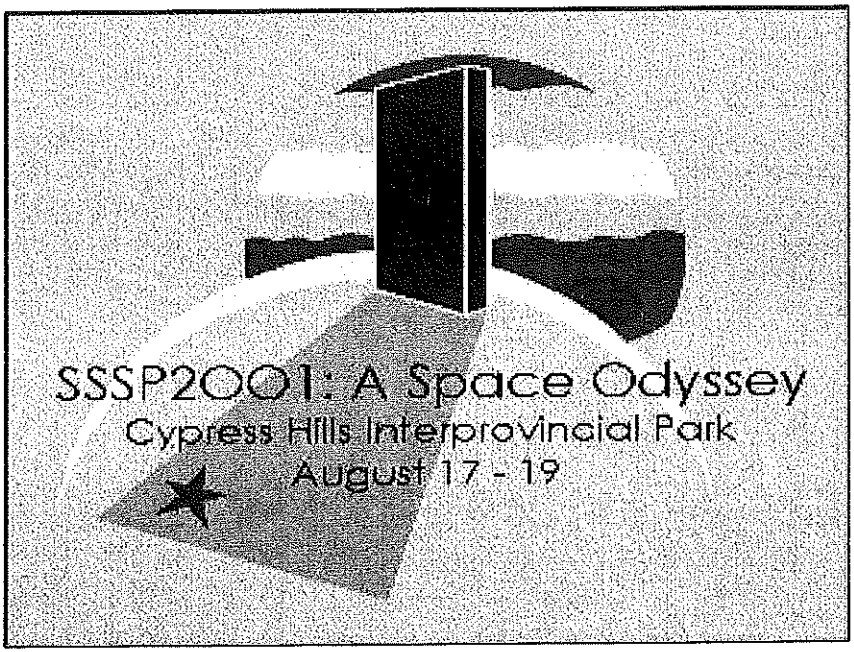
Saskatoon Skies

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

Volume 32 **July-Aug 2001** **Number 07-08**



SSSP 2001 is coming fast. Be there for a great weekend of astronomical programs and observing. See our website for more information, or call Les & Ellen Dickson.

RASC Calendar Happenings

Date (2001)	Event	Contact	Telephone
Aug. 10	**Public Perseid Observing at Pike Lake**	Rick Huziak	665-3392
Aug. 11	**Public Perseid Observing at Beaver Creek**	Rick Huziak	665-3392
Aug. 11	**Perseid Meteor Shower Peak**	Rick Huziak	665-3392
Aug. 17 –19	**Sask. Summer Star Party – Cypress Hills**	Les Dickson	249-1091
Aug. 18 - 25	**Mt. Kobau Star Party - BC**	Guy Mackie	(205)861-3074
Sep. 12 - 16	**Alberta Star Party – Caroline, AB**	Rick& Carol Weis	(403)286-4347
Sep. 17	**General Meeting** – 7:30 pm City Hospital	Les Dickson	249-1091

Sky Buys and Mirror Sells

The Saskatoon Centre's Swap and Sale Page!

For Sale: Tasco Model D6 60mm refractor. Brand new c/w accessories. $170.00 Call Carl Reinhalt, #5 – 644 Heritage Lane, Saskatoon, S7H 5P8, tel: 374-2237.

For Sale: Brass lined trunk for SC-8 or SC-10, **9 mm Kellner eyepiece, 0.965 "6x30" eyepiece** with crosshair for a spotter, **3-D Saturn V Rocket** puzzle (3-feet tall), and some very good astronomy books: ***The Pocket Guide to Astronomy*** by I. Ridpath, ***Astronomy*** by Menzel, ***Introduction to Practical Astronomy*** by Jones, ***Burnham's Celestial Handbook*** (3 vol. set, hardcover). All books are in excellent shape. Call Darrell Chatfield for prices at 374-9278.

Still Wanted: 25mm Orthoscopic or Plossl eyepiece, spider and 2" - 2-1/4" diagonal for 10" scope. Will buy or trade. Call Rick Huziak at 665-3392.

Saskatoon Centre

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IN THIS ISSUE

Saskatoon Skies is published monthly by the Saskatoon Centre of the RASC. Distribution is approximately 165 copies per issue. ***Saskatoon Skies*** welcomes unsolicited articles, sketches, photographs, cartoons, and other astronomy or space science articles. Articles can be sent by mail in any format to the Centre's mailbox. Submissions may also be sent by e-mail - preferred as **plain unformatted ASCII text files without line breaks**. Images sent by e-mail should be attached .GIFs, .TIFs .JPGs or similar. Send e-mail submissions to the editor at <huziak@SEDSystems.ca>. Submitted materials can be returned upon request. Please send articles in "generic" formats, with standard grammatical formatting appreciated - 5 spaces at the beginning of paragraphs, two spaces after periods, one space after commas. A separate subscription to ***Saskatoon Skies*** is available for **$15.00** per year. Articles may be reprinted from ***Saskatoon Skies*** without expressed permission (unless otherwise stated), but source credit is requested. **DEADLINE for submissions is the 26th of each month**. ***Saskatoon Skies*** accepts commercial advertising. Please call the editor for rates. Members can advertise non-commercial items free of charge.

SSSP Registration Is Going Well – Have YOU Registered Yet?

By Les Dickson, SSSP 01 Chairman

To RASC Saskatoon Members:

The early and cheaper advanced membership deadline for the SSSP 2001 Star Party was Friday, July 20. There are many members who have registered in previous years that have not yet registered for this year. If you are one of those who have registered, THANK YOU. If you are still planning to come this year, please get your registration in to us as soon as possible. You can get more information about the Star Party at our website at http://prana.usask.ca/~rasc/sssp01.html. There is a registration form on the website that you can download and print out. You can also call Ellen Dickson at 249-1091 and let her know you are coming.

Thanks, and I hope to see many more of you at SSSP 2001.

Important Vote On Membership To Be Held At September Meeting

by Les Dickson, President, RASC Saskatoon Centre

In the fall of 2000, the Saskatoon Centre voted to go to a revolving membership in which each person's membership would run for one year from the month that they joined the RASC. Previously, the membership was fixed, running from October 1 to September 30 of the following year. At the same time, the Centre "opted-in" to the National's membership system. By being "opted-in", the National Office handles our membership for us, holding the "official" membership list and sending our membership notices directly to our members.

There has been much discussion about our "opting-in" since then. Many people believe that there are no real advantages to the members of our Centre to be "opted-in", and many disadvantages. It is also debatable as to whether the vote in the fall of 2000 included "opting-in" to the National's membership system at all: most believe that it did not include "opting-in", and many would have voted against the motion if "opting-in" had been part it.

As such, it is now time to revisit this, and hold a vote on the issue. At the September meeting, the matter will be discussed and voted upon. Our options are: continue with the situation as it is now; "opt-out" of National's membership system while continuing with the revolving membership system; or go back to the fixed membership year, which would also entail "opting-out" of the National membership system. More information on the matter will be published in the September issue of the newsletter.

Note that the National Office has been asked not to send out any membership renewal notices on our behalf until the matter is settled in September. Bob Christie, our Membership Coordinator, will continue to send out notices, and renewal checks should be made out to the *Saskatoon Centre of the RASC.*

A Science Funding Opportunity for All Centres of The RASC

by Bill Almond, Victoria Centre, RASC < fwalmond@home.com>

The Natural Sciences and Engineering Research Council of Canada (NSERC) launched a program in July of 2000 to provide financial support for organizations creating opportunities for young Canadians to learn more about science. The goal is simple: to encourage organizations which are actively working to promote a better understanding of science and engineering. In order to help Centres develop astronomical educational programs for school children that will fit NSERC's requirements the National Council has agreed to act as an intermediary between interested Centres and NSERC and submit applications on their behalf. NSERC will not accept applications directly from Centres.

Centres interested in taking part in the program are invited to develop hands-on, interactive astronomy programs to inspire an interest in science and motivate elementary and high school students to study science and engineering. All such projects will require the Centre to operate on a long-term ongoing basis. Short-term projects will not be accepted. Bear in mind that financial reports will have to be submitted to NSERC on a regular basis. The government wants to know where it's money is being spent.

The Victoria Centre has been operating a similar program for the past eight years with funding from the CSA and a B.C. Foundation. We developed an audio/visual presentation using a battery of projectors with sound and multiple screens that showed at participating schools across Vancouver Island and the lower mainland of B.C. A show was specially designed, using computer graphics, to educate children about Canada's role in the space program and tell them about Canadian astronauts that were involved in building the International Space Station. Shows have been constantly updated as the Space Station has grown. Another show taught them about the Sun's solar family. The Victoria Centre has already secured funding from NSERC and will assist any Centre that wants to develop a program and apply for funding. We encourage all Centres to seriously consider this opportunity to promote astronomy and space sciences in the school system. It's very rewarding!

Interested Centres should first go to NSERC's Web site at *www.nserc.ca/promoscience* then contact Bill Almond (Victoria Centre) *fwalmond@home.com* to discuss your plans before making further inquiries from national office.

Membership Notes

Changes of address effective immediately:

Jean Dudley, 2319 St. Patrick Ave., Saskatoon, SK, S7M 0L4, (306) 384-9094
Richard Huziak, 127 Maple Street, Saskatoon, SK, S7J 0A2, (306) 665-3392

RASC Youth Group Wraps Up for the Year

By Andrew Krochko" <akrochko@hotmail.com>

The final meeting of the R.A.S.C youth group was held on June 15th, 2001. One by one, members began to fill my flat. Among them were Lorne Jensen, his mother and sister, brothers Dieter and Rusty, and my girlfriend Elissa.

Our original plan, to look at the sun, was cancelled due to inclement weather. Instead, we feasted on hotdogs, pizza and watermelon. (Thank you Mrs. Jensen!)

The kids played *Pictionary* while it continued to rain outside. Overall, a good time was had.

Due to personal ventures, I will NOT be running the youth group this fall. Anyone interested in taking my place, please contact the Executive Committee.

Meteor & Comet Info for July & August

By Cathy L. Hall" RASC Ottawa & Co-author, NAMN Notes <chall@CYBERUS.CA>
(edited by Rick Huziak from the RASCList)

The southern delta Aquarids (SDA) are the main shower for the month of July, reaching a maximum on July 28th, with a radiant at 339 degrees, i.e. RA 22h 36m, Dec -16, which is about 5 degrees to the right of the star delta Aquarius. This is the star known as Skat, often thought of as the right knee of the Water Bearer. The Zenithal Hourly Rate (ZHR) is about 20 meteors per hour. This is the number of meteors that an observer would expect to see with the unaided eye from a dark site in the country, if the radiant, the area in the sky where the meteors seem to come from, is directly overhead. These are average velocity meteors, at about 41 km per second.

The southern delta Aquarids can be seen from about July 12th to August 19th. At mid-month, on July 15th, just after activity starts, the radiant will be at 329 degrees, i.e. RA 21h 55.8m, Dec -19, which is about 4 degrees down to the left of the star delta Capricornus, the top left star of the big triangle that is the Goat.

According to the International Meteor Organization (IMO), in their 'Handbook for Visual Meteor Observers', these meteors are believed to be debris from Comet 96P/Machholz 1. In talking about the delta Aquarid complex (both northern and southern streams), the IMO then states:

"Computer simulations of these meteor showers' evolution indicated a possible relationship between the current delta Aquarids and the past orbital elements of the Quadrantids... Still another remarkable relationship with the delta Aquarids has been found. The Arietids, a daylight shower in June, display their maximum activity on June 1... After perihelion passage, this stream encounters the Earth's orbit again on July 28 with a predicted radiant... exactly coincident with the delta Aquarid radiant!"

It is interesting to think about where these meteors come from when we are out at night, observing under the stars. All these complicated relationships between streams of old comet debris must keep the meteor theorists awake at night too!

The northern delta Aquarids (NDA) start about July 15th, but won't reach a maximum until August 8th. On July 15th, the radiant will be at 316 degrees, i.e. RA 21h 4.2m, Dec -10, which is about 7 degrees north of the star theta Capricornus, above the crook in the top of Capricornus. By July 30th the radiant will have moved to 327 degrees, i.e. RA 21h 48m, Dec -8, which is about 4 degrees down to the left of the star beta Aquarius, the star Sadalsuud. Rates in July will be very low, as even at maximum in August, the ZHR rate will only reach about 4 meteors per hour. These are average speed meteors, at about 42 km per second.

Perseids - yes, we said Perseids! - start to become visible about July the 17th, although won't reach a peak until August 12th. Rates in July will be small, but quite noticeable. Perseids (PER) are fast meteors, at about 59 km per second. The radiant on July 20th will be at 018 degrees, i.e. RA 1h 12m, Dec +52, which is about 3 degrees south of the star theta Cassiopeia. By July 30th the radiant will have moved to 029 degrees, ie RA 1h 55.8m, Dec +55, which is about 9 degrees south of the star epsilon Cassiopeia, the top left star of the "W".

The southern iota Aquarids (SIA) start in late July, about the 25th, but don't reach a maximum until August the 4th. On July 25th, the radiant will be at 322 degrees, i.e. RA 21h 28.2m, Dec -17, which is about a degree to the left of the star iota Capricornus. Rates will be very low. Even at maximum in August, the ZHR rate will only reach about 2 meteors per hour. These are average velocity meteors, at about 34 km per second.

The Pisces Austrinids (PAU) reach a maximum in late July, on the 28th, but can be seen from about July 15th until about August 10th. At maximum, the radiant will be at 341 degrees, i.e. RA 22h 43.8m, Dec -30, which is about 3 degrees to the right of alpha Pisces Austrinus, the star called Fomalhaut. These are average velocity meteors, at about 35 km per second. ZHR rates will be about 5 meteors per hour at maximum.

Lastly, the alpha Capricornids (CAP) reach a maximum on July 30th. The radiant early in the month, on July 5th, is at 285 degrees, i.e. RA 19h 00m, -16, which is about 10 degrees north of the star sigma Sagittarius, the top handle star of the "Teapot". By maximum on July 30th, the radiant will have moved to 308 degrees, i.e. RA 20h 31.8m, Dec -10, which is about 4 degrees up to the left of the star alpha Capricornus, the top right star of the triangle of Capricornus. ZHR rates at maximum will be about 4 meteors per hour, and the meteors will be nice and slow, with a velocity of about 25km per second. The alpha Capricornids can be seen from about July 3rd until about August 15th. Although few and far between, these are wonderful meteors to see!

Besides recognized showers, there is also sporadic meteor activity, meteors that are random, or belong to long-ago, now untraceable showers. These occur at a rate of about 7 per hour, visible to the unaided eye.

A Comet for the Comet Starved. The brightening of Comet LINEAR, C/2001 A2, has been in recent news - a new naked-eye comet! LINEAR stands for the Lincoln Near Earth Asteroid Research project, and, as noted on the website at http://www.ll.mit.edu/LINEAR/, this project is funded by the U.S. Air Force, with

its goal being to "demonstrate the application of technology originally developed for the surveillance of earth orbiting satellites, to the problem of detecting and cataloging Near Earth Asteroids that threaten the Earth."

The comet was found using the LINEAR GTS-2 telescope, a 1 meter folded prime focus Cassegrain, located on the White Sands Missile Range in Socorro, New Mexico. According to the website, LINEAR has confirmed 59,389 asteroids, of which 399 are classed as NEOs, Near Earth Objects – and these figures are only as of May 20, 2000.

So, what about this latest comet? It was discovered on images taken January 15th, 2001, at magnitude 15.8. It has since undergone a number of outbursts in brightness, and multiple splitting of the nucleus. In early July, this comet can be spotted with the unaided eye, in the pre-dawn morning hours. A general chart can be found at http://www.spaceweather.com and a more detailed finder chart at: http://encke.jpl.nasa.gov/images/01A2/LINEAR-A2-2.gif.

It is coming up from Cetus in the southern sky, and moving through the head of Pisces from July 6th to 8th. It will then head up towards the star xi Pegasus, being just left of it on July 11th, very close to it on July 12th, and to the right of it on July 13th. It will then head off to the right of the Great Square of Pegasus, where it will be about 8 degrees north of the star epsilon Pegasus, known as Enif, on July 19th. It will then head over towards the Milky Way, and by July 31st, will be about 5 degrees north of the nose of Delphinus - right about where Comet Hyakutake was on March 20, 1996!

Coordinates for Comet LINEAR, C/2001 A2 are as follows, adapted from the Sky and Telescope website at http://www.skypub.com. If you need some basic star charts to figure out where these coordinates are, print yourself off a set of 4 from our NAMN website at: http://web.infoave.net/~meteorobs/charts.html

July 25 21h 18.5m +20 08
July 27 21h 09.4m +20 36
July 29 21h 01.2m +20 57
July 31 20h 53.8m +21 11

The comet will gradually fade during July, from visible with the unaided eye at about magnitude 4, down to visible in binoculars and small amateur telescopes. Recent observations can be found at: http://encke.jpl.nasa.gov/RecentObs.html#01A2.

Details on the history of this comet, and some photos, can be found on Gary Kronk's 'Comets and Meteor Showers' website at: http://cometography.com/lcomets/2001a2.html.

Get out and take a look at this comet in the morning sky! Naked eye comets do not come around too often. If you have binoculars or a telescope, check out LINEAR with those as well. Try some photos with your camera and tripod. With a normal 55mm lens and fast film, you can take about a 30 second photo before noticeable 'trailing' occurs with 35mm film. Dawn will also be fast approaching though, so 'bracket' your exposures - take a variety of timed shots, some long, some shorter.

Comets are very often the source of the meteor showers that we observe – so don't pass up this opportunity to see Comet LINEAR, coming now to a sky near you!

July 2001 NAMN Notes co-written by Mark Davis and Cathy Hall

An "Almost" Comet Oosterlaken!

by Mike Oosterlaken

On July 19th while I was looking for M15 I came across a fuzzy object that looked like a globular cluster. I thought it might be M15 but when I looked at where my scope was pointing I knew I was way off of M15. I plotted the starfield and using a my star chart I estimated the coordinates of the object as being 21 48 +18.10. After observing I went in and checked all my astronomy books and couldn't find any objects with those coordinates. That's when I thought it may be a comet!

I then checked it on the internet and found the Comet C/2001 A2 had coordinates of 21 45.77 +18 12.9. The magnitude of the comet on that night was 5.9. I checked the comet again the next night and could definitely see the change in the starfield (a few degrees).

So that is my story of the comet I saw without even looking for it. Maybe you could promote viewing of this object to the other members of the Saskatoon RASC centre. The comet is fading fast. The website I found it on was http://cfa-www.harvard.edu/iau/CometMags.html. You may have to use <http://cfa-www.harvard.edu> and use links to get to the comet.

[This 'almost' discovery – obviously exciting to Mike, is how new comets get discovered about 10% of the time – purely by chance! Maybe the next one will be named Comet Oosterlaken! I also recall past-member Terry Nelson accidentally stumbling across a newly discovered supernova a few years ago – by star hopping to the wrong *galaxy! – Ed.]*

Variable Star Guru Danie Overbeek Dies

by Janet Mattei, AAVSO (reprinted from AAVSO News Flash #818)

Danie Overbeek (Edenvale, South Africa), long-time member, observer, and a very dear friend of the AAVSO, passed away on July 19, 2001. Danie, also known as OB to anyone who has ever pulled up a southern variable star in the AAVSO's database, had been a devoted variable star observer since 1952, and was the AAVSO's most prolific observer, contributing over 287,000 observations to the AAVSO International Database -- far more than any other observer in the history of the Association. Many of the AAVSO southern hemisphere program stars owe a large portion of their light curves to Danie's dedication to observing.

Danie will be sorely missed -- both in our archives as an observer and personally as a very dear friend and mentor ------ JAM.

YET MORE TALES FROM THE LUNATIC FRINGE

By Daphne Lowden

I think I mentioned in an earlier article how NASA let the astronauts choose the names of the ships they were flying on during their missions. This would explain the choice of *Charlie Brown* and *Snoopy* for Apollo 10. Well, for Apollo 16, Charles Duke and John Young landed in the *Orion*, and the command module, *Casper*, was piloted by Thomas Mattingly (who had been bumped from the Apollo 13 flight crew because of exposure to Rubella). And yes, the name *Casper* actually was inspired by Casper the friendly ghost. The logic for this choice came from the fact that Mattingly's wife said that in the pictures of the astronauts sent from the moon to Earth, that they looked more like white blobs, a.k.a., the aforementioned ghost, than they did astronauts.

John Young was the only man of the three to have previous space experience in the Mercury, the Gemini or the Apollo projects. Besides rounding the moon in Apollo 10 (the aforementioned *Charlie Brown*) in 1969, John Young flew in Gemini 3 for close to five hours with Virgil Grissom. This was in 1965. Grissom was one of the three astronauts (Edward White and Roger Chaffee being the other two) who died in that flash fire in January of 1967. This was supposed to have been the first flight of the Apollo programme, and the details of this particular incident are such that you wonder how NASA managed to get as far as it did with as little going wrong as did. By their own admission, the NASA personnel in the command centre had gotten rather complacent about doing the pre-launch checks. Habit dictated that the command module be checked for leaks prior to launch by pumping it up to 15 p.s.i. with pure oxygen. At 15 p.s.i. of pure oxygen, aluminium burns. Because this was standard procedure, no one thought anything of staging a mock countdown at the same time. Grissom was complaining about poor communications between the command module and the command centre (as in, "How are we supposed to get a man to the moon if we can't even talk to each other between two buildings?"), when some improperly insulated wires touched and sparked. The result was an instant inferno. What made things even worse was the fact that the door to the command module opened inwards, and not outwards, so there was no way the astronauts inside the module could open the hatch and get out. It took technicians on the launch pad five full minutes to get that door opened, by which time all three astronauts were dead.

Apollo 16 landed at 14.5° E, 9° S. This site is considered to be in the highlands, which translates roughly to everything that isn't the bottom of a crater or a mare. As a result of this, it is a bit difficult to pinpoint the exact location, but here goes. The moon should be nine days old. Close to the centre of the moon (between Mare Nectaris to the east and Mare Nubium to the west, and directly south of Sinus Medii), there are three very large, very prominent craters, quite close together. Aim directly east from the centre of the uppermost crater (Ptolemaeus) until you get three quarters of the way across from Mare Nubium to Mare Nectaris, and that is pretty much the landing site for the *Orion*. Another way of looking for the site is to come straight south from the centre of the gap between Mare Tranquillitatis and Mare Vaporium (which is the small mare directly west of the top half of Mare Tranquillitatis) until you are directly west of the bulge in the mare (Nectaris) that Tranquillitatis is dripping into. Or, if you're really obsessed, like some people who will remain unnamed but whose initials are THE AUTHOR, you can just stare real hard in this general location until you catch the sun glinting off the stainless steel commemorative plaque they left behind.

Messier, FNGC, H-400 & Binoc Club

MESSIER CLUB

Certified at 110 Objects: R. Huziak, G. Sarty, S. Alexander, S. Ferguson, D. Jeffrey, D. Chatfield, R. Christie, K. Noesgaard

Mike Stephens	****APPLIED!!****	**110**
Wade Selvig		**71**
Mike Oosterlaken	**	**64**
Andrew Krochko		**42**
Brent Gratias		**39**
Bill Hydomako	**	**36**
Stan Noble		**28**
Lorne Jensen		**25**
Les & Ellen Dickson		**20**
Debbie Anderson		**17**
Brian Friesen		**15**

FINEST NGC CLUB

Certified at 110 Objects: R. Huziak, D. Jeffrey , G. Sarty, D. Chatfield

Scott Alexander		**89**
Ken Noesgaard		**24**
Sandy Ferguson		**23**
Mike Stephens		**16**
Mike Oosterlaken	**	**10**

HERSCHEL 400 CLUB

Certified at 400 Objects: Dale Jeffrey

Rick Huziak	****ALMOST THERE****	**399**
Darrell Chatfield	** GETTING THERE**	**360**
Gord Sarty		**147**
Scott Alexander		**98**
Ken Noesgaard		**44**
Mike Oosterlaken	**	**29**
Sandy Ferguson		**18**

Chatfield BINOCULAR CERTIFICATE

Mike Stephens	****ALMOST THERE****	**37**

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

Observe all 110 Messier, 100 FNGC or 400 H-400, or 40 Binocular objects and earn your CERTIFICATES!

The first 2 lists can be found in ***the Observer's Handbook***. The Binocular List & Herschel 400 list will be available at each general meeting for 50 cents (covers photocopying) or **can be mailed out on request to distant members.** Each month I'll be posting updates.

Hey, Observers!

I'd like to welcome the newest observing member of the Messier club – Bill Hydomako. Bill has put down the Sleaford hammer for a while and have been caught several times peering through the C-8 at the site! Bill breaks onto the scene, scoring 1/3 of his Messiers in only 4 sessions under the dark skies of Sleaford.

The other big mover on the list this month is Mike Oosterlaken, who is observing this summer from Biggar. He's got the observing bug, and is about to order a 10-inch scope!

Virgo is now lost for the year, but the summer Messiers are available – and a bit higher in the sky if you come to SSSP 2001!

Congratulations to Mike Stephens who has completed his Messeir List and has applied!

New members – get onto the Messier list! *Two-thirds of the Messiers can be done with a reasonable pair of binoculars!*

Send observing numbers to
huziak@SEDSystems.ca

Notice of the General Meeting of the Saskatoon Centre

Monday, Sept 17, 2001

at 7:30 p.m.

Room 8313 City Hospital

Presenting

Members at Large

"The GA, Perseids, SSSP & More"

Members are invited to present their observing experiences for any summer astronomy activity that they have done.

U of S Observatory Hours

The U of S Observatory is open to the general public every Saturday in August from 9:00 p.m. to 11:00 p.m. Admission if free. The observatory is located on campus, one block north of the Wiggins Avenue and College Drive entrance. On clear evenings visitors may look through the 6-inch refractor to the moon, star clusters and other exciting astronomical objects. For further information, phone the recorded Astronomy Information Line at 966-6429.

Interested in

Saskatoon RASC Membership?

Regular - $48.00 per year**
Youth - $26.00 per year**

****National Council has voted a $4/yr increase in these rates. Final Sasktoon membership cost to be decided in Sept. or Oct.**

It's never too late to join!

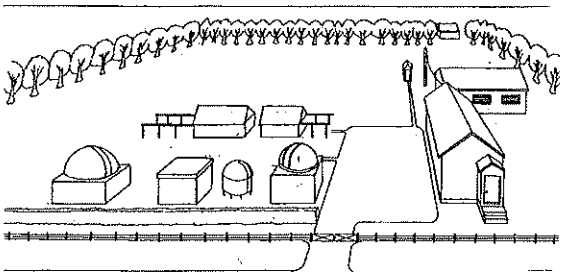
The Saskatoon Centre operates on a one-year revolving membership. You will now be a member for the next 12 months no matter when in the year you join.

Benefits of Membership in the Saskatoon Centre

- knowledgeable & friendly amateur astronomers
- use of the Sleaford Observatory
- use of the UofS Observatory (after training)
- Saskatoon Skies Newsletter
- Observer's Handbook 2001
- The Journal of the RASC (bi-monthly)
- SkyNews Magazine (bi-monthly)
- use of the Centre library
- discounts to Sky & Telescope Magazine
- discounts of Sky Publishing merchandise
- discounts to Firefly Books
- free, no cost, no obligation, 3-month temporary membership if you don't want to join right now!

The Sleaford Observatory

Longitude: **105 deg 55' 13" +/- 13" W** ***Latitude:*** **52 deg 05' 04" +/- 08" N, tel.: (306) 255-2045**
by Rick Huziak



General Site Use – The site continues to be used frequently, but it seems that the same observers are always coming out (Mike, Bill, Darrell & Rick). If you'd like to get out and observe, you are welcome to do so. Call Rick Huziak (665-3392) and Darrell Chatfield (374-9278) to see if anyone is going to the site and if you can get a ride if you need one. Although the moon will interfere a bit, the Perseid Meteor Shower in August will present a good time get out and use the site. The peak even falls on a weekend this year. Rick Huziak will be at Beaver Creek and Pike Lake on August 10th and 11th, but better counts, free of inquiring public, are best done at the Sleaford Observatory. It is currently unknown if the U of S roll-off roof will be fixed in time to use it as a meteor observing platform.

U of S Work at the Observatory – The U of S will be conducting maintenance of the Roll-Off observatory during July & August. The maintenance will be done during daylight hours, but be cautious of possible obstacles around the building. Labs for the Astronomy 212 class will begin in mid-August and continue into November. The 212 kids are great – and are red-flashlight trained!

Astronomical Events Calendar for August

By Les Dickson

Jul 30	Neptune At Opposition	Aug 11	Perseid Shower Peak
Aug 06	Southern Iota Aquarids Meteor Shower Peak	Aug 14	Moon Occults Saturn
		Aug 15	Moon Occults Jupiter
	Venus Passes 1.2° From Jupiter		Uranus At Opposition

THE LAST OF THE TALES FROM THE LUNATIC FRINGE

(AT LEAST FOR NOW...)
by Daphne Lowden

The final Apollo mission, 17, landed at 31° E, 20° N, in December of 1972. This is another easy site to locate. When the moon is five days old, go outside and locate Mare Tranquillitatis. I know you know where that is, because I have referred to it more than once in this series. Mare Tranquillitatis looks like it is closing up where it joins the mare above it (Serenitatis). On the eastern side of that indentation where the

two mares join, at the uppermost point of the Mare Tranquillitatis (not including that promontory on the upper eastern shore of the mare), rests the *Challenger*. Gene Cernan and Harrison Schmitt landed the lunar module, and Ronald Evans stayed aloft in the *America*.

An interesting thing about this mission: Schmitt was a geologist by profession, who then underwent astronaut training. Although the "scientific" (as opposed to straight political) missions started with Apollo 15, everyone else in the programme had been a career military man, some of whom then underwent geology training (albeit enough that they could probably challenge for a Ph.D. in the field).

Another interesting thing: Gene Cernan, the last man on the moon, was also the first American to perform an EVA way back in June of 1966. Ed White (who died in the Apollo 1 fire in 1967) was actually the first American to physically leave the space vehicle, but he didn't do anything besides just float and admire the view. Cernan and Tom Stafford (who went up in Apollo 10 and flew the lunar lander down to 14 300 m) went up in Gemini 9. Cernan was supposed to assemble a backpack in space. This is another one of those incidents I have mentioned prior that really make you wonder about how NASA got as far as it did.

The Gemini, as I have mentioned earlier, is about the size of an SUV and about as comfortable as a VW bug from the mid-sixties. There are no holes in the side of the vehicle where tubes connected to an oxygen tank can go through, so when Cernan exited the Gemini, the door he went through had to stay wide open. Five minutes after he started to work on assembling the backpack, Cernan has fogged over completely, because no one had ever thought that maybe the face shields might need some means to stay clear. Face it; no one had ever done anything that increased the moisture level in the suit to any significant level. The reason he had fogged over was because of the exertion he had to make to try to assemble the backpack. You see, NASA had forgotten about gravity. Or more accurately, they had forgotten that the reason we can do so much neat stuff on Earth, like walk, is because of gravity, so there are no hand holds or foot holds on the Gemini. So there's poor Gene Cernan, out in space, with nothing to hold onto, and every time he tries to turn a wrench he torques himself into a spin. This man spent two hours outside, trying to assemble this thing, and in that time he lost 5 kg. Each one of his boots produced .5 kg of sweat back in Florida when they were "analyzed". His heart rate was sustained at 170 beats per minute, and mission control and Stafford both thought he was going to die. This presented its own set of problems. NASA didn't want any bodies left in space, so they tell Stafford that he'll have to bring Cernan back home if anything happens. Stafford has to fly the Gemini. There is no way he can go out into space, and pull Cernan back in, he can't even pull him back in from his seat, so there's no way he can close the door. What he's supposed to do is drag Cernan behind him. Stafford is supposed to re-enter Earth's atmosphere with an open space vehicle, with 3200° plasma scorching around his ears and him wearing a suit about as thick as a layer of Reynolds Wrap. He's supposed to drag Cernan's body behind the Gemini, where it will get tangled up in the parachute cords, thereby potentially disabling the parachutes. Then he's supposed to land in the ocean with the door open. Faced with this, Stafford told Cernan to get the hell back in the Gemini and they'd go home.

This concludes the series on the Apollo landing sites, at least until, in the words of Cernan, as the last man to set foot on the moon, *"...God willing, we shall return, with peace and hope for all mankind..."*

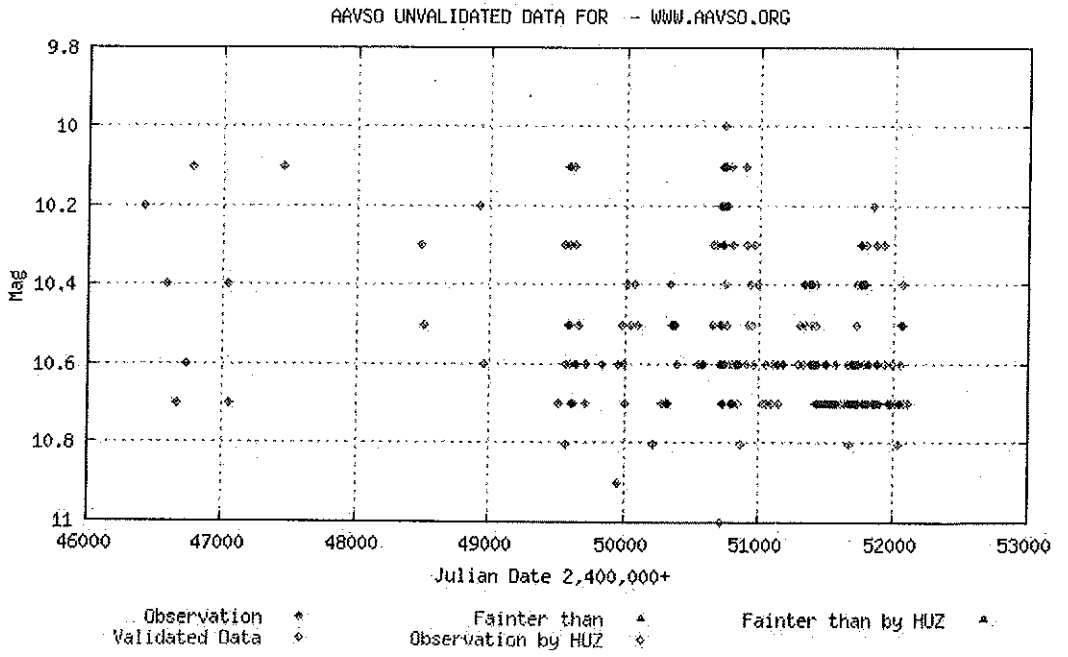
On the Hunt For Suspected Variable Stars

By Rick Huziak

While estimating the brightness of standard variable stars in the AAVSO program, one now and then comes across "standard comparison stars" that are not at the magnitudes that the comparison charts say they should be at. When you see a star that is fainter or brighter than its standard magnitude, it is possible that you have discovered a new variable star. Results from the Hipparcos mission show that maybe 1% of the stars in the sky are variable by at least 0.1 magnitude. Most variable stars being observed today are generally brighter than 10.5 mean magnitude. So it follows that stars fainter than 10.5 magnitude have good chance (i.e. 1%) of being discovered to be a new variable star. Below are 2 examples of "standard comparison stars" that might be variable.

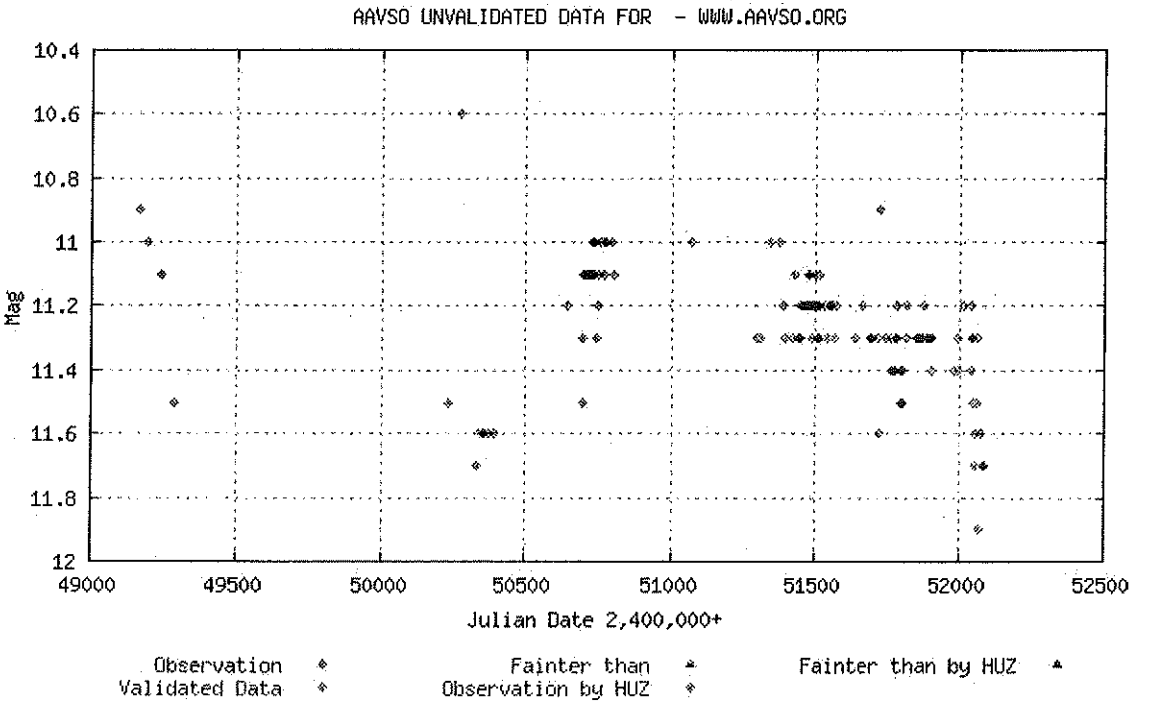
The light curves represent the observations of a few AAVSO observers who have these suspected stars in their programs. The light curves are "unevaluated", meaning that the data represented has not been formally analysed for accuracy by AAVSO, so these light curves will not be used for official publication, but serve to demonstrate the behavior of the stars quite well. These light curves represent data up to the end of June 2001.

The first star is a comparison star for the red giant Mira-type variable star U Cygni. It should be at 10.0 magnitude, but has been "too dim" since at least 1980, when it was observed to be about 10.7 magnitude. AAVSO has given it a provisional designation of "100 comp E, 2016+47C". I have been observing this star for the last 4 years. Prior to this, most data was provided by another AAVSO observer. The star appears to



spend most of its time at about magnitude 10.6 or 10.7, but appears to have minor 'eruptions' to about magnitude 10.2 every 1200 days, and possibly smaller ones inbetween. A difference of 0.4 magnitude makes this a difficult star to monitor visually, since a visual observer's error margin is somewhere between +/-0.1 or 0.2 magnitude! This star is a good candidate for CCD observers!

The second star is known as 2014+37E, or "var NW". This star is marked "var?" to the NW of the star WX Cygni. This has been a fairy boring star since I took it on about 2 years ago. Then, about a month ago, the star seems to have made a 0.6 magnitude dive. Checking out the complete database, this star also appears to have been faint around Julian Day 24450300 (5 years ago). To me, this star appears possibly to have a semi-regular light curve light similar to the long period star RS Cygni. Another observer commented



that this may represent an 'accetion disk eclipse'! Lots of speculation – but so far, not enough observations. This star has remained faint through July, and is well worth monitoring every clear night.

The charts for these stars can be downloaded from the AAVSO website at www.aavso.org. Download the Standard Charts for U Cygni and WX Cygni. Currently, U Cygni is fading and at about 11th magnitude. Remember the 100 comp E star is a suspected variable. WX Cygni is currently around 12th magnitude. Look for the star to the northwest marked "var?". There is also another star marked "var" to the SW. This one is called 2014+37C, and is worth monitoring as well.