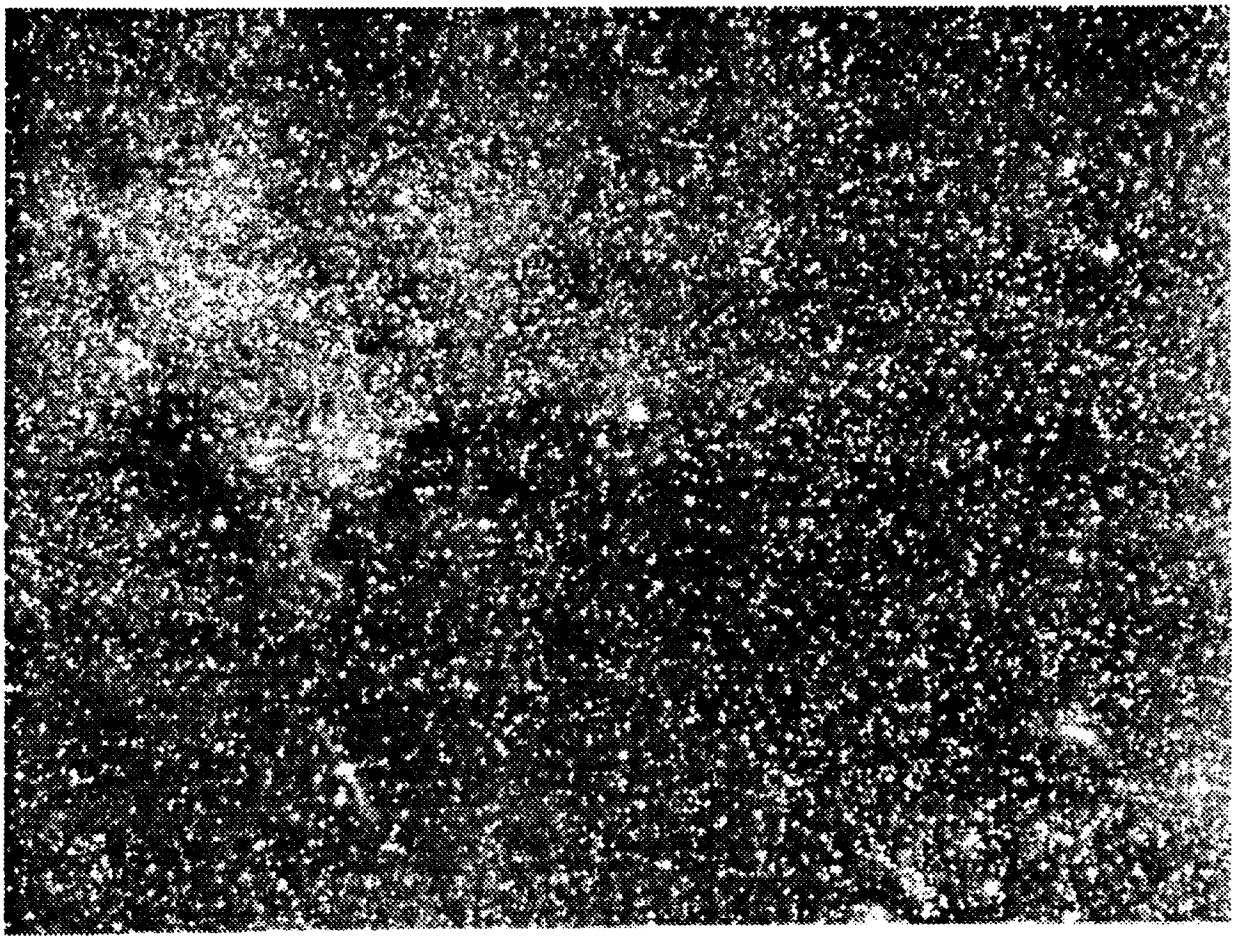
Saskatoon Skies

Volume 24, Number 2 February, 1994



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In This Issue

Minutes of the January Executive Meeting

7:00 p.m., January 17, 1994
Room B-10, Health Sciences Building, U of S Campus

Present: Ed Kennedy, Richard Huziak, Bill Hydomako, Gord Sarty, Mike Wesolowski, Jim Wood, Al Hartridge

1. Meeting called to order 7:10 p.m. M. Williams regrets he cannot attend.
2. No further news about Peter Broughton's visit and the Regina Centre:
   (a) are we going to make any 'special' arrangements? The executive will consider what may need to be set up.
3. Light Pollution Committee report. (G. Sarty): The city has not responded to the light pollution presentation. The light pollution committee will give the city more time to respond before following up.
4. (a) A donation of $50 has been received from Dr. Dick Eager (Chemistry), a past member to put toward completion of the telescope. (E. Kennedy)
   (b) R. Huziak will send a letter of appreciation for the donation.
5. Rick Huziak to follow up on a possible 14 foot dome that may be available for use to house the centre 16 inch scope.
6. Membership/Promotions report. Non-renewed members have been called. (M. Wesolowski)
   (a) two former members will renew and there is one maybe.
   (b) M. Wesolowski will be moving to Calgary for a few years soon. (We will need a new M/P person soon.)
   (c) As well, Jim Wood will be withdrawing as librarian. The centre will need a replacement.
7. Annual Report, Membership List, Financial Statement and Executive List are nearing completion and will be submitted to National and J. P. Kelly by January 21 as required. (R. Huziak)
8. Asteroid Charts 1994 sales report (G. Sarty): An offer for the Asteroid Charts have been sent to the other centres.
9. Dates for summer activities (Astronomy Day, July and Sept. Strarnights) have to be set because Astronomy and Sky and Telescope have requested updates to their club listings. (R. Huziak) Rick Huziak and Sandy Ferguson are to set the dates for these events.
10. Permission requested to install a MHz band antenna on the RO warm-up shelter roof. (R. Huziak) Passed by show of hands.
11. Observers Group Meeting themes. Messier chart/asteroid charts discussed. (R. Huziak) Note: there is no chairman for the Observers Group. The executive to ask for volunteers.
12. Site maintenance required.
    (a) The new dome leaks blown snow from the bottom groves of the slot. (R. Huziak)
    (b) Door handle on dome has to be replaced: Bill Hydomako to look into replacement of the door handles.
    (c) Handtruck has not yet been purchased, but we're thinking about it.
13. Need a Membership List in the Feb issue, also restate LOUDLY our change of address (some Centres still use the old one). (R. Huziak)
14. New Business
    (a) Centre members may be able to get a discount on their *Sky and Telescope* subscriptions if 5 or more members are registered with Sky and Tel. We could expect up to 20% off the normal subscription price.
15. Meeting adjourned 7:50 p.m.

Cover Photo - North America Nebula

This months cover photo was taken by Stan Noble of Aneroid, Saskatchewan. The photo was taken with a Nikon camera riding piggyback on an 10 inch telescope, which was used for tracking.

Saskatoon Skies Information

Commercial vendors wishing to advertise in the "Saskatoon Skies" may do so at the following rates: $50.00 per page, $25.00 per half page and $12.50 for business card ads. Individual RASC members and other parties (at our discretion) may advertise items and events for free.
Next months deadline is Friday, March 4, 1994. Please have any submissions in to me by then in order to be included in the next issue. Submissions may be in typewritten form or on a floppy diskette (3.5 or 5 inch size and formatted for MSDOS) preferably as ASCII files. Electronic submissions are preferred as it saves me some typing. Mail or bring your submissions to:

Gordon Sarty
422 Edmund Park,
Saskatoon, Sask.
S7H 0Z4
phone: 374-8803

OR

Saskatoon Centre RASC
Box 317, RPO University
Saskatoon, Sask.
S7N 4J8

E-mail submissions to sarty@math.usask will also be accepted. Saskatoon Skies is a monthly publication of the Saskatoon Centre of the Royal Astronomical Society of Canada.

Minutes of the January General Meeting 8:00 p.m., January 17, 1994
Room A-226, Health Sciences Building, U of S Campus

1. Meeting called to order 8:04 p.m.
2. Everyone welcomed. Since M. Williams cannot attend, any money matters will be handled by R. Huziak (calendar sales, renewals, etc.)
3. Motion that the December minutes be adopted as published. Note, correction to item 17 of December minutes: "Helen Hogg's Articles not Books." Moved: Ed Kennedy; Seconded: Gordon Sarty; Carried: Passed by show of hands.
4. Announcements:
   (a) Jan. 15 Observer's Group Meeting was snowed out. The "snow date" OG meeting is Jan. 22.
   (b) Mike Wesolowski wished to sell his *Sky and Telescope* collection for years 1972 thru 1989.
   (c) Last call for memberships. The official list is leaving this week for National.
   (d) 1994 RASC Calendars are still available for $6.50 each.
   (e) M. Wesolowski and R. Huziak managed to have a negative observation of the Athamantis occultation. G. Sarty and S. Shadick had equipment problems and did not make an observation. (It was -30 degrees C!)
   (f) Comets P/Encke, Schwassman-Wachmann II and two Muellers are visible. All are between magnitudes 8 and 13, but within reach of an 8 inch in dark skies. See *Sky and Telescope* charts.
   (g) The video "Canada's Stargazers" will be on TV on Cable 8, February 6. (We showed it at our Jan. 93 General meeting).
5. Call for new business. (R. Huziak)
   (a) Gordon Sarty is selling asteroid charts for $5.00 each.
   (b) There is a group discount rate available for *Sky and Telescope* if we can get 5 or more Centre members registered.
   (c) There are two executive positions available to be filled. Any volunteers?
   (d) Rick Huziak and Gordon Sarty have submitted an article, for publication in the *Journal*, about the October 31st fireball. The article has not been accepted yet.
6. Presentations:
   (a) More Slides from the November Lunar Eclipse - B. Hydomako
   (b) More Front Page Astronomy - G. Sarty
   (c) Telescopes, Telescopes - A Saskatoon Centre Equipment Extravaganza - Various
7. Meeting Adjourned 9:35 p.m.

Observers' Group Meeting

The next Observers' Group observing session will be held on February 12 at Rystrom Observatory, with a "rain date" of February 19. Time: After 8:00 p.m. To find the observatory, drive south on hiway #11 to the Grasswood Esso station and drive-in, turn left past the KOA campground and head down the road approximately 1.5 miles to the last mailbox on the right before the railway tracks. The mailbox is the Rystrom's. Go down the driveway past two homes and around the large equipment building to the right. Be sure to dim your lights.

In addition to the Observers' Group meeting, members are welcome to visit the Rystrom site at any time provided you phone ahead. The number to call is 955-2370, ask for Nelson or Gloria. If you do not have a key, find a member who does and talk them into a trip to the dome. After you have been checked out on the equipment there you are entitled to a key of your own.

1994 RASC Calendars and Asteroid Finder Charts

A limited supply of 1994 RASC Calendars are still available to purchase. These calendars are excellent quality, professionally done and feature super pictures of the sky by Canadian RASC astrophotographers. At only $6.50 each, they are a steal. (That' s less than 2 cents per day for a year of fun!). Pick one up at the next General Meeting. Also the new 1994 *Asteroid Finder Charts* are available for $5.00 each. They make asteriod hunting very easy. These will also be available at the next General Meeting. If you'd like either one mailed out to you, please add $2.00 for postage, or I'll deliver them for free anywhere in town, if you give me a call: Rick Huziak, 665-3392. All proceeds go to the Saskatoon Centre.

The January Athamantis Occultation
or
How I Spent My Friday Night
by
Mike Wesolowski

During the December General Meeting, Rick Huziak presented a request from a Vancouver Centre member who was attempting to organize a western Canadian effort to observe an occultation of a 8th magnitude star in Orion by the 10th magnitude asteroid 230 Athamantis (For those newer members who are not familiar with what is being discussed here, an asteroid occults a star when its orbital motion carries it in front of the star [as seen by an observer on the Earth]. By timing the duration of the eclipse [i.e., the width of the shadow], an observer defines a chord across the asteroid. If a sufficient number of observers get observations, a good estimate of the size and shape of the asteroid is obtained). Four members expressed interest in observing this event: Rick, Gordon Sarty, Stan Shadick and myself. The event was to take place on the evening of January 7 at approximately 11 p.m.

The evening of January 7 was cloudy with snow at 8 p.m., according to the recording on the phone from our new Environmental Services Centre. My own observations indicated that it was clear (so much for the advantages of the local weather forecasting). They were correct about the temperature though; -28°C!

Stan and Gordon observed (or tried to) from the University using a Celestron-8 and a photometer. Unfortunately, not only did they have to move once (from the top of the physics building to the Observatory, because of steam from the physical plant blowing over the roof), the weight of the photometer unbalanced the Celestron, making it difficult to keep the target star centered. If that wasn't enough, the photometer stopped working because of a previously unknown switch. The net result was that no observations of the occultation were made. At this point, the score was Murphy 3, RASC 0.

Rick and I had somewhat better luck. We arrived at the Rystrom Observatory in good time and got the observatory open. Rick observed using Eetook, the Centre's 12″ Dobsonian, while I used the Celestron in the dome. Unfortunately, I had a great deal of difficulty, as did Rick, in finding the WWV time signals. Neither of us could get a signal at any of the available frequencies - there were plenty of other signals from other radio stations which made it even more frustrating. In the end, we opted to try for the duration of the occultation rather than the exact times of the start and end.

We started observing at about 10:50 p.m. and stopped at 11:05 p.m. Neither of us saw anything, which is good. We wouldn't have wanted to break our streak of non-observations of asteroid occultations (we've tried this several times before, but because of uncertainties in the predictions, an asteroid's shadow never seems to go over Saskatoon). In actuality, a negative observation is still useful, since it indicates where the asteroid (and any possible satellites) wasn't. At the time of this writing, we haven't heard whether or not there were any successful observations in other locations.

Tracking Errors During Lunar Eclispe Photography

I've been thinking about a comment that Bill Hydomako made regarding his lunar eclipse photos. He did not think that they were as sharp as they could be. I think that a lot of people think that this may be the result of the reduction of contrast seen on the eclipsed moon. However, this most likely results from a telescope tracking error that was not considered. Although the drive can be set at lunar rate, (as opposed to sidereal rate), this only considers the one-dimensional movement in right ascention of the moon. Since the moon is moving in a plane inclined to the celestial equator, this means that the moon is moving in TWO dimensions, and must be tracked that way. It was (at the time of the eclipse) also moving southward in declination at about a 20 degree angle to the celestial equator. In order to have absolutely accurate tracking, the declination drive would also have to be tracked at a particular rate. During "normal" lunar observing/photographing, this doesn't matter, as exposures are very short. However, during totality, when exposures are very long (several minutes), this becomes significant.

The moon moves about it's diameter in one hour (or 30 arcminutes per hour, thus 30 arcseconds per minute). At a 20 degree decline, and at a 3 minute exposure, the moon moves 90 seconds of arc in RA and about 18 sec in declination! Assuming the C-8 has 5 arc-second resolution, this will decrease the resolution to 18 arc seconds, and will blur the image!

I don't think most eclipse photographers know about this effect (nor care). It would be difficult to compensate for because the moon's inclination is ever changing and the exact correction is dependent on the place that the moon is in its orbit. But if you want the most perfect lunar photo...

Rick Huziak

The Exceptionally Unusual Aurora of January 15, 1994

While at the Rystrom Observatory on January 14/15, I witnessed an exceptionally unusual aurora, the likes of which I have never seen before. At 12:50 a.m. CST (6:50 UT), I exited the warm-up shelter and glanced northward to check the progress of an insignificant auroral display very near the northern horizon. I was stunned by a bright, luminous, perfectly straight band of light across the north sky, running east and west, nearly horizon to horizon. It has about 45 degrees above the northern horizon, and glowed brightly. I was amazed at it's thinness (about 1 degree wide), straightness (perfect) and consistency of width (exactly the same width for the entire length). The band appeared to shimmer in light.

Because it was so far removed from the aurora, and so perfect in form, I immediately concluded that I had just missed the "meteor of the century" and was observing the remnant plasma train, as this took on the exact appearance of a bright meteor train. I waited for the high altitude winds to make the train bend, twist and curl. To my amazement, this did not happen. The band remained PERFECTLY straight, and began moving upward in the sky, towards the zenith at about 1/2 degree per second. The entire band remained perfectly straight and at constant width, remained the same brightness and still shimmered lightly. At 12:55 a.m. it had reached the zenith, still the same form. By about 12:57 a.m. it had reached a point 50 degrees off of the southern horizon, but had faded to near invisibility. It had also spread in width to about 2 degrees, but still remained perfectly straight. By 1:00 a.m., the band had completely disappeared.

I have never seen an aurora like this before. It was most bizarre! Auroral forms known as "homogeneous arcs" are common, but I have never seen one as thin, concentrated and straight as this one before. I have no ideas as to what mechanism can concentrate auroral energy into such a perfect form.

Richard Huziak

Letter from Stephen Light

I recently received a letter from a distant member, Stephen Light. He has a lot of good things to say about current events, makes some great observations and also asks for advise regarding telescopes. These topics are of interest to all members, so I have decided to publish the letter in it's entirety and comment on it. It reads....

From: GBS 8-5 R.R.2, Lloydminster, Sk. S9V 0X7. Dec. 2, 1993.

Rick,

Thank you for sending me the subscription forms. I appreciate it. In your note you asked me about the Oct. 30 fireball but I missed seeing that. Asking around locally even came up with nothing. I have been making some interesting observations in other areas though. November has required a great deal of patience (cloud, cloud, cloud). I wanted to catch the planet grouping on the 12th but didn't have a clear morning till many days later. With Venus, Mercury and Jupiter lined up like beads on a string I could picture in my mind the orbital plane spanning across the heavens. Also almost every morning since I have noted the planets movements relative to each other. Just this morning I spotted Venus minutes after it rose which was a first for me! I was slightly disappointed with the lunar eclipse because of the lack of coloration (only observed till 11:20). But I really enjoyed the three dimensional effect the fully eclipsed moon gave me (like a big ball hanging out there). I also watched the moon drift in front of 2 stars. The first one at 6:22:19 UT appeared to flicker at the moment of (occulting?). Could this have happened or was it more likely a tired pair of eyes? Star contact was almost mid-moon. I've been seriously considering to finally get myself a telescope. I would certainly welcome advice regarding this. I'm interested in the 6 to 8 inch equatorial Newtonians. What should I expect to view? What kind of problems would one give me?

Thank you

Stephen W. Light

In response to the letter, the planetary alignment was indeed spectacular for those who got up early enough to see it. Stephen's disappointment with the eclipse coloration has been echoed by many observers. The moon really never did get that dark, and the bright limb prevented really vivid colorations seen in past eclipses. His observation of the disappearance of the star is interesting. This star observed was Burnham 87, a known double. The flickering may have been an observation of the step disappearance of the two components. I watched the star disappear with a 12.5 inch telescope from Rystrom's, but did not see a step disappearance. This might be due to the different lunar profile as seen between Saskatoon and Lloydminster. As for advise on the telescope, that will appear in an upcoming issue. Rick Huziak

University Observatory Public Observing Hours: 7:30 p.m. to 9:30 p.m. Saturday nights for February and March. For more information, call Stan Shadick at 966-6434.

An Invitation to the General Meeting of the RASC, Saskatoon Centre
Room A-226, Health Sciences Building
University of Saskatchewan
8:00 p.m., February 21, 1994

We have an excellent program for this General Meeting.

Ed Kennedy will be speaking on the design of early basic telescopes, and the introduction of crosshairs in telescopes for purposes of defining direction in surveying and astronomy. Ed will use a vintage telescope and slides for the presentation.

New member, Don MacKinnon, has got the "eclipse-chaser bug". Don has chased three recent North American solar eclipses and has obtained excellent photographs (slides) of these events. Don will tell us about his excellent adventures in Mexico, California and Canada to catch the:

- July 21, 1990 partial eclipse (Saskatoon)
- July 11, 1991 total eclipse (Mazatlan)
- January 4, 1992 annular eclipse (San Diego).

In addition, he will describe the upcoming May 19, 1994 Canada/US annular eclipse of the sun.

Please attend this meeting and bring your friends. There is no admission. Everyone is welcome. You are also welcome to give impromptu 5-minute presentations on whatever you are currently working on. Just bring your project and show us! For more information, contact Richard Huziak at (306) 665-3392 or e-mail to "Huziak@SEDSystems.ca".

The LONGEST Period Eclipsing Variables

I don't think that you can say that "you've seen everything there is to see up there" until you've seen at least one eclipse of the LONGEST period variables. The stars described below are indeed very long period Algol-type (somewhat) eclipsing variables, and if you miss an eclipse, you may have to wait half a lifetime for the next opportunity! The table shows the particulars for these stars, which have periods of 2.6 to 27 YEARS between eclipses! You may want to scurry to your calendars right now and pen these dates in.

Systems of this type involve very large stars, either of giant (G) or supergiant (SG) types. At one time, they were believed to consist of pairs of the largest stars known. Now, with more study, the systems have been found to most probably consist of a true giant or supergiant star which is being circled by a smaller star with an accretion disk. Thus, the eclipses occur when the G or SG star is partially obscured by the accretion disk! Cool! The light curve of such an event is erratic, with a lot of "flickering" occurring, as different densities of gas pass in front of the main star. The star generally goes through a slow decline to maximum eclipse, then a "total" phase, followed by a slow climb back to normal brightness. More details are available in *Burnham's Celestial Handbook* for all stars except OW Gem. Numbers in brackets indicate parameters that may not be easily detectable. The "p" indicates photographic magnitudes, "v" is visual.

Star	Period (years)	Partial (days)	Total (days)	Partial (days)	Max. Mag.	Min. Mag.	Type
Epsilon Aurigae	27.06	190	370	190	3.73p	4.53p	SG
Zeta Aurigae	2.66	4	40	4	5.0p	5.6p	SG
VV Cephei	20.34	120	450	120	6.7p	7.4p	SG
31 Cygni (V695)	10.42	(75)	63	(75)	4.9p	5.3p	G
32 Cygni	3.15	(35)	11	(35)	5.3p	5.6p	G
OW Geminorum	3.45	6	2	6	8.2v	10.0v	G

I have listed the sequence of events for the next 1/2 century for the listed stars. (I didn't see much point in continuing the list as I will most probably have met my demise within the next few eclipses of Epsilon Aurigae)! Although many stars have very shallow light dips, the difference may be visible in photometers or on CCDs (which many amateurs will soon have). OW Geminorum (ne: NSV 3005) was only discovered a few years ago, so I have also included the times of mid-eclipse. It has not yet been established as to whether of not the mid-eclipse is detectable, so it is worth a shot. It should be noted that the times given for partial and total phases are approximate, and that the dates given for the events are approximate as well. Watch *Sky and Telescope* for more accurate predictions. Few of these stars have undergone enough eclipses to firmly establish a period, and we are probably also dealing with variable sizes of accretion disks. Good luck.

Year	Date (Approx)	Star	Event	Year	Date (Approx)	Star	Event
1993	Mar 19	zeta Aur	partial eclipse begins	1993	Apr 3	31 Cyg	mid eclipse
1993	Apr 23	zeta Aur	eclipse ends	1993	May 23	OW Gem	secondary eclipse
1993	Oct 31	32 Cyg	mid eclipse	1995	Feb 11	OW Gem	primary eclipse
1995	Nov 16	zeta Aur	eclipse begins	1995	Dec 21	zeta Aur	eclipse ends
1996	Nov 3	OW Gem	secondary eclipse	1996	Dec 23	32 Cyg	mid eclipse
1997	Jan 17	VV Cep	partial eclipse begins	1997	Apr 3	VV Cep	total eclipse begins
1998	Jul 16	zeta Aur	eclipse begins	1998	Jul 23	OW Gem	primary eclipse (behind sun)
1998	Aug 20	zeta Aur	eclipse ends	1998	Aug 24	VV Cep	total eclipse ends
1998	Nov 4	VV Cep	partial eclipse ends	2000	Feb 11	32 Cyg	mid eclipse
2000	Apr 13	OW Gem	secondary eclipse	2001	Mar 15	zeta Aur	eclipse begins
2001	Apr 19	zeta Aur	eclipse ends	2002	Jan 2	OW Gem	primary eclipse
2003	Apr 1	32 Cyg	mid eclipse	2003	Sep 3	31 Cyg	mid eclipse
2003	Sep 23	OW Gem	secondary eclipse	2003	Nov 13	zeta Aur	eclispe begins
2003	Dec 18	zeta Aur	eclipse ends	2005	Jun 14	OW Gem	primary eclipse
2006	May 24	32 Cyg	mid eclipse	2006	Jul 13	zeta Aur	eclipse begins
2006	Aug 17	zeta Aur	eclipse ends	2007	Mar 5	OW Gem	secondary eclipse
2008	Nov 25	OW Gem	primary eclipse	2009	Mar 12	zeta Aur	eclipse begins
2009	Apr 16	zeta Aur	eclipse ends	2009	Aug 5	epsilon Aur	partial eclipse begins
2009	Aug 16	32 Cyg	mid eclipse	2010	Jan 26	eplison Aur	total eclipse begins
2010	Jul 26	epsilon Aur	mid eclipse	2010	Aug 14	OW Gem	secondary eclipse
2011	Jan 30	eplison Aur	total eclipse ends	2011	Jul 10	epsilon Aur	partial eclipse ends
2011	Nov 9	zeta Aur	eclipse begins	2011	Dec 14	zeta Aur	eclipse ends
2012	May 5	OW Gem	primary eclipse	2012	Sep 7	32 Cyg	mid eclipse
2014	Jan 14	OW Gem	secondary eclipse	2014	Feb 3	31 Cyg	mid eclipse
2014	Jul 9	zeta Aur	eclipse begins	2014	Aug 13	zeta Aur	eclipse ends
2015	Oct 15	OW Gem	primary eclipse	2015	Oct 17	32 Cyg	mid eclipse
2017	May 17	VV Cep	partial eclipse begins	2017	Jul 6	OW Gem	secondary eclipse
2017	Aug 11	VV Cep	total eclipse begins	2018	Dec 19	32 Cyg	mid eclipse
2019	Jan 1	VV Cep	total eclipse ends	2019	Mar 14	VV Cep	partial eclipse ends
2019	Mar 17	OW Gem	primary eclipse	2020	Dec 17	OW Gem	secondary eclipse
2022	Feb 10	32 Cyg	mid eclipse	2022	Sep 5	OW Gem	primary eclipse
2024	Jul 6	31 Cyg	mid eclipse	2025	Apr 4	32 Cyg	mid eclipse
2028	May 27	32 Cyg	mid eclipse	2036	Sep 2	epsilon Aur	partial eclipse begins
2037	Feb 23	epsilon Aur	total eclipse begins	2037	Aug 23	epsilon Aur	mid eclipse
2037	Oct 4	VV Cep	partial eclipse begins	2037	Dec 19	VV Cep	total eclipse begins
2038	Feb 27	epsilon Aur	total eclipse ends	2038	Aug 7	epsilon Aur	partial eclipse ends
2039	May 11	VV Cep	total eclipse begins	2039	Jul 22	VV Cep	total eclipse ends

The President's Message

A little to say about a lot of topics!

The General Meeting of January 17 - Despite the exceptionally cold weather (-34 degrees C), 19 members, including a number of new faces, managed to attend the general meeting. This is much the same attendance we get with good weather! I'm very pleased that our meetings are getting well attended. Those who came were treated to excellent slides of the November lunar eclipse by Bill Hydomako, got to see Sarty's maw in the newspaper, and saw what was probably the "world's cheapest" collection of telescopes! Thanks to Don MacKinnon, Scott McGibney, Mike Wesolowski, Gord Sarty and me for bringing out their scopes for all to see. Response to the "scope extravaganza" was very positive, so we may do this again in the near future, when it's not so stinking cold! I'm also tickled to see the spirit of co-operation working amongst members, who offered other (bus riding) members rides home in their warm cars after the meeting. Thanks a lot guys! That was very nice.

Executive Positions Available - Two executive positions are available for immediate possession. Jim Wood has resigned as Librarian for personal reasons, and Mike Wesolowski has resigned as Membership/Promotions because he is moving to Calgary due to work commitments. Thus, a call for new blood on the executive! The Librarian maintains the RASC library in the University observatory basement and interfaces with the university archives. The Membership/Promo position deals with renewals and retaining members, and promoting the RASC to the outside world to attract new members. If you are interested in volunteering to be nominated for one of these positions, please call me before the next meeting at 665-3392, evenings. It is important that these positions are filled so that we can go on with planned activities for the coming year. If you're new to the Centre, please do not feel that you can't be on the executive yet. All we need is a reasonably dedicated person, willing to do some work toward a better Centre. (Besides that, we've run out of "veteran" members for these jobs). We don't bite (hard). If all goes well, we can reelect new members to the executive at the February general meeting.

Observer's Group (OG) Director Required - We have the same problem with an OG director. (This is not an executive position). Currently, no one is responsible to open and close the Rystrom Observatory for the monthly OG Meeting. This means that there is no guarantee that the observatory will be unlocked when non-key members begin to arrive. A volunteer is needed for this. Duties are to open/close the observatory, train new members to get keys, and maybe to provide some organized activities for the OG meetings. Please call me if you are interested. You do not have to be a current key-member, as I will gladly train you if you take on the job.

Reduced Subscription Rates to Sky and Telescope Magazine - *Sky and Telescope* offers a reduced membership rate (about $20) for subscribers who are members of an astronomy club. It does not matter when your renewal date runs out; you can be registered for this reduced rate anytime and I believe it will come into effect on your first renewal. If you are interested in a reduced rate (I am) please call me. We need a minimum of 5 members registered to qualify for the bargain.

Have a good winter of observing. Any member should feel free to call me anytime to discuss anything related to the Saskatoon Centre. I'm open to suggestion for ideas, direction, programming, fireball sightings, etc. You can get hold of me at 665-3392 evenings, at 933-1676 days, through the Centre mailbox, or on email (Internet) at "Huziak@SEDSystems.ca".

Richard Huziak

Letter from Aneroid

by Rick Huziak and Stan Noble

As I suggested in the last issue of *Saskatoon Skies*, distant members can participate in the Centre through the exchange of correspondence and through submission of articles and photographs. New member, Stan Noble has previously sent in an excellent photo of the North American Nebula, and now has sent in 3 excellent photos of the lunar eclipse. I will show these photos around at the next general meeting. I want to publish his letter in it's entirety, so that all members can have a chance to meet Stan. Aneroid is located south of Swift Current, just down the road from Hazenmore! (By the way, the letter was "scanned" by an "optical character recognition" (OCR) system, then run through a spelling and grammar checker to pick up errors. The OCR converts an image of the letter into ASCII text. All that the OCR missed were a few n's instead of m's and some I's were 1's. This was quickly fixed by spell-check! This process saved Gord or myself a mound of retyping and only took 2 minutes)! Stan, would you please indicate if you want any of the photos back? We'll gladly return them if you want. Otherwise, we'll add them to our photo library and use them in displays and stuff (with credit to you, of course). Thanks for the letter, and keep them coming!

Received January 19, 1994 from Stan Noble, Box 142, Aneroid, Sask. S0N 0C0. (Phone: 588-2690):

Richard,

Thank you for returning my letter, I think it is going to be very interesting being a member of the Saskatoon Centre. I really have not set up any observing schedule (like a supernova patrol, or comet hunting). Where I observe from, off my garage pad, I have a limited observing window, maybe about 50 to 70 degrees at one time. So I spend more time waiting for objects to appear from around the trees, then anything else. Someday I'm going to build an observatory, and mount my telescope permanently. Right now my scope is on wheels, and I roll it out of the garage when I want to use it.

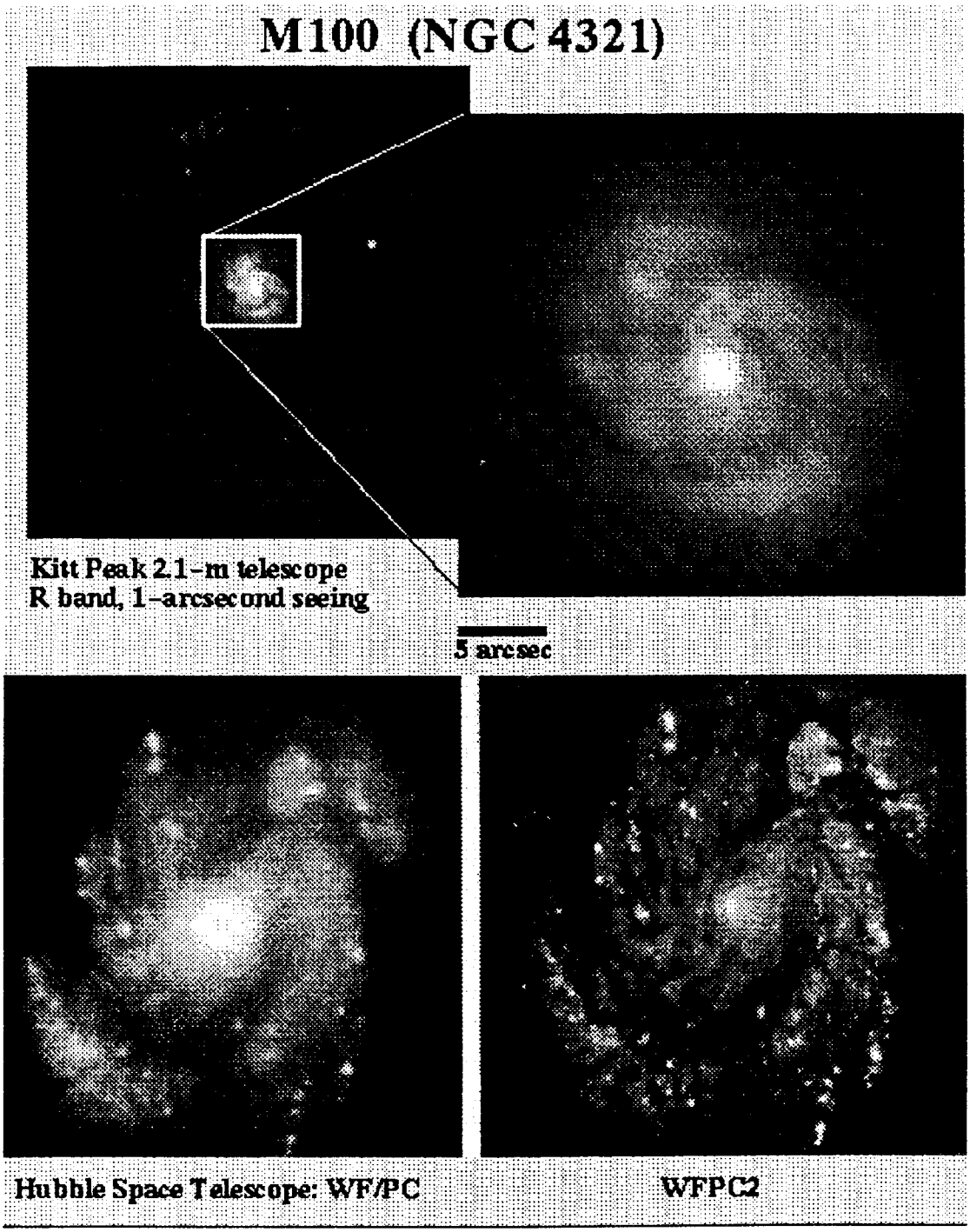
My scope took me about a little over a year to build, from the blue print to the construction. In the blue print phase there were many changes, and even in the construction phase several modifications had to be made. My scope stands 6 feet, 1 inch from the center of the eyepiece to the ground when pointed at the zenith. Plus it weighs in at about 400 to 500 pounds. When you give it the thump test (using a medium powered eyepiece centered on a star, you give the telescope a good thump beside the eyepiece and see how long it takes the vibrations to die down) the telescope quits moving in less then 1.5 seconds. I have dual axis drives on my fork mount telescope, right ascension is a 9″ drive, declination has a 6″ drive, and I use a Vista drive corrector. The drives are from Opti- Craft Machining, and seem to be of very good quality.

Most of the astrophotos I've taken - so far, have been piggyback using a Nikon with either a 28mm, 50mm or 135mm lens. The only prime focus pictures I've taken are of the moon. So I'm just getting started in this very tricky business called astrophotograghy.

I'm sending you some pictures I took of the Nov. 28/29 lunar eclipse. I used Velvia (slide film) Fujichrome from full to totality, taking a picture every 5 minutes. This at the prime focus of my 1405mm telescope (10″ at f5.53). I also took some pictures at prime focus using Fuji G-400 film of the Moon at totality. These didn't turn out as well as I had hoped, the eclipse wasn't as dark as I thought it would be. I will be sending the Velvia pictures later; being slide film it is shipped to Winnipeg for special developing.

Well I think I bored you long enough, sorry for taking so long in getting back to you, but with Xmas and all you know things get put off.

Yours truly, Stan Noble



Bill Keel (keel@bildad.astr.ua.edu) from the University of Alabama posted these pictures to the internet. He writes:

Upon request by a couple of local reporters, I put together a comparison of the (JPL-archived) M100 HST images (before and after) with a CCD image I once did at Kitt Peak in 1-arcsecond seeing (FWHM for the curious). It's not even funny. In response to some previous comments in sci.astro, I put a scale bar on the pictures. Note that a rotation is present between KPNO and HST images (sorry about that) but the matching structures can be recognized easily enough. The GIF image can be found on crux.astr.ua.edu as pub/outgoing/hstgifs/m100compare.gif by anonymous ftp.