3600 for our new site. On top of this, David managed to raise a further \$600 for site development by getting still more items for a Silent Auction at the Saskatchewan Summer Star Party.

SSSP was the event at which the raffle ended, and at which the silent auction took place. It was a great success, but also a huge undertaking. Although Sandy Ferguson and Rick Huziak went

on with their ambitious schedule of presentations (which also raise money for our site, and other things), and others like Dale Jeffrey and Kirt Headley also helped in that area, virtually the entire energy of our Centre had to be focused on making SSSP'98 a success for the months leading up to it. It involved 270 people, of all ages, shapes, sizes and levels of astronomical experience in a wonderful weekend of observing, presentations, discussions and fun that will not soon be forgotten. It also left most of the dozens who helped eager to catch up on other things and "recharge our batteries".

Thus, even our usual Summer Council meeting did not take place until the end of August, and most of the work on our site got a rather late start. Nevertheless, over the past months the C8 telescope's housing, our Gordon Patterson dome, has been removed from Rystrom and installed at our new site and a proper, safe deck has been added to our Warm-up shelter. The construction of an extension to the Warm-up shelter which will both give us more space and house proper sanitation facilities is also well underway. The University Physics Department is working on installing a telephone and the upgrading, inspection and certification of the site electrical system; both of which should be completed shortly.

Now, some of us are finally doing something which we've been discussing for years: putting together proposals to corporations and other organizations to solicit donations toward our capital expenditures at our new site. We have an excellent case to make - we do a tremendous amount of public education, we have raised and invested over four thousand dollars, and further contributed at least as much in volunteer time and donations in kind...and we are tax deductible.

One perceived problem with fundraising for the Sleaford site was that given the distance of the from Saskatoon it would only be used by a small number of seasoned observers and could therefore scarcely be connected with those educational and community activities most attractive to potential donors.

However, there has been such a interest and support from the local community, especially the Colonsay High School, and such a positive response to the site from those of our Youth members who have visited it that this opinion may be worth re-examining. It is also worth remembering that, through our partner, the University Physics department, as many as a

hundred university students per term will get their introduction to visual astronomy at the Sleaford site. Thus, in helping to redraft what will be the first of several proposals, I dubbed it the Sleaford Astronomy Education Site. There may well be catchier ways of putting this, but let's hope that the general idea flies. If it does, then by this time next year, as we celebrate the thirtieth anniversary of our Centre and prepare to observe in a new millennium, we may well find ourselves using the 16" precision telescope Bill Hydomako and others have been working on for so many years in a well constructed dome - and perhaps even being able to use Eetook and a massive Schmidt camera in a well constructed roll-off as well!

### **HOLMES AND WATSON GO CAMPING**

**from the Internet - submitted by Brent Gratias" <thunderb@home.com>**

Sherlock Holmes and Dr Watson went on a camping trip. As they lay down for the night,

**Holmes** said: "Watson, look up at the sky and tell me what you see."

**Watson** said: "I see millions and millions of stars."

**Holmes:** "And what does that tell you?"

**Watson:** "Astronomically, it tells me that there are millions of galaxies and potentially billions of planets. Theologically, it tells me that God is great and that we are small. Meteorologically, it tells me that we will have a beautiful day tomorrow. What does it tell you?"

**Holmes:** "Watson, you idiot. Somebody stole our tent."

### **FUNDRAISING WITH FIRELY BOOKS**

**by Jean Dudley <Dudley@siast.sk.ca>**

On the back page of this newsletter, you will find an ad for the *Firefly Books* that the Saskatoon Centre has for sale. I can still take orders although there's not much chance in them arriving before Christmas. I will have 10 more **RASC Calendars** for sale at the next meeting. I ordered **Adult** : a couple of copies of the new **Night Watch**, one of the **Backyard Astronomer**, two **Exploring the Night Sky**, two **Exploring the Sky by Day**, one **Photographic Tour of the Universe**; **Children**: one **Other World's**, one **Adventure of the Sojourner**, one **Space Facts**.

**LETTER TO THE EDITOR**

**Dear Editor,**

As a member of the RASC Saskatoon Centre, I look forward to receiving my monthly copy of SASKATOON SKIES, and this last month's edition was certainly no exception, especially with its intriguing article on the journey of two of your upstanding members on the road to Climax.

However, I would be remiss if I did not draw your attention to some of the terminology employed in your **President's Report**, as it would undoubtedly have been quite offensive to members of the family unit in which I am engaged, had I not promptly hidden it. The report, perhaps written unwittingly, referred to younger family members as "offspring", thus alienating those whose attachments and positions in the family were not attained by so-called "natural" genetic mingling, but rather by adoption. Similarly, the use of the term "partner" in reference to one's chosen in congress further risks a definition of the nature of conjugal relationships that might not apply in all cases.

I appreciate your efforts in making the language employed in your excellent publication as inoffensive as possible.

I remain, anonymously,

"Laird"

P.S. Incidentally, there were no seals killed in the writing of this e-mail.

**More Editorial Woes**

Oops - last month's Cypress Hills centerfold photos should have been credited to Ellen Dickson. The Grasslands talk photos were taken by the editor. My apologies.

**Sky Buys and Mirror Sells**

**Still Wanted:** Donations of building materials for the Sleaford Observatory site. We'll take miscellaneous 2x4's, 2x6's, 4x4's etc., plywood (even partial sheets), nails, screws, white paint, primer. Every little bit helps. I will pick up. Call Rick Huziak at 665-3392.

**Ad-um Erratum:** Hi Rick - I noticed my ad in the *Skies* and it is okay except for the fact that the mount folds down to a height of four inches (4") and not four feet. I think the four foot height might scare off a few people. Regards, *Garry*

## Book Review - "The Whole Shebang" by Timothy Ferris by Larry Grenkow

I write this book review from the perspective of a novice who began binocular observing in 1996. This hobby is engrossing because the night skies are accessible and many of its mysteries are revealed by excellent popular writings. "*The Whole Shebang*" by Timothy Ferris a recent book that fed my appetite during our cloudy autumn nights.

"*The Whole Shebang*" is not a textbook. There are no tables of data and no equations. I counted no more than 10 diagrams. Chapter notes at the end of the book provide more explanation and references for the reader who wants more detail. Ferris's prose summarizes what is known of the universe, how we know it, and speculates on where cosmology may be headed. The reader is introduced to the people and the ideas they contributed. He begins the story with the ancient Greeks, who thought that the earth was the center of the universe. We attribute to them the first scientific thought, for they expected their theories to explain and predict observable events, and Ferris describes how we arrived at the big bang model. Without being preachy or pedantic, he leads us on an absorbing journey of discovery.

Along the way, the reader learns about the evolution of the big bang model of the universe, the expansion and shape of the universe, the origin of the atoms, the puzzle of dark matter, the large scale structure of the universe, the question of cosmic evolution, string theory, the inflationary hypothesis, and more that I haven't read yet. I'd already been introduced to the topics in Astronomy magazine.

Ferris lyrically weaves them together in an enthralling story that leaves the reader in awe of how science today envisions the universe.

The chapter on the large scale structure of the universe stands out as a special revelation to me. I learned that galaxies occur in groups, which are gravitationally bound together in clusters. Maps of the universe show galaxy clusters arranged in superclusters. Superclusters seem to occur in sheets of supercluster complexes, surrounding bubbles of empty space. Data from the Cosmic Background Explorer (COBE) satellite support theories that the cosmic structure results from random quantum flux during the big bang. The mind boggles.

The book dust jacket explains that Timothy Ferris is an emeritus professor at the University of California, Berkeley. We are told he has earned the accolade "the greatest science writer in the world". He has written eight other books, one of them being "*Coming of Age in the Milky Way*" for which he received world acclaim. My favorite quote from the dust jacket is "Few observers of the astronomical scene sing the song of cosmology as eloquently and with such clarity as Timothy Ferris. Like an ancient epic poet, he celebrates the heroic adventure of pinning down the properties of the universe in terms everyone can understand."

So far I have read 4/5 of "*The Whole Shebang*" and can verify that Timothy Ferris is a very good science writer. I won't claim to understand it all, but "*The Whole Shebang*" leaves me with a lot to think about and a deeper awe for the night sky.

## JR. ASTRONOMERS/YOUTH GROUP UPDATE by Sandy Ferguson

The new meeting place for both groups is now Nutana Collegiate, on the corner of Victoria Ave and 11th Street. Go in the main entrance and you will see us in the students' lounge, just as you come in. Meetings are held on Friday nights, once a month for each group, at 7:30 p.m. We are usually finished between 8:30 and 9:00 p.m.

### Jr. Astronomers' Meeting - October 9, 1998

For our first "real meeting" this season about 20 young astronomers and some of their parents attended. We presented a slide show on the solar system, just to review where we are in the grand scheme on things. We described our new *Stargazer Steve* 4-1/4" reflecting telescope, especially built for the youth members of our Centre. The night, however, was cloudy and the 'scope didn't get to make its appearance outside.

### Youth Group Meeting - October 23, 1998

*WHERE WAS EVERYONE??* Only six members turned up, but it was a gorgeous night for observing. After some initial discussion on the new telescope, we spent the whole evening outside observing with 'scope and binoculars.

Camera equipment was also set up for astrophotography. Jupiter (four satellites tonight) and Saturn (no satellite apparent) were checked out first, followed up with Pegasus/Andromeda (with Galaxy M-31), Cassiopeia and the Summer Triangle. Greg Mason, Nathan Quennell, and Erin Flaherty all took some photos and Greg also managed to find M-31 through the telescope, unassisted! It was an excellent meeting followed by home-made Hallowe'en cookies, compliments of Brenna Wright. Thanks, Bren!

## UPCOMING MEETING DATES FOR JR. ASTRONOMERS & YOUTH GROUP

**Dec. 11th, 1998** - Annual tour of U of S. Observatory for both groups. We will meet in front of the Observatory at 7:45 p.m. and the tour runs from 8:00 to 9:00 p.m. Hot chocolate will be served following the tour.

**1999 Meetings:** Meetings are held on the following Friday nights at 7:30 p.m. in the Students' Lounge of Nutana Collegiate, on the corner of Victoria Ave. and 11th Street.

Jr. Astronomers	Youth Group
Jan. 15th	Jan. 22nd
Feb. 5th	Feb. 12th
Mar 12th	Mar. 19th
Apr. 16th	Apr. 23rd
May 7th	May 14th



**May 22nd: International Astronomy Day -**  
displays & starnight

**Late May or Early June: Season wrap-up BBQ**  
Sleaford Observatory

**NATIONAL COUNCIL MEETING, November 7/8, 1998****Sandy Ferguson, S'toon Centre National Rep.**

I had the opportunity to attend the National Council Meeting on the above dates, which was held for the first time at Dow Planetarium in Montreal. It was a busy agenda for the weekend, but set out below are some of the highlights.

1. National Council has voted to set aside up to \$20,000.00 to install a new computer system. This will enable our Executive Secretary (Bonnie Bird) to handle all our memberships, mailings, etc. in place of the U of T, which will soon be out of the picture. Consultants are being approached to determine the best system for our needs. This new system is expected to be up and running by March 1999.

2. Several aspects of membership were brought up. Discussions on keeping a floating membership year, as opposed to a fixed year, took up some time. It was suggested that a floating year would work better for National Office, as it would prevent 3500 new members and renewals coming into N.O. at the same time in the fall. Council voted to retain the floating year.

3. Other membership topics included the introduction of other types of membership, such as multiple year memberships (i.e. 3 years), premium memberships for members who might wish to direct part of their membership to special Society projects, and student memberships as well as youth memberships for those who are university students, but over 18 years old.

Saskatoon Centre concerns regarding family memberships didn't come up, due to lack of time. We will be submitting a proposal on this form of membership at the next meeting in February, 1999. Other Centres are also interested in family memberships.

4. Concerning the Observers' Handbook, it was suggested that monies from the retail sales of the Handbook were not being used to their fullest. The Editor is concerned that the Handbook sales are subsidizing the memberships and it was suggested that the retail sales prices be raised. A Motion was raised giving direction allowing the Editor of the Observer's Handbook to increase the price, should he see fit.

5. Ottawa Centre submitted a proposal for the RASC Council to provide \$5,155.00 to support a prairie meteorite search in the summer of 1999. Although Council admitted the search might be a valid project in which the Society could be involved, the proposal was voted down. It was felt the expense of the new computer system should take priority at this time. It was suggested that funding for this particular project may be raised by individual donation.

Some changes are coming about on Council:

1. Raymond Auclair will be stepping down as National Secretary as soon as possible;
2. Scott Young is stepping down as National Astronomy Day Coordinator;
3. National Office has employed Isaac McGillis on a part-time basis to assist Bonnie with the volume of work in the office.

- Other Notes:
1. Upcoming G.A.s 1999 - Toronto; 2000 - Winnipeg
  2. If anyone is interested in giving talks at the High School level, let Randy Attwood or Bonnie Bird know. They are creating a National List.

Montreal Centre provided an entertaining evening for the Council members on the Saturday. We all gathered at a local restaurant for dinner and we were treated to a talk by Canadian astronaut, Bjarne Tryggvason, who had his ride in the shuttle last year. He spoke of his adventures in space and how the new group of Canadian astronauts will be involved in upcoming shuttle trips. It was a very casual evening and enjoyed by everyone.

You are invited to the  
**General Meeting of the Saskatoon Centre**  
**Monday, December 14, 1998 at 7:30 p.m.**  
Conference Room, National Hydrology Research Institute building  
Innovation Boulevard

**Presenting: Yannis Pahatouraglou, U of S Physics "A Very Strange Universe Indeed:  
One of the Latest Cosmological Views"**

Admission is free. Everyone is welcome to attend.

**NOTE THE EARLIER THAN USUAL DATE OF MONDAY, DECEMBER 14!**

**January Meeting: Mark Kaye - "Three Decades Of Observing, Making Looking Up Easier"**  
The talk uses slides to cover all of the observing sites we have made over the years and the ways we have made observing easier or conditions better. Intermixed will be lots of astrophotos from each location and the show will end with a set of slides set to music.

The majority of the printing of this letter is being donated by Western Business Machines Limited, and is printed on a Risograph copy machine.

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## The Deep Sky Observer

### A Cool Galaxy and Star Clusters in Cassiopeia

By Scott Alexander



Hello, how are you tonight? This month, we will go into the constellation of Cassiopeia to look at a very nice galaxy and some open clusters.

To start with we will look at a nice galaxy called IC10 (IC means *Index Catalogue*, which is a supplement catalogue to the *New General Catalogue of Nebulae and Clusters of Stars*, or more commonly called just *NGC*). This catalogue was first published in 1888 by J. L. E. Dreyer at the Armagh Observatory in Ireland. The *Index Catalogue* was added in 1908). This galaxy is close to the bright star beta Cassiopeia, which is at the top right hand star in the west of Cassiopeia.

This galaxy should be visible in a 6-inch telescope. "Can you see it in a scope that small?" I hear you ask. YES! You can see a 11.3 magnitude object from a dark sky site with a 6-inch scope easily. I have seen 13<sup>th</sup> magnitude objects with my 4-inch telescope from my dark back yard in the country!

The right ascension of IC10 is 0020.4 and declination is +5918. This galaxy is faint, but easily visible. The galaxy is located between beta Cas and an open cluster called NGC129, so draw a line between beta and the cluster and go down a bit, about 1 to 2 eyepiece fields, toward the star alpha Cas. The galaxy is right above a 7<sup>th</sup> magnitude star. What you should see is a small, elongated patch of light slightly wider than it is long. This galaxy is also a member of the Local Group of galaxies that the Milky Way belongs to, so give this one a try to see if you can find it. Remember to use low to medium power first to identify the galaxy field, then high power to darken the sky (improve contrast) so that you might have a better chance of finding the galaxy. If you have *Uranometria 2000*, it and NGC 129 are located on chart number 35.

OK, onto the next object, called NGC1528. This is an open star cluster and a fine object for binoculars in the size range of 7X35 or 10X50 or any telescope of 3-inches or larger. This cluster has only about 40 stars, so don't expect to have your eyes blinded by too many stars. This cluster will look like a small nebula in binoculars, but in a 3-inch, you will be able to see all 40 stars. The stars in this cluster are between 8<sup>th</sup> and 10<sup>th</sup> magnitude.

The next object is from the *RASC Observer's Handbook* in the autumn section on page 226. Find M103. This object is also an open cluster and is easy to find. Go back to the west part of Cassiopeia and find the star delta (which is the lower left star in the "W"), and go towards the star epsilon (which is the top left star in the "W"). The cluster is only about 1 to 2 eyepiece widths away from delta. The RA is 0133.2 and the decl. Is +6042. The magnitude is 7.4. This object is easy for all telescopes and binoculars.

There are also 3 NGC clusters nearby. These are NGC659, NGC663, and NGC654. All are visible in 10X50 binoculars from a dark sky. I have seen all of these NGC clusters a few years ago, and they are very pretty. And since you're already in the area, don't forget to give the cluster NGC129 a glance.

So give these a try and have fun finding them! See you next month. Good luck and clear skies!

# The Sleaford Page

by Rick Huziak

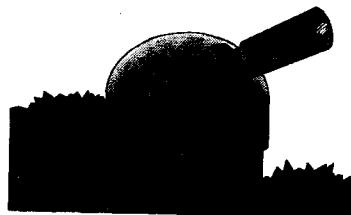
*Longitude: 105 deg 55' 13" +/- 13" W*

*Latitude: 52 deg 05' 04" +/- 8" N*

Work on the Sleaford Observatory continues due to the excellent weather. In the last month, several jobs have been completed by Darrell Chatfield, Bill Hydomako, Merlyn Melby, Ron Schnor and me. (I apologize to others if you were out but are not on this month's list).

The door to the warm-up extension is now in place, the aluminum siding is mostly on and the tin roof has been installed. Enough work has been completed that we can now work through the winter on the inside of the extension. The Rystrom (soon to be G.N. Patterson dome) has had the pier rough positioned and bolted down, and the dome rollers gusseted and shimmed to allow the dome to rotate once more. Please note: we will be precision pier alignment soon, and if you would like your Celestron or Meade 10" or 11" scope added to the pier bolt pattern, let Bill Hydomako know immediately. He will require a pattern of your mounting bolts. In this way, you will be able to bring out your tube assembly and replace the C-8 with your more familiar scope (after we complete alignment).

In addition, Merlyn and Ron have put in long hours to terminate the power and data conduits into the warm-up splitter box and existing conduiting. Please note that the pit is still open, though covered; we cannot fill it in until spring.



The University electrical will also begin the work of upgrading the main service to a 200 amp box this week, and will soon begin rewiring the main power in the warm-up shelter and the roll-off observatory.

Also, as of Thursday December 10<sup>th</sup>, we will have a telephone at the observatory. However, this phone is a LONG DISTANCE line, so we will also be placing a telephone log there. We will be governed by some simple rules, which will have dire consequences if they are ignored or broken! We will have a log, and EVERY call from the site MUST be logged. This log will be checked to the phone bill every month, and whomever makes the call will be asked to pay for it. IF we find abuse over the phone, such as large, unidentified calls, phone privileges will be revoked! You can use the phone for any circumstance, but YOU are responsible for yourself. The phone will obviously be useful for safety, security and calling in-towners to come out, or for in-towners to call out to, should they know someone is out there. HOW DO YOU KNOW SOMEONE IS OUT THERE? Register with me (Rick Huziak) before leaving for the site (665-3392), and I will make sure the information is on my answering machine, then if someone is there, call out to find out weather conditions!!!

**SLEAFORD OBSERVATORY TELEPHONE NUMBER  
(long distance) is 255-2045**

## The RZ Cassiopeia Controversy

By Rick Huziak

A routine observing run of one of my favorite stars has produced a bit of a controversy in variable star astronomy. On the evening of November 24th-25th, 1998, I observed the most unusual eclipse of RZ Cas.

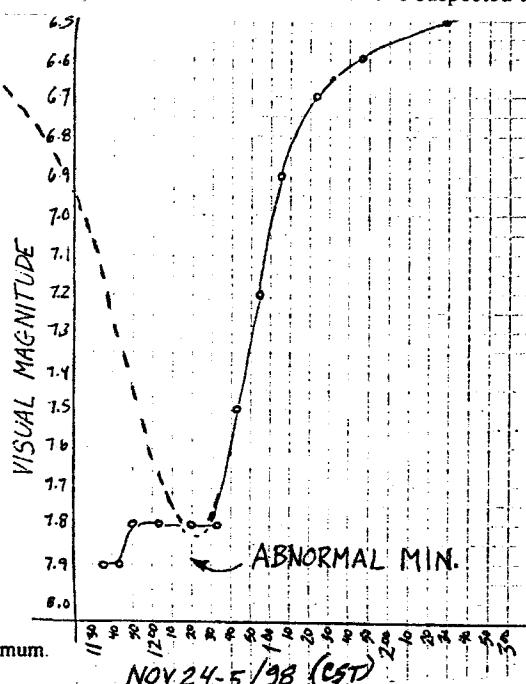
RZ Cassiopeia is (or used to be thought of as) a fairly ‘normal’ eclipsing binary star, where one dimmer star eclipses the other brighter star once every 1.195252 days, or for those more familiar with a normal clock, every 1 day, 4 hours, 41 minutes, and 10.6 seconds. Since the star varies from magnitude 6.4 to 7.8, it is an ideal target for binoculars and city observing. Amateurs such as myself, Sandy Ferguson and Mike Wesolowski have monitored this star over the last 22 years, looking for those tell-tale signs of mass exchange – the change in eclipse period, or O-C, “observed minus calculated”. Even a small change of period or only a 10<sup>th</sup> of a second resulting from a slight mass exchange will manifest itself in showing the eclipse occurring either earlier or later than predicted after a few hundred cycles! RZ, however, is considered a “post-mass-exchange” system, since its period is very stable. Even so, over the last 22 years, we have logged more than 100 observed eclipses looking for the small changes and know the star well.

The eclipse on November 24th began normally. My first observation showed RZ to be at minimum light, so I decided to follow the ascending branch of the eclipse over the next two hours. However, as I monitored the supposed ascent, the star stumped me by remaining at minimum light for an HOUR before resuming the normal looking ascent. This was most unusual, since RZ is a partially eclipsing star and has a sharp point at minimum, making an immediate turn back towards maximum within minutes of the center of the eclipse. A flat-bottom, such as I had observed, indicates a TOTAL eclipse of the star. Had there been a mass exchange? Had the star or its accretion disc enlarged so that total eclipses are now occurring?

Since the observation was unlikely to be observational error (experience, sky conditions, etc), I posted a message on AAVSO’s Variable Star Discussion List, and received a lot of response from both amateur and profession astronomers. What I found out was that this star is not that well understood after all, and that some astronomers have suspected that at least one of the stars in the system is also an *intrinsic variable* star of the delta Scuti type. This means that at least one star in the system, maybe both, go through pulsations in the period of 0.1 to several days duration, slowly changing its brightness by about 0.1 magnitudes even when out of eclipse. Delta Scuti’s may also beat in several periods, making it very difficult to predict what the brightness of the system will be during an eclipse. Apparently, what I observed, was a delta Scuti mega-variation to the bright star, which, through constructive interference, mimicked a flat-bottomed total eclipse of the system!

This helps to resolve the observation, though it is not an open and shut case. The pulsations are not well understood, and recent observations of the eclipses, including my observation, are convincing astronomers to open up new studies on this *once-thought classical* binary. Amateur observations continue to be important in this respect. A chart for RZ Cas can be found in Burnham’s Celestial Handbook, or at the next General Meeting.

The observation of Nov. 24-25 show an unusual minimum.  
The dashed line represents a “normal” eclipse.



# The Messier, FNGC & H-400 Club

## MESSIER CLUB

### Certified at 110 Objects:

Rick Huziak, Gord Sarty, Scott Alexander, Sandy Ferguson, Dale Jeffrey, Darrell Chatfield

Bob Christie	99
Wade Selvig	64
Erich Keser	51
Tyler Cottenie	33
Stan Noble	28
Terry Nelson	21
Les & Ellen Dickson	now less than Terry!
Brian Friesen	15
Brent Gratias	11

## FINEST NGC CLUB

Richard Huziak (applied)	110
Darrell Chatfield	62
Scott Alexander	51
Gordon Sarty	50
Dale Jeffrey	40
Sandy Ferguson	...23

The Messier, FNGC and H400 lists are meant to promote observing! Please send in your observations of these objects, and I'll publish them in the newsletter!

## HERSCHEL 400 CLUB

Rick Huziak	322
Darrell Chatfield	85
Gord Sarty	77
Scott Alexander	54
Sandy Ferguson	18

*Join the Messier, Finest  
NGC and H-400 Club!*

Observe all 110 Messier, 100 FNGC or 400 H-400 objects and earn your

**CERTIFICATE**

Now that many of us have complete our Messier Certificates, we've added the Finest NGC and Herschel 400 lists to our program. The first 2 lists can be found in the Observer's Handbook. The Herschel 400 list will be available at each general meeting for 50 cents (covers photocopying) or can be mailed out on request to distant members. Each month I'll be posting updates. E-mail or phone in you new numbers! If your name is not on this list and you're observing the Messiers, FNGCs or H-400's, let me know & I'll add you on!

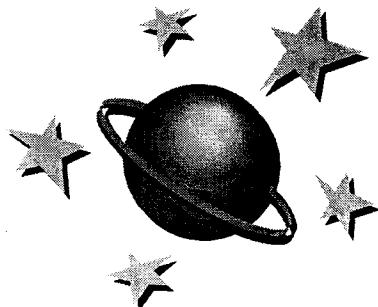
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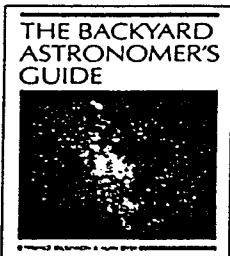
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**Minutes of the General Meeting****Monday, November 16, 1998****held at the National Hydrology Conference Room, Saskatoon, 7:45 p.m.**

1. Meeting called to order at 7:45 pm.
2. Presentation: Prof. Chary from physics dept. gave a very interesting talk on *The Subatomic Structure of the Cosmos*.
3. Slide presentation given by Erich Keser on the progress at the Sleaford site.
4. Minutes of the last meeting moved adopted by Ellen Dickson and seconded by Darrell Chatfield and carried.
5. Financial Report: By Jim Young - he still does not have all the figures but says we have enough in the account to pay the bills so far. A motion was made, seconded and carried that we pay the insurance premium up to the amount of \$331.00.
6. New Site Report: Bill says the siding on the north and west walls has been put on. We were brought up to date on the status of the partnership agreement by Yannis and Erich. It was also suggested that a key for some one living close to the Sleaford site be made available.
7. Fundraising Report:
  - Firefly Books and Calendars - Jean Dudley
  - Bingos - Al Hartridge -there has been very little support for the bingos and these have been dropped.
  - Kalium Mine, Saskatoon Foundation, RASC grant- Erich Keser
8. National Council Meeting Report - Sandy Ferguson - the report will be placed in the next newsletter.
9. Observers Group Report: Darrell says the next OG is scheduled for this coming weekend.
10. Youth Coordinator's Report: Sandy stated that at the last meeting the sky was clear and most of the time was spent observing.
11. December General meeting has been moved to Monday December 14th.
12. Dinner for the Williams will be held in the new year.
13. University activities: Yannis said that they were meeting tomorrow with the electrician and hope to have the electrical work completed in two weeks. The telephone line has been trenched to the warm-up shelter. The university is in need of more funds to complete the observatory.
14. University Archivist: Ed Kennedy, Ellen Dickson, and Sandy Ferguson are presently trying to organize a meeting with the archivist at the University Library.
15. Meeting adjourned at 10:00pm.





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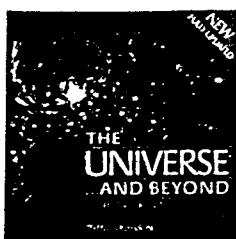
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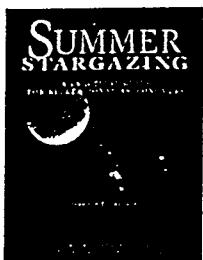
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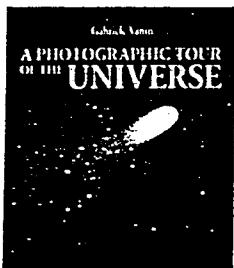
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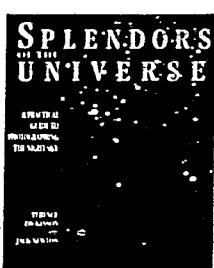
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