

SASKATOON SKIES

Volume 23, Number 2

February 1993

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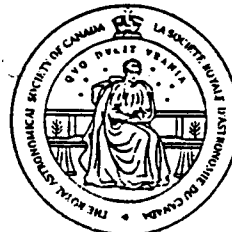
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Saskatoon Skies Information

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 month's deadline is Saturday, February 27, 1993. 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. I prefer electronic submissions as it saves me some typing. Mail or bring your submissions to:

Gordon Sarty OR Saskatoon Centre RASC
 422 Edmund Park, Box 317, Sub P.O. # 6
 Saskatoon, Sask. Saskatoon, Sask.
 S7H 0Z4 S7N 0W0
 phone: 374-8803



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 Executive Meeting
 University of Saskatchewan Observatory
 January 18, 1993

Attendees: Daryl Rybotycki, Al Hartridge, Gordon Sarty, Carol Blenkin,
 Ed Kennedy, Sandy Ferguson, Don Friesen

ITEM	DETAIL	ACTION
1.	Meeting called to order, 7:06 p.m.	D. Rybotycki
2.	Discussion of 16 inch telescope.	G. Sarty
3.	G. Sarty requires information from J. Wood before responding to the "Saskatoon Sun" article on lighting (item # 7 of the December minutes.)	G. Sarty
4.	Carol Blenkin is stepping down as a councillor due to time restrictions. Carol will still be a member.	C. Blenkin
5.	Observers' Group meeting on Jan. 23 and Feb. 21 (Sunday). [since been changed to Feb. 20 - ed.]	D. Rybotycki
6.	Next meeting Feb. 15, 1993.	D. Rybotycki
7.	General discussion on the failure of the Saskatoon Centre of the R.A.S.C. to introduce new members and beginners to introductory astronomy. The Centre is looking for ideas on how to teach entry level astronomy to novices. Richard Huziak and Mike Wesolowski were praised for their work with local schools. A local Messier Observers Group is being considered by a few members; this group would be designed to teach introductory skills to novices.	
8.	Sandy promised to start writing an introductory astronomy column to attract and teach new members.	S. Ferguson
9.	Ed Kennedy liked Gordon's editorial (page 3, Dec. '92) but does not think that the demise of dinosaurs by comet is the only view. He suggests contacting Bill Sarjeant of the Geology department for a different view.	E. Kennedy
10.	Sandy talked about the 1993 Astronomy Week. May 1st at Market Mall and maybe Wanuskawin.	S. Ferguson
11.	Cathy Hall sent two R.A.S.C. toques (\$15.00 each) and R.A.S.C. decals (\$1.25 each). Both prices include tax. These are official R.A.S.C. products.	S. Ferguson
12.	Meeting closed. Seconded.	D. Rybotycki D. Friesen

Minutes of the January General Meeting
 Room B-111, Health Sciences Building
 January 18, 1993

ITEM	DETAIL	ACTION
1.	Called to order. 8:05 p.m.	D. Rybotycki
2.	G. Sarty brought the group up to date on the group's 16 inch telescope's construction and testing. Pike Lake may be its destination at a possible new R.A.S.C. location.	G. Sarty
3.	Don Friesen talked about a new house that is by the dark site (Rystrom); its lights might pose an observing problem.	D. Friesen
4.	Observers' Group meetings: Jan. 23 and Feb. 21 [20 now -ed.]. Next General Meeting is Feb. 15.	D. Rybotycki
5.	S. Ferguson talked about Astronomy Week '93 (for info. check # 10 in Executive Meeting Minutes).	S. Ferguson
6.	S. Ferguson on R.A.S.C. Items from National (for info. check # 11 in Executive Meeting Minutes).	S. Ferguson
7.	G. Sarty talked about observing Venus during daylight without a telescope.	G. Sarty
8.	Main Feature: <i>Canada's Stargazers: From Louisberg to Supernova.</i> 1/2 hour video on the history of Canadian astronomers and telescopes.	D. Rybotycki
9.	SN1987A and LMC pictures are available for viewing at the U of S archives.	E. Kennedy
10.	Meeting adjourned at 8:50. Seconded.	D. Rybotycki D. Friesen

EDITOR'S NOTES

There are many contributions to the Saskatoon Skies this month - it makes for an interesting newsletter. Thanks to the contributors. I was especially glad to receive a rebuttal to the dinosaur-asteroid-theory. I expected my disbelief of black-holes (Saskatoon Skies, Nov. '92) or my views of SETI (Saskatoon Skies, Dec. '92) to generate a little response but I was a little surprised to receive opinions about dinosaurs (Dr. Kennedy also mentioned it at the January Executive Meeting - see minutes on page 2). Not that I want to generate controversy, I just like to hear ideas.

The January Observers' Group Meeting was a smashing success. Attending were myself, Don Friesen, Daryl Rybotycki, Sandy Ferguson, Al Hartridge and Scott Alexander. The dome was opened (with some effort because of ice), Don had his big binoculars, I had my 8 inch telescope and Scott brought his 14.5 inch telescope. To me, the highlight of the evening was the discovery by Scott of a "galaxy" in the same field of view as Mars. From the Uranometria 2000.0 star charts it seems that this galaxy was 3C172 (no NGC number?!). It was not visible in my 8 inch telescope. Rick Huziak has since suggested to me that we might have discovered a comet! Wonder if I can persuade Scott to check out that "galaxy" again? When the evening was over, we had done a fine job of trampling down the snow around the Rystrom observatory.

In the solar system this month, we see Mars being left behind in the distance as the Earth pulls away in its faster orbit. But Mars is still large enough in amateur telescopes during February to see some detail, if you're patient. We're heading away from Mars now in almost a straight line fashion. The result is that the position of Mars among the stars will not change much in the month of February - Mars just gets dimmer and smaller.

Closer to the Sun, Venus is catching up to the Earth and will be at its greatest brilliancy on Feb. 24. In telescopes, Venus is getting larger and shows a crescent phase that gets thinner as the planet grows larger. When Galileo first saw this phenomenon in his telescope he realized that this was solid evidence that the planets went around the Sun and not the Earth. This January, my wife Kerry and I have spotted Venus about one half hour *before* sunset - without a telescope. The trick is to know exactly where to look, it is surprisingly bright in the day sky. To figure out exactly where to look, spot Venus as early as you can one night after sunset and note where it is in reference to a telephone pole or a building and note exactly where you are standing. Then, on the next night stand in the same spot a little before sunset and look a little to the east of the spot where you saw Venus the night before. With patience, your eye will "lock-on" to Venus and you'll be able to see the Sun and Venus at the same time.

Mercury will have its best evening apparition in the evening sky in February. To take advantage of this, the Observers' Group will meet at a different time this month (see page 6). Mercury is an elusive planet and in spite of what the textbooks say, it never deserves the title of "morning star" or "evening star". Mercury should show a half-lit face at the Observers Group Meeting and become crescent shaped in the following week.

Finally, the Earth is gaining on Jupiter, and it truly deserves the title of "morning star" this month. Saturn is behind the Sun (in "conjunction" with the Sun), as viewed by us this month, so will not be visible for a while. For more information on the planets this month, check out your *Observer's Handbook*.

In closing, I have learned that the world lost a great astronomer on January 28 when Professor Helen Sawyer Hogg passed away. The night sky will surely miss her.

Gordon Sarty

GREAT LECTURE BY DR. SOFKO

Dr. George Sofko of the Institute of Space and Atmospheric Studies, U of S, gave an excellent presentation to the RASC General Meeting for the Dec. 21 meeting. Those in attendance unanimously agreed that this was a premier lecture by an interesting and enthusiastic speaker. Alan Walker summed it up by saying "Let's get him back for another lecture". Dr. Sofko's lecture, entitled "Thar She Blows - Solar Eruptions and the Northern Lights" was presented with the perfect mix of technical and layman language so that everyone in attendance could easily understand the topic. A long question period ensued afterward. There were about 15 members in attendance; not bad considering the cold weather.

Richard Huziak

INVITATION TO CENTRE MEMBERS - OBSERVERS' GROUP NIGHTS

As Activities Coordinator for the Centre, I would like to encourage all members to come out to our observatory for our observers' group nights. These occasions are wonderful opportunities for the novice stargazer and experienced observers alike to benefit from the facility and the knowledge of the members of our Centre. You may feel hesitant about attending these evenings for some of the following reasons. Let me put your mind at ease!

1. **BRAND NEW TO ASTRONOMY AND SHY?** Every person in the RASC (all 3,000 of us!) was unfamiliar with the sky in the beginning. The observers' group evenings are perfect for the beginning astronomer, as these sessions get you right out under the stars for a first hand experience (maybe that's a first eye experience!) There is a lot of observing to be done with the naked eye.
2. **LACK OF TRANSPORTATION?** Lifts can certainly be arranged and in some cases are encouraged, as they cut down on the number of vehicles trekking through the Rystrom farmyard.
3. **TOO COLD TO OBSERVE THIS TIME OF YEAR?** Not to worry! On winter nights when we do observe, the heated clubhouse will get you all toasty again. (On a personal note - I have always found cold-weather observing tolerable. It's the monster mosquitoes of summer that drive me indoors!)
4. **FEEL YOU HAVE TO OWN AND BRING EQUIPMENT?** Certainly not! Our resident Celestron 8 under the dome and Eetook, the 12 inch Dobsonian, are there for everyone. The clubhouse has any materials needed for observing - star charts, reference books, catalogues, magazines, pencils and paper. All you really need to bring are your enthusiasm and your thermos of coffee.

Our group holds observing nights each month, generally on the Saturday night closest new moon. Why is that? Astronomers like to do their observing when the moon is out of the way. It is so bright during most of its phases it washes out all the fainter objects we wish to view. At new moon and for a couple of days prior to and after new moon, the moon is either not seen or is at its slim crescent phases, which do not interfere with observing. So we take the opportunity to hold our observing nights during this time. Upcoming observers' group sessions will be held as follows:

Sat., February 20th - We have a good chance of seeing Mercury just after sunset.

Sat., March 20th - Happy Equinox! Jupiter is the featured planet this month.
This will be the first novice's observing session (see page 5).

If anyone requires further information on our observers' group nights or requires transportation, please call me at 382-0898 (Home). The best time to get me is any night around supertime or Sunday mornings. Looking forward to meeting you and seeing you at Rystrom Observatory.

Sandy Ferguson

BUYING YOUR FIRST TELESCOPE - THE VIDEO

by Charles Scovil

I had a chance to review this video tape over the Christmas holidays. *Buying Your First Telescope* by Stanford Observatory director and AAVSO member Charles Scovil is an excellent video tape for both the beginner and the general amateur astronomer. In 40 minutes, Mr. Scovil goes through the advantages and disadvantages of your "first" telescope choices, explaining reflectors and refractors, polar alignment, mounts and accessories. He also gives great tips to aid in observing and seeing faint objects. He is quite realistic in what a new amateur can expect in performance from his or her new telescope. Although we were unable to view this video at the January General Meeting, it will be available on loan from the Centre Library.

Rick Huziak

OBSERVERS GROUP MEETING - January 23/24, 1993

The first Observer' Group meeting of 1993 was held at the Rystrom Observatory, and what a fine night it was! It was as good a winter observing session as you could hope for, the temperature being around -15 C with no wind. The sky, though a bit mushy in some areas, was pretty good and it enabled everyone to get a good look at the planets and deep sky objects through the Centre's 8 inch Celestron, Scott Alexander's 14.5 inch Dobsonian and Gordon Sarty's 8 inch reflector, as well as Don Friesen's large binoculars.

Venus and Mars were the two planets available that evening. (Jupiter would have been available, but we called it a night around 11:30, shortly before it rose). Venus is now into its crescent phase and detail on Mars was evident even in the smaller scopes. Mars has just passed opposition, so it is in the sky all night. Right now it is very bright, at around mag. -1.5; an obvious red "star" in Gemini. It is really worth checking out this planet, even with the naked eye. Throughout the spring you can watch it move against the background of stars in Gemini, then into Cancer in May and Leo in June, although it will be fading gradually month by month. If you have a telescope, why not try doing some sketching of surface detail. You may be surprised at just how much detail you can detect when the atmosphere is steady.

Some of the deep sky objects we observed that night were M1 (the Crab Nebula in Tau); M76 (Little Dumbbell Nebula in Per); M81 and M82 (two galaxies in UMa); M97 (Owl Nebula in UMa); M41 (open cluster in CMa); M79 (globular cluster in Lep); M44 (The Beehive open cluster in Cnc); NGC 2392 (the Eskimo Nebula - a planetary in Gem); NGC 3172 (13th mag galaxy closest to Polaris - the Observers' Handbook describes it as being small, faint and otherwise unremarkable!); with some valiant attempts made to locate the Horsehead Nebula in Orion through Scott's 14.5 inch scope. There was some talk on having observed 3C172, a radio source in Gemini! One of the highlights of the night, however, was the superb view we had of M42 (the Orion Nebula) through Scott's 2 inch 20-mm Nagler eyepiece (100x), aided by Allan Hartridge's Lumicon high-contrast 48-mm filter. What a spectacular object! At that power, the nebulosity extended far beyond the edges of the viewing field and appeared three-dimensional. One of the best views of the object I have ever seen!

The observing session broke up just before midnight, when everyone threw their gear into their vehicles and took off into the night to regroup at Robin's Donuts at Circle Park Mall!

Sandy Ferguson

INTRODUCTION TO ASTRONOMY A CENTRE PROGRAM FOR THE NOVICE ASTRONOMER

In recent discussions amongst the members of the Centre's executive committee, it became apparent that there is a real need in our Society to make introductory astronomy available to our members, in an easy to understand, totally non-technical manner. With this in mind, we have decided to initiate a program in our Centre, geared to anyone interested in becoming familiar with the night sky, from elementary school student to senior citizen. This program requires no optical equipment except your eyes and no previous knowledge of astronomy except your love of the sky!

Beginning at our March meeting and in our March issue of Saskatoon Skies, we will be conducting an introductory series of talks and articles aimed at the novice astronomer, together with opportunities to observe at our Centre's observatory. We expect to hold our first observers' night for novices (and anyone else) on Saturday, March 20th, to celebrate the Equinox! More about that in the March Saskatoon Skies. We will use as a "textbook" the Society's new publication "The Beginner's Observing Guide 1992", by Leo Enright (available from Rick Huziak).

If anyone has any questions regarding this program, requires more information on it or has suggestions for ideas and information they would like to see covered in this program, I would appreciate hearing from you. Any input from members will assist in making this a rewarding program for all. I can be reached at 382-0898 most nights around 6:00 p.m. or Sunday mornings.

Sandy Ferguson

NOTICE OF OBSERVERS GROUP MEETING

The next Observer's Group meeting will be at the Rystrom Observatory at 6 P.M. on Saturday, February 20, 1993, weather permitting. 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.

This meeting promises to be special as Mercury will be at greatest elongation (the maximum distance it will get from the Sun as seen by us Earthlings). That is why this month's meeting is earlier than usual. The Sun will set at about 6:26 pm and Mercury will set an hour or so later. So make sure you get out early enough to have some time to set up your telescope or binoculars. Phone Sandy Ferguson at 382-0898 if you need further information.

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.

UNIVERSITY OBSERVATORY HOURS FOR PUBLIC VIEWING

The university observatory will be open to the public on Saturday evenings from 7:30 - 9:30 p.m. during the period of October through February.

Visitors will be able to view: the Andromeda Galaxy, the Albireo Double Star System and other celestial objects.

Observatory assistants will be present to answer questions about astronomy and to assist the public in viewing through the telescope. The observatory is located on campus, one block north of the corner of Wiggins Ave. & College Drive.

Stan Shadick
Astronomy Instructor
966-6434

[Editor's Note: The university telescope is also made available for viewing through after our monthly General Meeting - if the weather cooperates!]

NOTICE TO EXECUTIVE MEMBERS

Next Executive Meeting:
February 15, 1993, 7:00PM
at the University of Saskatchewan Observatory
(before the General Meeting)

NOTICE OF FEBRUARY'S GENERAL MEETING

The February General Meeting will take place on Monday Evening, February 15, 1993 at 8:00 P.M. in Room B-111 of the Health Sciences Building. This month's presentation is **Space Shuttles, Space Stations and Crystals** by Dr. Louis Delbaere of the U of S. Dr. Louis will give a description of biochemistry experiments flown on the Space Shuttle.

OUTGOING EDITOR'S NOTES

After a delay of several months, I'm finally getting around to submitting a very belated set of thanks to the people I've worked with in the Newsletter during my tenure as editor of Saskatoon Skies. I suppose if I waited a while longer, I might be able to justify not writing anything at all. Here goes...

I first want to express my appreciation to Nobby Katrusiak who never failed to get the photocopying of the newsletter done in time for me to stuff the envelopes. I always got the copies back within a few days of dropping the original off. I also appreciate the fact that they were stapled as well (in a previous incarnation, stapling was just one of the tasks associated with being an editor). Thank you Nobby.

Mike Williams accepted responsibility for mailing the newsletters. This always involved dropping off the address labels one day, and picking up the finished product (sans stamps) two days later. Anyone who's licked 50 or 60 envelopes will appreciate what it means not to have to lick the stamps as well. Thank you Mike.

Carol Blenkin is responsible for producing the rather attractive envelopes we use for our mailings. On more than one occasion, I ran out of envelopes and got a new supply within a few days of my request - at least once she says she was up to midnight doing them. Thank you Carol.

A big thank you to all those who submitted articles to me. You know who you are. You have to realize that even the smallest submission is appreciated. Don't be shy.

A final thank you to Gordon Sarty who kindly offered to take over the editorship (is this a real word?) of Saskatoon Skies at a time when I lost my production equipment (an engineering workstation with document publishing software), not to mention the fact that I was expecting to be travelling at a time when the newsletter had to be produced. The expected business travel didn't materialize at the expected time (it actually came later), but Gordon ended up as editor one month early. I have to say I'm happy with the results, especially when he talks about being editor for longer than one year. Keep up the good work, Gordon!

Mike Wesolowski

THEORY OF AMATEUR ASTRONOMY

Huziak's Theory of Great Astronomical Events

Although Saskatchewan has a very large average of clear nights per year, running around 200, this still leaves 165-1/4 important astronomical events per year that will be clouded out.

Hydomako's Corollary to Huziak's Theory

All total lunar eclipses shall now be known as total cirrus eclipses.

Wesolowski's Theory of Asteroid Occultations

Any asteroid occultation that has even the remotest chance of being observed in Saskatoon will conform to Huziak's Theory.

Huziak's Theories of "Hey, wait a minute, I see a hole in the clouds"

All holes in the clouds shall move in a direction opposite that of the event which has just occurred, such that all hope is forever dashed.

All holes in all clouds shall move at such pathetically pokey speeds as to give just enough hope such that all said holes shall tempt successful observation yet never allow it.

All holes in clouds that make it to the location of the important event shall temporarily close over at the time of the event.

LETTER TO THE EDITOR

Dear Gordon,

Concerning the Editor's Notes in the Jan. 1993 issue of Saskatoon Skies, I did not have a chance to hear Dr. Grieve's talk, but here are a few things to think about before jumping on the hot impact bandwagon (re: death of the dinosaurs):

1. The extinction of the dinosaurs was not a unique event. Other more extensive mass extinctions have occurred over geological time and have been attributed to major climatic change (which is a natural part of the earth's evolution) and/or continental drift.
2. It has not been established with certainty that the dinosaurs died out in a sudden mass extinction. There is much evidence that points to the extinction being more gradual, possibly due to a combination of climatic change (reduction in dinosaur habitat) and disease. The big impact, if in fact it did occur, would at most have been the last straw contributing to the extinction of a dying species. Many paleontologists support some form of this theory rather than the impact idea. As one said, referring to the possible huge impact site in the Yucatan Peninsula, "They may have a smoking gun, but evidence from the victims themselves shows that the murder weapon was a knife."
3. There is a problem with media hype regarding the impact theory. Lack of scientific training and the eagerness to accept simple, spectacular theories to explain events are a dangerous twosome that seems rampant in the media. They have jumped on the impact theory with both feet, so this fact alone should make one pause to reflect. Simple, spectacular theories often tend to fall flat on their face, particularly in geology where the earth's evolution is a continuous, ongoing, complex process with many events being coeval and interdependent.
4. The Ir anomaly at the Tertiary / Cretaceous boundary is a subject of some controversy. We don't know a lot of the details about the stage of geochemical evolution of the earth at that time. Other than the impact theory, it has been proposed that the anomaly could be due to massive volcanic eruptions (such as the Deccan Traps in India) under geochemical conditions which differed significantly from that of today.
5. The asteroid impact which supposedly led to the formation of continents (Rampino et al) falls in the realm of geofantasy (there is likely little or no direct evidence, so almost any conclusion may be reached). I will read the article with a grain or six of salt.

For anyone who is interested in getting a view from both sides of the issue, I recommend the following reading:

- SCIENTIFIC AMERICAN, Oct. 1990 (Vol.263, No.4) Two separate articles (pro & con) on What Caused the Mass Extinction?
- EARTH, January 1993 The Dinosaurs' Path to Extinction.

I hope this may give a better balance to an issue that is not as simple and clear cut as the media portrays.

K. Mysyk,
Geologist & Life Member RASC

FOR SALE

Magnicon Universe 750
Catadiotric Reflector Telescope [sic]
Built in finderscope
20mm and 6mm eyepieces (37.5x and 125x respectively)
hardly used, \$150
call Blair at 652-9018

THE LUNAR ECLIPSE FROM OTTAWA

Business related travel found me in Ottawa on the night of December 9, when a long awaited total lunar eclipse was to take place. I'd actually forgotten about the eclipse in the weeks before, being caught up in the planning for multiple three week stints in Ottawa (what clothes do I take? How many bags can I carry each flight?). Fortunately, I remembered in enough time to pack a camera, telephoto lens and binoculars in my suitcase, and a tripod in a gym bag. I only had to find an appropriate observing site.

As it turned out, the hotel I was staying at in Ottawa had a good eastern horizon, provided you were high enough. I asked the manager of the hotel if I (and my travelling companions) could have access to the roof of the hotel for some photography. I didn't even have to explain about the lunar eclipse before he said ok (without any hesitation!). That went a lot easier than I thought it would and it turned out to be a very good solution since I ended up being able to duck back into the building when I got too cold (which happened about 5 minutes after going outside to look at the eclipse!

Because the eclipse was best seen from the east (geographically that is), I planned to take full advantage of my location and shoot two rolls of film showing the entire progression of the eclipse. Strangely enough, I have never seen a total lunar eclipse from beginning to end in some 17 years of amateur astronomy. I worked out exposures and the times at which I would take each picture. I even typed up a checklist so I could be sure of getting the planned photo sequence at the right time (and hopefully the correct exposure).

On the designated night, I left work early, and got up to the hotel roof at about 16:35 EST. According to my notes, some penumbral shading up the moon was definitely visible at 16:40. Cleverly, I didn't indicate if this was a naked eye observation or not. In binoculars at least, it was visible.

Throughout the initial partial phases of the eclipse, I tried to determine if I could see any part of the eclipsed moon, and if so, what color it was. Using binoculars, it was possible to see the eclipsed part of the moon about 15-20 minutes before totality, but no obvious color, other than gray, was visible.

During totality the moon was visible as a crescent to the naked eye, since the top edge of the moon was farthest away from the center of the umbra. However, this crescent was very dim and essentially was invisible to me at mid-eclipse, although it was still possible to see the moon in binoculars as a ghostly gray circle. It was so dim, in fact, that one of my companions was unable to find it even with binoculars.

I watched the remainder of the eclipse at about 10 minute intervals, ducking back into the hotel to keep warm. The penumbra at the end of the eclipse wasn't as obvious as at the beginning. I'm not sure if this was because the moon was so much brighter at the end (not being in twilight or at a low elevation) or if this was a real effect due to the Earth's shadow. During the partial phases, I watched for evidence of a "non-round" shape of the Earth's shadow, a phenomena described in the December, 1992, issue of Sky and Telescope magazine. I might have seen something, but couldn't be sure when the binocular image was moving about. What I really needed was a telescope with a clock drive!

Thinking about the eclipse afterwards, I realized that the totally eclipsed moon was probably visible at all phases at a truly dark location. In my case, I kept exposing myself to white light inside and numerous lights outside so I never really had a chance to get dark adapted.

Knowing that the weather was less than ideal in Saskatoon (I phoned home during totality) almost made it worthwhile being in Ottawa for the eclipse. I was able to show the eclipse to my companions (though none were ambitious enough to watch the entire thing) take about 70 pictures (which may or may not turn out) and actually see an astronomical event that I have talked about but have never really seen. The next eclipse is apparently in June, in the early morning hours. I don't know the circumstances yet, but I am already looking forward to it.

Mike Wesolowski

SEEING THINGS
Barnard's Star - Seeing Proper Motion

In a recent past issue of Saskatoon Skies, I described seeing the proper motion of 61 Cygni with my 4-1/4" reflector. I now present the proper motion observation of Barnard's Star using the same telescope. Barnard's Star is a red dwarf star of magnitude 9.5 in the constellation Ophiuchus. It is the second closest star to the sun, with only the Centauri triple system being closer. Barnard's Star shines with feeble light only 1/2500th as bright as the sun, but even so is visible in small telescopes due to its extreme nearness of 6.0 light-years. This star shows the best evidence of any star for having a planetary system from observations of a tiny wobble in its proper motion. Due to its nearness to us and an unusually high space velocity, Barnard's Star moves at a whopping 10.29 arc seconds per year. Since 10 arc second double stars are quite easy to resolve in any telescope, this star's motion could be easily detected by amateurs over a one year period by carefully sketching the area. I waited a bit longer than that.

I found Barnard's Star for the first time on May 9, 1978. The first sketch shows a low power (30x) field and surrounding stars for reference that I drew that night. The brightest star, off to the upper right, is 66 Ophiuchi. Fourteen years later, on May 25, 1992, I revisited the field with the same telescope and eyepiece, and sketched the location of Barnard's Star again. The proper motion was easily apparent, with Barnard's Star having moved 144.5 arc seconds (2.4 arc minutes) in that time.

For anyone interested in proper motion observing, Barnard's Star is a good place to start. Burnham's Celestial Handbook (Vol. 2, p.1257) lists 28 stars which move 3 arc seconds or more per year. It also provides an excellent finder chart for Barnard's Star on page 1253 of the same volume. It would be an interesting project for those of you who will be dabbling with CCD cameras in the near future to see what is the shortest amount of time that motion can be detected for these objects. Good luck.

Good observing, and how about letting me see some of YOUR observations in print!

Richard Huziak

