

# SASKATOON SKIES

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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 months deadline is Saturday, October 30, 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. 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.  
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Saskatoon Skies is a monthly publication of the Saskatoon Centre of the Royal Astronomical Society of Canada.

## EDITOR'S NOTES

First, my apologies for not being able to include the minutes from our September meetings. I did not receive them before the deadline. As I mentioned in this column in the July issue, time considerations have forced me to strictly adhere to the deadlines published on the front of the newsletter.

I also want to draw your attention to our upcoming presentation to City Council on Light Pollution on October 12 (see page 5). With a little luck, maybe we can hope for better sky conditions over Saskatoon if Council takes our recommendations seriously. Come out and support us, the more members we have present, the more impact we may make on our elected representatives on City Council.

Those of you who have made donations to our Centre - many thanks. We really do need the support. As I mentioned in the August issue, those of you who have donated more than \$10 are entitled to a free copy of Saskatoon Centre's *Asteroid Finder Charts*. Rick Huziak will be sending out copies to those who have made the donations. Give him a call if you think he's a little slow in delivery.

Gord Sarty

## THE '93 G.A. IN HALIFAX

Thursday July first is best described as a day in the air. You get up early to get your flight that leaves at 7:10 a.m. and arrive in Halifax at 3:35 p.m.; actually not that bad when you take out the three hours for the time changes. Those arriving at the airport were met by Halifax Center members and taken to Mount Saint Vincent Campus and the Rosaria Conference Centre to register. The rest of the evening was yours to do with as you please.

Friday morning was taken up with committee meetings so I had a chance to wander around the campus. After lunch the National Council meeting was held in the Board Room of the conference centre. Anyone who has attended a council meeting knows how they have a tendency to drag on, but for this one five hours had been scheduled, and it only went a little overtime.

The Wine and Cheese party that evening was a great get together at which time one can renew friendships with those who have a tendency to attend G.A.'s. This was followed by Murphy's Slide Show, and the song contest in Vinnie's Pub, a great location for both of the above. Mary Lou Whitehorne and her family won the song contest with a little ditty that had to be heard to be appreciated.

Saturday was taken up with paper sessions that, overall, were very informative. Topics included *CCD Colour Imaging* by Jack Newton, *The Fireballs of February 10, 1993* by Dr. Douglas Hube, *Monster Telescopes of the 1990's* by Alan MacRobert of S&T magazine, *Rating Binoculars for Astronomy* by Dr. Roy Bishop and *Who Really Made the First Telescope?* by Dr. Randall Brooks.

In the evening there was a cruise on the Bluenose II, which should not be missed by anyone who has a chance to go. Being on a boat of this size under sail really gives one an understanding of some of the forces of nature. A snack was provided while onboard and was enjoyed by those who attended. For me any cruise under sail can never be long enough. Tacking out toward the mouth of Halifax harbour and the run back was great fun and gave us a chance to see just what is involved in sailing a vessel of this size.

Sunday morning was the third and last paper session. In the afternoon the Annual Meeting was held, at which time anything that must be voted on by the general membership was brought forward for the meeting's consideration.

That evening was taken up with what is considered to be the highlight of most G.A.'s by many of the members. The banquet and the awards, both national and for the displays shown, were presented. After that the Ruth Northcott Memorial Lecture was given. This year the speaker was David Levy, whose talk was *Comet Hunting - part II*. This was a good lecture on comets and comet hunting and the finding of the ninth Comet Shoemaker-Levy that is due to impact with Jupiter next July.

Monday was a day of tours for those who cared to stay and see some more of the area. Two tours, one to the Citadel and one to the Maritime Museum of the Atlantic were in the morning. In the afternoon the two groups came together for a tour to Peggy's Cove. After dinner most of the delegates went on the final function of the G.A.: a tour to see the Nova Scotia International Tattoo at the Halifax Metro Centre. Anyone who has not seen a tattoo has missed a great evening of music and entertainment.

Tuesday was another day spent in the air, this time gaining back the three hours lost on the way down. It can be said that the Halifax Centre knows how to put on a G.A. as a great time was had by all.

Jim Young

## HUZIAK YAK YAK

There are a number of issues that I would normally have brought up at an executive meeting, but which I will address here instead, as our executive meetings have recently been filled with a number of important discussions. Little issues are thus left in the dust.

1. The electrical problem in the dome of the Rystrom Observatory, reported in the spring, has been investigated. Gord Sarty and I have checked out the dome electrics and electronics and have found them to be in good working order. [There may still be a problem with one of the light relays - Ed.] Any problem that might have occurred was most likely due to the perpetual moisture present due to a leaky dome. Gord, Al Hartridge and Jim Young have done a smash up job in refiberglassing the dome and now it is very water-proof; so much so that the dome has completely dried out. Thanks a lot, guys!
2. Don't know what to buy that special person for Christmas? Why not help promote your Centre and buy someone a membership (\$22.50 or \$40), or just a newsletter subscription (\$10). At the October meeting and afterward, 1994 RASC Calendars will be available as well (price TBD).
3. The RASC has been listed in the 'ASTEP Resources Guide'. This is a guide put out by 'Awareness: Science and Technology Education Program', that list references people who can be used as speaking, mentoring or question answering resources for schools and other programs. A number of us have given presentations at schools as a result of this. Exposure in such publications will help to give us a higher profile and attract membership.
4. The RASC has also been listed in the 'Saskatoon Community Directory'. The directory was distributed free-of-charge to every household in Saskatoon this fall. Hopefully, this type of exposure will also help with our profile and membership.
5. *Sky and Telescope* and *Astronomy* magazines are now available at Coles Bookstore. (Hey Gordon, maybe we can get them to advertise in an issue or two!). If you are intending to subscribe to *Astronomy*, however, we would appreciate it if you did so by filling out one of the application forms available at our general meetings. If *Astronomy* uses that form to register you, they will issue our Centre a small rebate.
6. The Saskatoon Centre is a non-profit organization. As such, we are able to issue income tax receipts for donations to the Centre. Please contact Mike Williams for details if you would like to donate anything (668-4365).
7. We would like to welcome the following new members to the Centre. Nice to see you around.

Ian Anderson, 230 Nordstrom Ct., S7K 6R7, phone 242-0391  
Tim Brown, 222 Main St. E., S7N 0B5, phone 653-5606  
David Cornish, 503 Frobisher Cr., S7K 4Y8, phone 242-7125  
Les Dickson, 11 - 103 Powe St., S7N 1W5, phone 249-1091  
Ted Firman, 126 Penryn Cr., S7H 5G4, phone 477-0314

Rystrom key members going out to the observatory are requested to phone these guys when you go, so that they can tag along.

Thanks, Rick Huziak

## CONTRIBUTING TO SCIENCE - ADDING ANOTHER PURPOSE TO OBSERVING

On bad nights when my telescope dews up heavily, during the full moon, or when I just can't seem to find those 16th magnitude galaxies in my 4-1/4" telescope, I say to myself "What's the use? Is it all worth it? Who cares if I saw the planetary in M15?". What I need is a boost and a purpose. Observing for myself is a thrill most of the time, but being able to participate in an organized group that actually observes in the name of science is another way to get a rush from observing. Until quite recently, most of my observations went into my observing logs and were long forgotten, except as resource material for Saskatoon Skies articles. A lot of information valuable to others resides in those books, and it doesn't take much to make it available to organizations that really want the observations.

There are a large number of organized groups whose purpose it is to record the mass observations, mostly from amateur astronomers, of a number of different phenomena. Because there are so many amateurs worldwide, we get to almost continuously monitor certain astronomical events, when the observations are accumulated and tabulated by a central organization. These groups rely on amateurs to send in their results, and not to sit on them. Valuable science can be learned from the observations of amateurs. Professional astronomers often request the observations for use in their research. Indeed, AAVSO members often participate in joint programs monitoring variable stars during Hubble Space Telescope and other satellite observations!

Some of the groups that Saskatoon Centre members have participated in are listed below. Other interest groups are listed in the 'Sky and Telescope' Annual Resource Guide. There is probably a group for your interest. One misconception is that you have to be a member of these groups to report observations. But that is not true; **YOU DO NOT HAVE TO BE A MEMBER OF THESE GROUPS** to report observations. (You will not receive publications and other benefits if you are not a member). This misconception hindered me for years from sending observations in. Hopefully this article will dispel that myth for you as well. Centre members with more information about each group are listed by each description.

**American Association of Variable Star Observers (AAVSO)**, 25 Birch Street, Cambridge, MA 02138-1205, probably the most famous group, monitors thousands of variable stars using standard charts. Has thousands of members worldwide. Besides the regular program, has special observing programs for Cepheids, eclipsers, novae, photometry, etc. (see Gord Sarty, Mike Wesolowski)

**Noctilucent Clouds (NLC CAN AM)**, Mark Zalcik, 9022-132A Ave., Edmonton, AB, T5E 1B3, monitors occurrences of noctilucent clouds and reports these to the BAA. (see Rick Huziak)

**Zenith Auroral Convergence (ZAC)**, Father Lucian Kemble, Box 220, Lumsden, SK, S0G 3C0. This famous Saskatchewan observer has a personal project to study the reason why the auroral zenith corona does not appear directly overhead, as logic would indicate. He wants observations. (see Rick Huziak)

**International Meteor Organization (IMO)**, Peter Brown, Dept of Physics, University of Western Ontario, London, ON, N6A 3K7, accepts reports on meteor shower activity for any shower throughout the year (see Gord Sarty)

**International Occultation Timing Association (IOTA)**, this group coordinates occultation timings for asteroids and planets in front of stars and stars behind the moon. Accurate shapes of many asteroids are regularly calculated using amateur timings. (see Mike Wesolowski or Rick Huziak)

**Meteorites and Impacts Advisory Committee (MIAC)**, Dr. Robert Hawkes, Mount Allison University, Department of Physics, Sackville, New Brunswick, E03 3C0, is interested in reports of fireballs brighter than -4 magnitude to calculate possible falls [and to gather worldwide fireball statistics - Ed]. On E-mail between most RASC Centres. (see Gord Sarty) [Complete information on MIAC can be found in the June 1993 issue of the *Journal of the RASC*. - Ed]

Other groups are available, such as the Association of Lunar and Planetary Observers (ALPO), the BAA Aurora Patrol, the Double Star Society, the Webb Society, and a host of others. If you would like to observe for these groups, send them a letter requesting their standard reporting forms. You will enjoy the good feeling of making a contribution to science.

Richard Huziak

## OBSERVERS' GROUP MEETING

An Observers' Group observing session will be held on October 16 at Rystrom Observatory, weather permitting. Time: Anytime after sunset. 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.

## LIGHT POLLUTION PRESENTATION AT CITY COUNCIL

On the evening of October 12, 1993 (the day after Thanksgiving, Tuesday night) the Saskatoon Centre RASC will be making a presentation to Saskatoon City Council on the issue of light pollution in Saskatoon. The council meeting begins at 7:00 p.m. in City Hall and we will be making a short presentation at that meeting. Come out and support our centre!

## OCTOBER EXECUTIVE MEETING

The October Executive meeting will take place at 7:00 p.m. on Monday evening, October 18 in room B-10, Health Sciences Building on campus. Note that this is a different from the usual meeting place at the observatory.

## OCTOBER GENERAL MEETING

The monthly Centre meeting will be held on Monday evening, October 18 in room A-226, Health Sciences Building on campus, 8:00 p.m. Note that this is a change from the usual room B-111. On the agenda will be the annual elections. Please see page 6 for further information.

## DUES ARE DUE

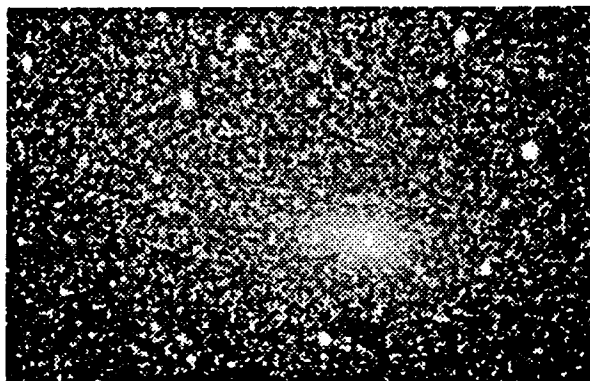
Yes, October is the beginning of a new year for the Saskatoon Centre, and as such, dues are due. Please send in your cheques as soon as you can so that you will continue to receive your newsletter and all the other privileges of membership.

Regular Membership (over 21 years)	\$40.00
Junior (Student) Membership (21 years or less)	\$22.50
Life memberships (see M. Williams)	on request

Note that membership fees have increased as a result of the National Council vote at the General Assembly. As such, members who have already joined or renewed at the old rates are asked to submit the difference when they can. Rystrom Observatory key holders: please add a voluntary \$5.00 key fee to your membership. If you have decided not to rejoin, please drop us a note telling us why. We'd appreciate your feedback. We also sell additional newsletter subscriptions, 1994 Observer's Handbooks and 1994 RASC calendars individually.

Rick Huziak

Closeup of NGC 205, a satellite companion of the Andromeda galaxy M31. This image was taken with a ST-6 CCD camera and 32 inch telescope at Pine Mountain Observatory, Oregon, USA.



## OCTOBER ELECTIONS

The October General Meeting sees the elections of the executive officers for the 1993-1994 year. This year all elected positions are up for grabs. The executive members are responsible for running the business of the Centre and for charting the Centre's future and direction. The executive deals with both Centre affairs and those of the National Office. The executive meets every third Monday at 7:00 p.m. in Health Sciences, Room B-10.

Officers are elected via a democratic process of nomination and ratification by voting of the members present at the General Meeting. If more than one person is nominated for a position, the winner is decided by the majority vote. Any member in good standing, even brand new members, can be nominated and can vote. (You can also nominate yourself, if you wish). If you cannot attend the meeting and would like to nominate someone or be nominated yourself, you can do so by proxy. Either send a written proxy, (in any legible form) to the Centre mailbox, or telephone a current member of the executive and verbally express your wishes. That member will relay your request at the General Meeting. Note that there can be any number of councillors on the executive and in the past we have had as many as four. Also, nothing stops someone from holding more than one position on the executive, if the positions are not conflicting. Executive positions available are:

**Honorary President** - not vacant (appointed position)(currently Dr. Ed Kennedy)

**Past President** - not vacant (assumed position)(will be Don Friesen)

**President** - up for grabs (two year term)(currently Don Friesen)

**Vice-President** - up for grabs (two year term)(currently Richard Huziak)

**Secretary** - up for grabs (currently Bill Hydromako)

**Treasurer** - up for grabs (currently Mike Williams)

**Centre Representative** - not vacant (appointed position)(currently Jim Young)

**Activities Coordinator** - up for grabs (currently Sandy Ferguson)

**Newsletter Editor** - up for grabs (currently Gord Sarty)

**Librarian** - up for grabs (currently Jim Wood)

**Membership/Promotion** - up for grabs (new position this year)

**Councillor** - up for grabs (currently Allan Hartridge)

A list of job definitions of the positions is shown below:

**Honorary President** - Provides tie to external organization, such as Physics Department.

**Past President** - Advisor to new president, provides continuity to new presidency.

**President** - Chairman of Executive Council and General Meetings, general representative of RASC to the public.

**Vice-President** - Stand-in for president, aid to President, traditionally does programming for meetings.

**Secretary** - Records meeting minutes, provides Annual Report to National Bulletin, provides minutes for publication in Newsletter.

**Treasurer** - Handles finances of Centre, prepares annual financial statements, accepts new memberships, reports financial matters to National Office as required, maintains membership list.

**Centre Representative** - Represents Saskatoon Centre at National Council meetings and General Assembly.

**Activities Coordinator** - Arranges and coordinates activities for RASC members, may act as Observer's Group Chairman, coordinates Annual Public Starnights, Astronomy Day Display, special events except for General Meetings.

**Newsletter Editor** - Edits Saskatoon Skies Newsletter, solicits articles, arranges for copying, collates newsletter and stuffs envelopes, arranges mailing, handles advertisers.

**Librarian** - Maintains library book, journal and newsletter inventory, maintains inventory list of books, files incoming correspondence and other Centres' newsletters.

**Membership/Promotion** - Lobbies members to renew their memberships, polls expires members to determine why they have not rejoined, promotes Centre to media, advertises Centre, distributes pamphlets wherever possible.

**Councillor** - May be entry level position in executive, aids others as required.

Please participate in your Centre by voting or becoming an executive member.

Richard Huziak

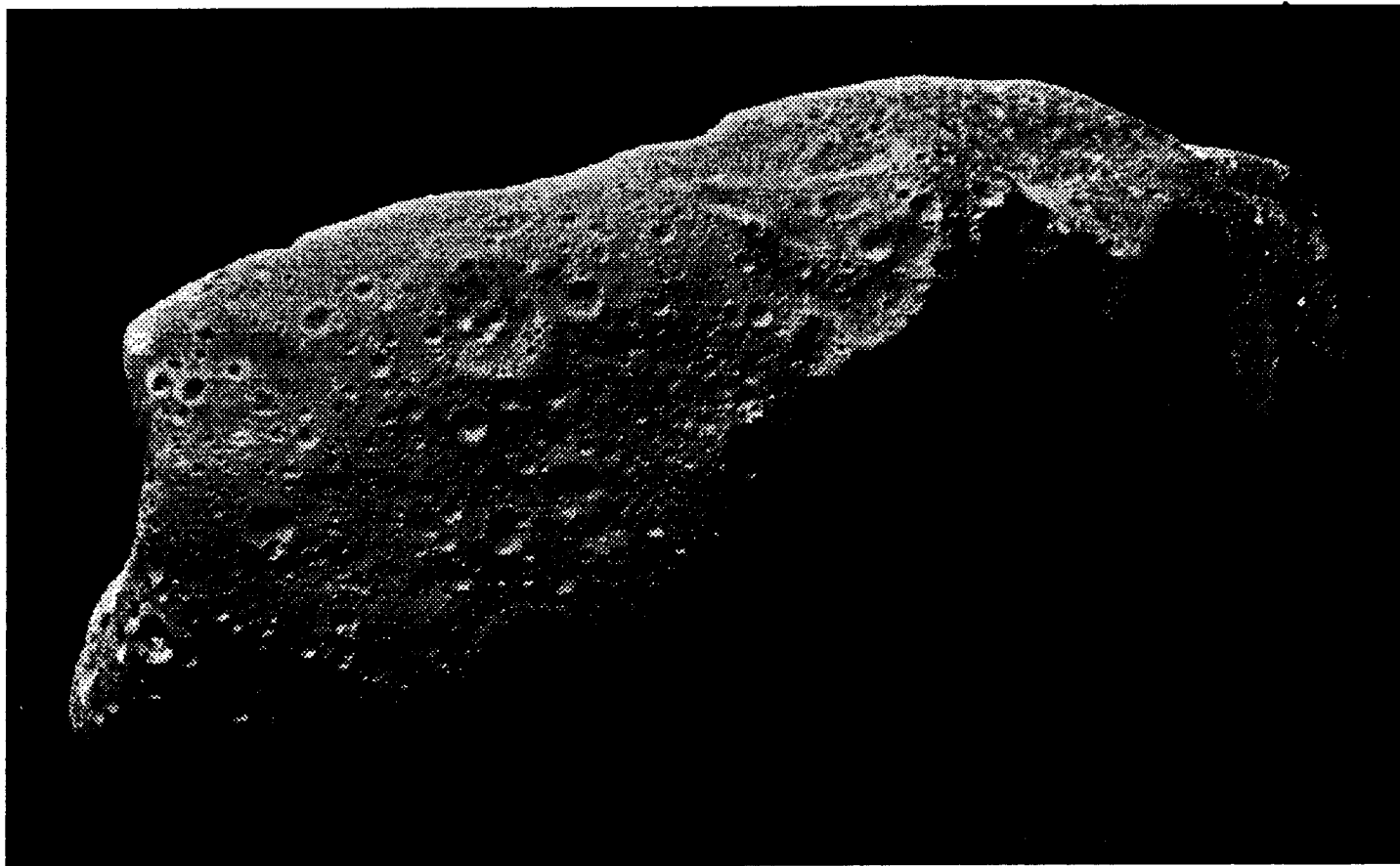
## GALILEO PHOTOGRAPHS THE ASTEROID IDA

Through the modern miracle of computer networking, *Saskatoon Skies* brings you another image just in from a space probe. This time we present the first image of the asteroid Ida sent to Earth by the Galileo space probe after its flyby on August 28. Here are some comments about the image made by Phil Stooke (stooke@sscl.uwo.ca) as posted to the computer internet:

"Ida is being viewed from approximately 30 degrees south of the equator (which parallels the limb). The terminator is about 60 deg. south (very rough estimate from a preprint by Binzel et al. on its way to *Icarus*). The south pole is in darkness near the centre of the length of the terminator. Rotation is probably retrograde, so the earlier approach views will look into the big 'kazoo' crater at the left end, and will also show far more of the north side than we can see here.

"Now for the features. There appear to me to be a few small crater chains, notably near the top centre and at both the extreme right and extreme left. It is not easy to be sure that they are more than chance clusters of random impacts. Gaspra had a few very obvious grooves, this does not. Other views may clarify this. There are more obvious degraded craters with overlapping impacts than were obvious on Gaspra, but this may not be much more than a resolution effect. The few large craters on Gaspra were not well seen in the highest resolution view. Gaspra looked a bit smoother, but that might just be a resolution effect.

"It is impossible to draw useful conclusions about overall shape until the other pictures trickle down. Incidentally, an upcoming issue of *Icarus* will be devoted to Gaspra papers, and some great stuff on shape modeling and mapping will be presented by those wizards at Cornell. Ground-based modeling suggests possible albedo variations (a north-south split, not very strong but interesting)."



## SILVER ANNIVERSARY FOR THIS ASTRONOMER

I can hardly believe that my interest in astronomy began 25 years ago. In 1968, somewhat inspired by the Apollo moonshots and especially by a library book on astronomy, I began looking skyward and haven't looked back. I was 12 years old. That year, my older brother, Jim, who is also and still a member of the Saskatoon Centre, brought home a book that contained a reference to the Perseid meteor shower. We went outside to see the shower and saw nothing; but the stars were fascinating, and that's all it took. Shortly thereafter, my brother bought a 2.4" Tasco refractor from the Simpson Sears (or maybe Eaton's) catalog. The telescope arrived with the paint all scratched up, though the optics were fine. It broke our hearts to have to return it because of the dents, so Jim cut a deal for a discount, and there it was, the wonders of the universe revealed for about 40 bucks.

We immediately began to see what we could see; early objects were the craters of the moon, a few double stars and the thin crescent of Venus which we faithfully recorded in a logbook on second-hand pages that already had something written on the other side. The first entry into the logbook was made on September 29, 1968. The logbook continues today to record my observations and drawings faithfully. I am on Volume 41, page 3455. The volumes occupy more than twenty-two linear inches of shelf space in my book case.

After many great years with the 2.4", I managed to borrow my high school's 3.1" Tasco in 1972 and things even got better. Saturn took on a new light with several moons made visible, and double stars were much easier. That telescope had great optics. I was sad to give it up 4 years later. I had to view Nova Cygni 1975 and Comet West in 1976 with my 2.4" again.

Inspired by Comet West, I ordered a 4-1/4" mirror kit from Edmund Scientific and by early 1976 had ground the mirror into an f/10.8 telescope. This improved observing tremendously. I will never forget the first views of M76 (the Little Dumbbell), Comet D'Arrest and even the Horsehead Nebula with the freshly aluminized mirror. I immediately ordered more mirror blanks, a 6", 10" and 12.5" from Coulter Optical, I finished the 6" pretty quick but didn't silver it, and the 10" and 12.5" are to this day not yet done (though both are in the figuring stage, and almost every week I swear I'll finish them soon!).

Part of the reason for these telescopes never being finished is because in 1976, I went to university and soon joined the Saskatoon Centre. There were several telescopes of the 6" and 8" variety, plus the University's 7" refractor to use. This was a step up from the 4" and served me well for years to come. About 1977, a General Assembly competition inspired the Saskatoon Centre to photograph a star atlas of the Orion area (for which we won the Astroscan). Gordon Patterson found Ed Rystrom and convinced Ed to let us build an igloo on his land to protect the C-8 while photographing this atlas. I took my 20-minute exposure for the atlas at -42 degrees Celsius! Everyone else was in a similar boat. And soon we built Eetook.

Through the years I've observed a lot of events and objects, including the 1979 total solar eclipse, 34 comets, all the Messier objects, about 500 NGCs, surprisingly only 16 asteroids, about 1000 double stars, 2000 auroral displays and have made in excess of 10,000 variable star estimates. I've been to the southern Hemisphere and have observed the Magellanic Clouds and other great objects with a 12.5" scope. I also co-discovered Nova Cygni 1975 (with thousands of other observers). I have visited more than 50 observatories and planetaria, and have used telescopes as large as 20 inches. I have attended three GAs and the Alberta Star Party.

It is difficult to say what the highlights of the last 25 years were, because almost every observation presents a unique and new delight. But some of the good ones were Comet West in 1975, the 1979 total eclipse, the view of Omega Centauri and the Magellanic Clouds and Halley's Comet from the southern hemisphere in 1986, and the 1991 daylight inferior conjunction of Venus. I also remember seeing 3C273 and the Horsehead in my 4-1/4" under superb skies [I wonder if Rick just saw the background nebula IC 434 for the Horsehead instead of the actual dark Horsehead itself - skeptical Ed.], and watching the mutual eclipses of Jupiter's moons in the last few years was a rush. Also, who will forget Comet Bennet in 1970? Observing at the Anglo-Australian Observatory with Tom Cragg and Robert McNaught was also a thrill, though dodging kangaroos in a car with no lights wasn't exactly fun. Remarkably, I also completed my second telescope, the 6" John Dobson Solar scope in 1990, only 7 hours before a partial eclipse, and the first view was spectacular!

Astronomy has been nothing but a pleasure for the last quarter century and I intend to keep observing for another quarter century at least, maybe more. With so much to see and do, how can anyone not see the wonderment in such a beautiful science?

Richard Huziak

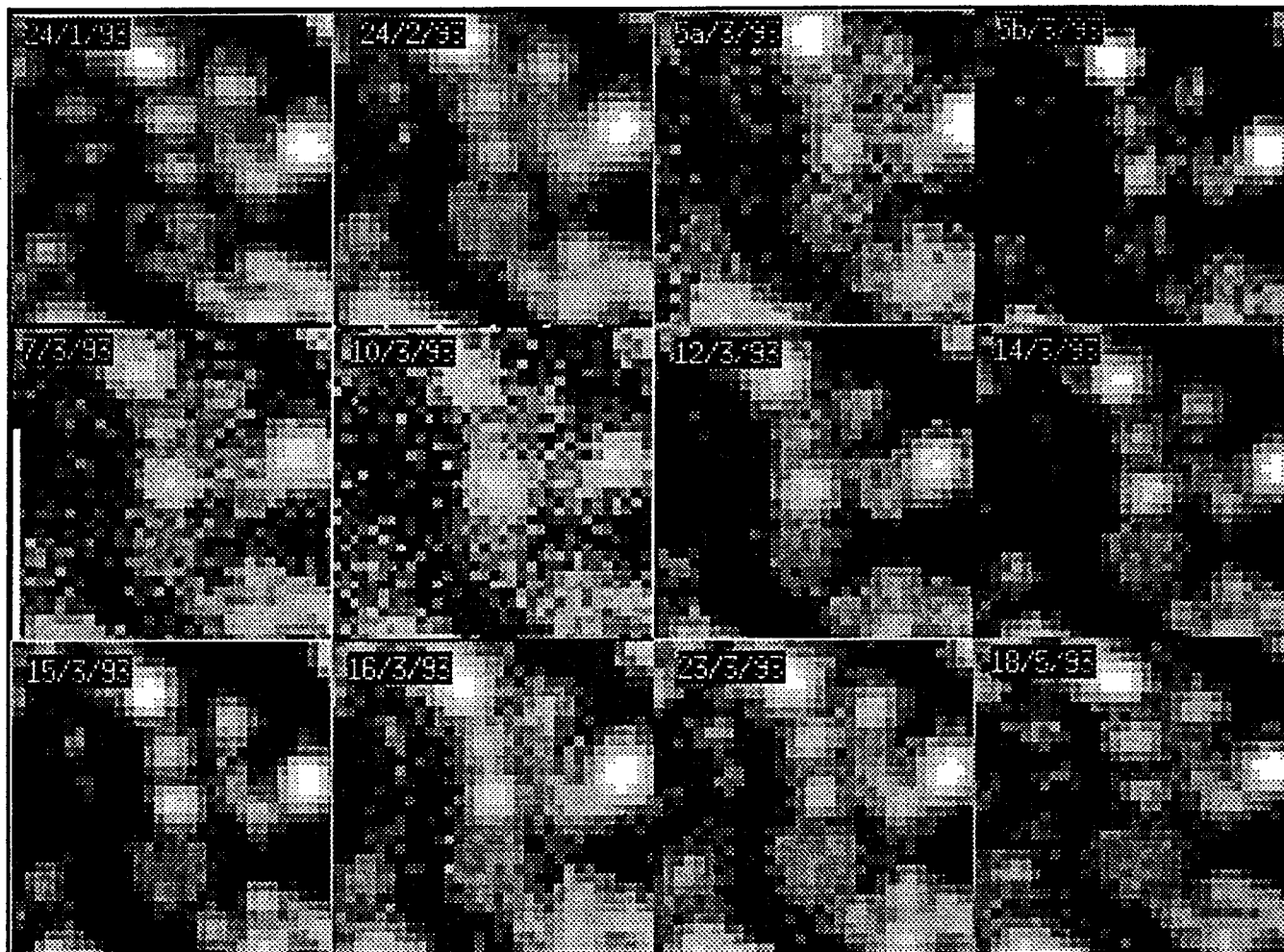


## MACHO DETECTION

Brett Holman (holman@tauon.ph.unimelb.edu.au) posted the following information to the computer internet:

"Hey people: has anyone heard about the latest results from Project MACHO at Mount Stromlo (Australia)? They are claiming (or about to) a detection of a MASSIVE Compact Halo Object somewhere between us and the LMC (expectation value of 10kpc) ... with a mass of between 0.03 and 0.3 solar masses. They have given this their maximum certainty rating of 1. Apparently, it magnified an LMC star (via gravitational lensing) by a factor of 6 in luminosity. A French group were about to announce their results, so I guess the MACHO people got jumpy."

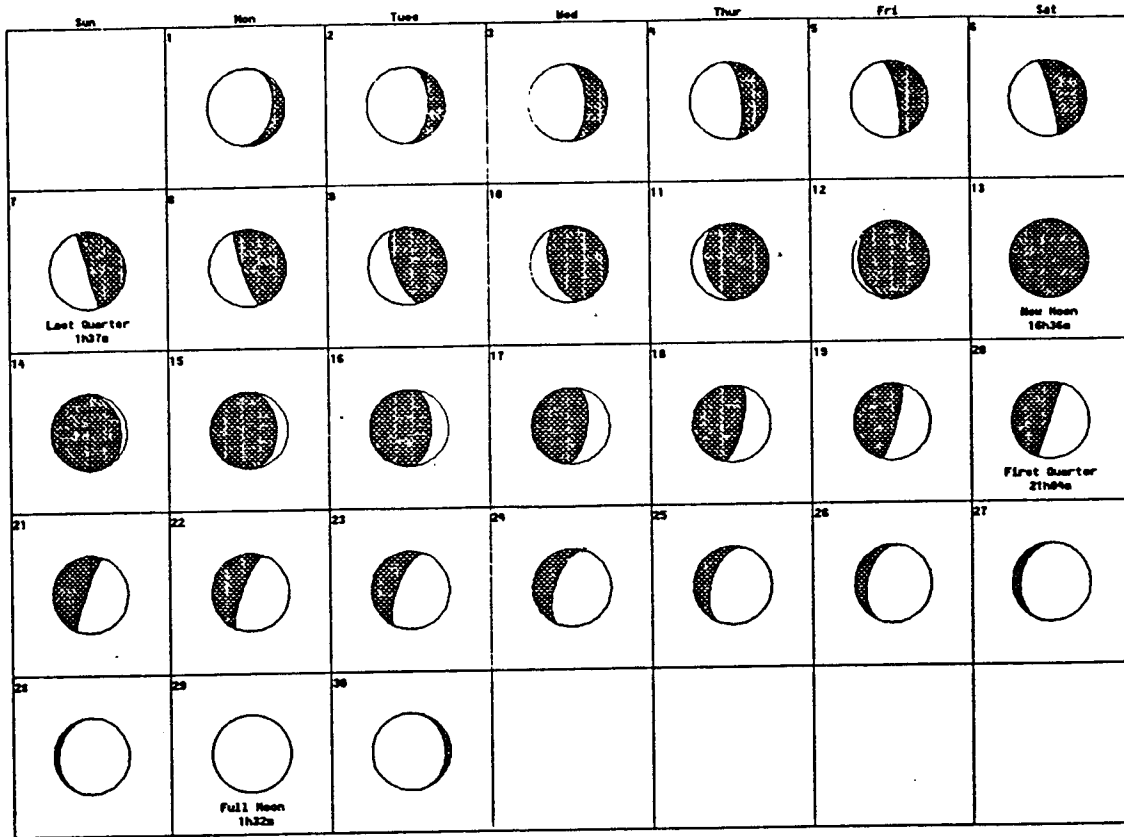
Here is a sequence of pictures showing the claimed increase in luminosity of the LMC star:



## UNIVERSITY OBSERVATORY HOURS FOR OCTOBER AND NOVEMBER

The U of S Observatory will be open to the public on Saturday evenings from 7:30 to 9:30 p.m. in October and November. Visitors will be able to view Saturn, the Andromeda galaxy, the Double Cluster 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. and College Drive. For more information, call Stan Shadick at 966-6434.

## THE MOON IN NOVEMBER



Birth at top of page

Courtesy Jim Young.

### IN MEMORIAM Arthur Cockerton

It is with sorrow that I convey to you the news of the passing of Mr. Arthur Cockerton, on August 28, 1993. Arthur was a long-time member of the Regina Centre and Regina Astronomy Society, and has been a member of the Saskatoon Centre for the last 5 years. Arthur had a life time interest in astronomy and often relayed to me many stories and experiences about his past. He very often attended our General Meetings, displays and Public Star Nights, despite the long trip from Regina. Arthur will be greatly missed by the Centre members who knew him well. Arthur is survived by his wife, Irene, of Regina.

Richard Huziak