

THE ROYAL ASTRONOMICAL SOCIETY OF CANADA



SASKATOON CENTRE

PRESIDENT: *Halyna Kornuta*

EDITORS: *Dave Pristupa & Greg Towstego*

Published by The Saskatoon Centre, R.A.S.C.

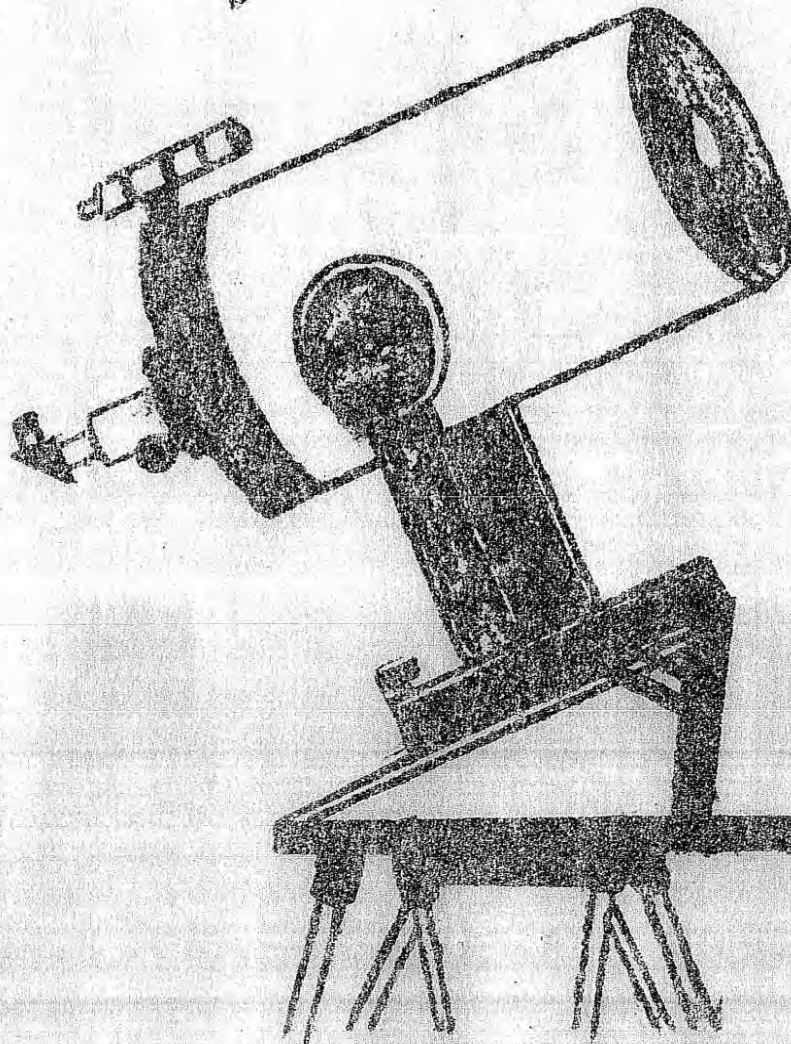
P.O. BOX 317, SUB 6,

SASKATOON, SASK

Vol. 5 — No. 2

FEBRUARY, 1975

NEWSLETTER



SOME TIPS ON COLD WEATHER ASTROPHOTOGRAPHY

GN Patterson

Why would anyone in his/her right mind want to take astrophotos in below-freezing temperatures? For a starter the winter skies in the Northern Hemisphere offer many more interesting areas of constellations and other astro-objects than the summer skies and, in addition, the viewing time available is greatly extended due to the longer darkness periods and, as anyone who has lived in Canada knows, the weather in the winter is COLD. In addition, "cold-camera" techniques can apply once the temperature has dropped to -20°F with a normal camera which makes color photography possible without the problems inherent with reciprocity failure. Besides, who ever claimed that astrophotographers were considered in their right mind anyway - they don't need reasons.

One of the primary considerations for taking good astrophotos is personal comfort - in winter time this means proper warm clothing and a sheltered location. It is possible to bundle up with coats, scarves, mitts, etc, but mobility is also essential. My own personal preference is a good "skidoo-suit", with an attached hood, and felt-lined skidoo boots. This type of dress offers excellent cold weather and wind protection without loss of mobility. (My only complaint is the shortage of pockets). Thin leather gloves with silk lining keep the hands warm without too much loss of flexibility. Protection of the face itself is a problem. I have tried masks, etc, but invariably end up fogging the lenses, so I use nothing except shelter and, so far, have not had frost-bite.

All equipment - telescope, oculars, camera, film, etc, should be positioned at the site chosen and allowed to cool down to outside temperature before being used. If a variable frequency drive unit is to be used, this should be operating for at least an hour to reach a stable operating state.

Dewing or frosting of optical surfaces is always a problem in cold weather. Avoid breathing on or close to such surfaces as the moisture in one's breath will cause instant fogging. All such surfaces should be kept covered during cool-down, and only uncovered during actual use. Long "Dew-Caps" should be installed on the front of each telescope, including the Finder and Tracking 'scopes, and if possible, some form of obtaining

low-level dewcap heating, ie, resistance wires installed along the inside of the dewcap, coupled to a battery and with rheostat control. In any case, covers should be provided to fit over each dewcap when the telescopes are not in use. Where mains power is available, a blower-type hair dryer can be used for short periods to clear off any frosting of the objective - in no case should it be used long enough to actually heat the objective above ambient temperature as this can accelerate re-dewing once the objective cools down.

Now to the camera. Some cameras do not operate properly at cold temperatures while others perform quite satisfactorily, and, if the camera is not cooled to outside temperatures when a picture is taken, heat currents will be set up that can ruin a picture. The primary problems is the shutter and shutter speed setting. To find out the limitations of your camera, cool it down in a freezer (wrap completely in thin plastic to prevent any condensation), and then try the shutter in the "Bulb" position - see that the shutter opens and closes properly. If there is any delay this should be taken into account when taking pictures. The adjustment of shutter speeds should be done very carefully - under no circumstances should you "force" a change in shutter speed setting as it is possible to damage the camera mechanism resulting in a costly repair bill. If there is any trouble experienced the chances of cold weather photography is not too promising.

Now to film. Film gets quite brittle at very cold temperatures and can break or tear easily. This is especially applicable to 35 mm roll film. In addition, when a cold film is taken inside to warm up, condensation results with consequent water-staining of the negative unless suitable precautions are taken. One good feature, however, is the reduced effect of Reciprocity Failure, especially below -20°F , so that color film will show a better "color-balance", ie, the same effect as a "cold-camera". What measures can the amateur astrophotographer take to overcome the condensation and brittleness problems? Load your camera with film, then wrap tightly in plastic to minimize the amount of air around the camera, then place in the cooling section of your refrigerator. Leave it there

until you are ready to take it outside - do not let it warm up. Keep the camera wrapped up until ready to mount it on the telescope. If the temperature is above zero, the film should advance in the camera without breaking or tearing the perforations. Below this temperature it is advisable to warm the camera (film) before advancing the film. To do this remove the camera from the telescope, wrap tightly in plastic, and take inside to warm up - keep wrapped all the time. Advance the film as soon as possible (still wrapped up) then take the camera back out to the telescope. Let it cool down again before taking the next picture. The reason for wrapping in plastic is to prevent the warm moist air in the house from condensing on the film surface and camera. This same situation applies when removing the exposed film from the camera. If the temperature is not too cold, rewind the cassette outside, remove from the camera, wrap tightly in plastic to exclude all air, then take inside to warm up to room temperature before unwrapping and developing. If the temperature is really cold, wrap up the entire camera and film, take inside and allow it to warm up completely before removing the wrapping and film. These measures will prevent condensation forming on the film, and avoid ruining an otherwise good picture. Never try to develop a cold film - always let it warm up to normal inside temperatures.

A word of caution on oiled mechanisms - motors, focussing units, etc. At cold temperatures normal oil tends to stiffen and congeal, and this places an extra load on the drive motors, and makes focussing difficult. This problem can be avoided by using an oil, one of the silicon-type, that is unaffected by the range of cold temperatures that the amateur experiences.

The above summarizes a few of the problems experienced by the author in winter astrophotography together with the solutions he has found. No doubt other problems will arise, but it is hoped that others can benefit from the suggestions contained in this article.

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OBSERVATORY SUMMARY - 1974

The year 1974 proved to be one of the most active years at the Observatory in terms of attendance by the general public. Over 6000 people visited the Observatory during Open House activities held on Wednesday evenings and Sunday afternoons and evenings. This increase is due largely to publicity generously provided by the local news media including Television Station CBK-ST and Radio Stations CFQC and CKOM.

An increase in the demand for group tours this year resulted in tours being offered on Monday and Thursday evenings as well as the usual Friday evenings. In addition to the 765 recorded signatures, eight Friday evenings were occupied in teaching two four week mini-courses in Astronomy to 55 Girl Guides as a qualification for their Astronomer's Badge. These courses proved very successful and worthwhile.

The Saskatoon Centre, R.A.S.C. made extensive use of the Observatory facilities for instruction as well as executive meetings. Although this years figures show a decrease in signatures, it must be remembered that many Centre activities take place outside the Observatory, particularly at observing sites where attendance is not recorded. Instruction in the areas of fundamental astronomy and astrophotography took place within the Observatory on Tuesday and Saturday evenings.

Throughout the year, students enrolled in Astronomy 110 made infrequent trips to the Observatory following evening class sessions. Their signatures are recorded for general interest only.

During the spring, extensive renovations took place in the lower floor of the Observatory providing new washroom facilities, a small but adequately equipped darkroom as well as improved office and library facilities and a telephone. Further renovations are in the planning stages.

Ron Waldron
Observatory Assistant

OBSERVATORY ATTENDANCE - 1974

The following summary of attendance at the University Observatory for the year 1974 was obtained from a count of the total number of signatures in the guest books. Since it is seldom possible to obtain the signatures of everyone visiting or using the Observatory facilities, it may be assumed that the figures represented are somewhat lower than the actual amount.

The figures become meaningful if they are compared to figures from the previous year. This years figures show a large increase in Open House activities held on Wednesday evenings and Sunday afternoons and evenings. This increase in attendance is a direct reflection of a rapidly increasing interest and awareness of the heavens by the general public.

<u>OPEN HOUSE ACTIVITIES</u>	<u>1973</u>	<u>1974</u>
Wednesday Evenings	1927	2164
Sunday Afternoons & Evenings	2471	3970
Total Open House Attendance	4398	6134
 <u>GROUP TOURS</u>		
Total Tour Attendance	900	765
Number of Tours	37	35
Average Number of People Per Tour	24	22
 <u>R.A.S.C. FUNCTIONS</u>	832	760
 <u>ASTRONOMY 110 STUDENTS</u>	26	31
 <u>TOTAL SIGNATURES (from all functions)</u>	6156	7670

Ron VanAron
Observatory Assistant

EXHIBIT

Saskatoon Public Library

An exhibit of photographic prints on astronomical telescopes opened at the Saskatoon Public Library on February 8th and will continue for a period of 4 weeks. The development of the telescope is traced from the early designs produced by Galileo, through the long focal length tubeless types, to the later improved and more powerful reflecting instruments of Herschel and Rosse.

A display of 19th century books on astronomy is running concurrently with this exhibit at the Library. In recognition of 1975 as "International Women's Year," one section of the display deals entirely with works produced by women authors during the last century. From the Hon. Mrs. Ward, through Mary Somerville, down to Agnes Gilberne, books on astronomy written during the last century by eight women are included in this section.

Other old books on astronomy covering such topics as telescopes and surveying, as well as a star atlas, are included in the display. Members of the Saskatoon Centre are encouraged to visit the Saskatoon Public Library during the month of February to view this exhibit of prints and books.

- submitted by J.E. Kennedy

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GENERAL MEETING

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DATE: Tuesday, 18 February, 1975

TIME: 8:00 p.m.

PLACE: Room B111, Health Sciences Building
(across from observatory)

PROGRAM: Films will be shown

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SASKATOON CENTRE - - - 1975- CORRECTIONS

SURNAME	ADDRESS	PHONE
AREUS, Adrian	412 Laverendrye Residence, U of S, Saskatoon.	
BEATTY, Blaire CHYNOWETH, C.H.	Box 156, Watrous, Sask. Coleville, Sask.	946-3633
ELLIOTT, Ross	2233 Albert Avenue, Saskatoon.	343-8095
GASKA, Lorne	1101 Matheson Drive, Saskatoon.	382-6573
HAGEN, Marlin HELSTROM, C.T. HOLMES, Ian H.	Box 27, Hagen, Sask. 101 31st Street W., Saskatoon. 53 Red River Road, Saskatoon.	652-5347
KENNEDY, J.E.	323 Lake Crescent, Saskatoon.	374-4611
MARQUIS, Dennis	619 Lansdowne Avenue, Saskatoon.	244-8936
PETTERSON, Blair	1234 15th Street E.	653-2502
VAN RUDLOFF, Robert	507 Albert Avenue, Saskatoon.	
WARNER, Lee	117 31st Street W., Saskatoon.	653-3793

*** Our Membership Now Stands At 55 Members ***

 " PHYSICS FOR FUN " FILM AND LECTURE SERIES

1. FILMS; Wednesday 19, February 1975. 8:15 p.m.

Science and Earth - Each Moving Grain
 Mars - The Search Begins
 An Added Sense: The Detection of Nuclear Radiation
 Earthquakes

2. LECTURE; Wednesday 5, March 1975. 8:15 p.m.

Muons, Gluons, Quanta and Quarks

by E.L. Tomasiak

Modern physics research has unearthed puzzling variety and rich structure in the submicroworld. This lecture is a light - hearted historical review tracing the path of particle discovery from J.J. Thompson's cathode rays to todays quarks, partons, and other exotica.

Minutes of the Executive Meeting
 Saskatoon Centre, R.A.S.C.
 Held in the Observatory 1:30 P.M.
 Sunday, January 21, 1975

Present :	President	Halyna Kornuta	Programming	Dr. Holden
	Secretary	Melodie Andrews	Librarian	Hugh Hunter
	Editors	Greg Towstego	VP/PR	Jim Young
		Dave Pristupa		
Absent :	Activities	Wendel Frenzel		
	Treasurer	Alan Blackwell		

- | Item | Detail | Action |
|------|--|--------|
| 39. | The meeting was opened at 1:30 p.m. | |
| 40. | Attendance for 1974 has dropped. (Observatory signature books.) | |
| 41. | Wendel Frenzel is starting a practical class on how to handle the telescope and practical observing. Classes start on January 14, 75 | |
| 42. | The General Meeting lecture will be given by Dr. Skinner on "Black Holes." | |
| 43. | Motion for adjournment. | |

Dave Pristupa
 Jim Young Carried

Minutes of the General Meeting
 Saskatoon Centre, R.A.S.C.
 Held in the Health Science Bldg.
 Tuesday January 21, 1975

Present:	President	Halyna Kornuta	Programming	Dr. Holden
	Secretary	Melodie Andrews	Librarian	Hugh Hunter
	Editors	Greg Towstego	VP/PR	Jim Young
		Dave Pristupa	Activities	Wendel Frenzel
Absent:	Treasurer	Alan Blackwell		

- | Item | Detail | Action |
|------|---|---|
| 44. | The meeting was opened at 8:00 p.m. | |
| 45. | Motion for adoption of December minutes. | Jim Young
Gordon Patterson Carried |
| 46. | Bids for the Gift Certificate opened and will close Jan. 31, 75. | |
| 47. | The newsletter has a new format, have you noticed? | |
| 48. | Observing classes will begin in February. This is the most worthwhile class that can be offered. Please attend if you can. | |
| 49. | Attendance records of the observatory. | |
| | Open House (78) 4,300 (74) 6,100 | |
| | Signatures for 74 7,600 | |
| 50. | Physics for Fun, films Wed. January 22, 8:15 p.m. | |
| 51. | Mercury is visible Thursday January 23. A telescope will be put up behind the Health Science Building just before 6:00 P.M. | |
| 52. | Dr. Holden introduces our speaker - Dr. Skinner who gave a talk on "Black Holes." | |
| 53. | Motion for adjournment. | Hugh Hunter
Gordon Patterson Carried |