

saskatoon SKIES

Volume 22, Number 9

October, 1992

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Saskatoon Skies Information

Next month's deadline is Friday, October 30, 1992. 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 422 Edmund Park, Saskatoon, Sask. S7H 0Z4 phone: 374-8803	OR	Saskatoon Centre RASC Box 317, Sub P.O. # 6 Saskatoon, Sask. S7N 0W0
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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 Special Executive Meeting
University of Saskatchewan Observatory
September 13, 1992

Attendees: Jim Wood, Ed Kennedy, Jim Young, Al Hartridge, Mike Williams, Rick Huziak, Darryl Rybotycki,
 Bill Hydomako

ITEM	DETAIL	ACTION
1.	Meeting called to order 8:00 P.M.	R. Huziak
2.	Review of previous meeting minutes.	R. Huziak
3.	Will present the budget for the new telescope at the next meeting, Sept. 21.	R. Huziak
4.	Discussion on the possible new site for the darksite.	R. Huziak
5.	Beginner's Observing Guide is going well.	R. Huziak
6.	Room B-111 is booked for the next year.	R. Huziak
7.	R. Huziak has written a proposal on changing the structure of the executive. To review and discuss at the next meeting.	R. Huziak
8.	Discussion on the National Council: - They're overcommitted on the national council. - A lot of time was spent discussing proxy votes and travel policy. - The national library will become a reference library and not a lending library. Centres will not be able to borrow books. Note: There will be video tapes available. - The future of the Journal is uncertain yet. - The minutes at national involving the Journal do not reflect what was said (why?). Ed Kennedy to respond to Peter Brotan (copy to Jack Newton). - New price of the Observer's Handbook: \$14.95 - from the Editor. - Coordination of the marketing to be looked at. - One of the issues of the Bulletin will be the Annual Report. - Each Centre is to have someone responsible for news to the Bulletin. (from the Editor) - The model Centre Bylaws are to be approved at the Oct. meeting. - Discussions based on the survey have to be watched since only 10% of the surveys were returned. - No money available for speaker exchange. - Next G.A.s : Halifax 1993 St. John's 1994 Windsor 1995 (? this may not happen) - The Astronomy Day Committee is to be replaced by a coordinator. - The Seal committee has been disbanded. - Ed Kennedy suggests that this Centre feed more information to the long range planning committee. - Doug Hube in the publications committee should also be contacted regularly.	E. Kennedy
9.	Comments on the model Centre Bylaws: Saskatoon Centre received a letter dated July 16 asking to have comments sent to them by July 31. It seems that this Centre didn't have ample chance to respond. It was our understanding that these bylaws were to be referred back to the committee for reworking and were not to be tabled.	R. Huziak
10.	We received a letter from the International Dark-Sky Association. They would like us to become a member.	R. Huziak
11.	The librarian is to set up a file for correspondence that is to be organized and archived. As well, investigate archiving other information.	R. Huziak
12.	Acknowledge the receipt of books to our library: "Star Watch" from Matthew Borden, who was a member of the Saskatoon Centre and; "The Eternal Universe" from W.G. Allen. As well: "RASC Calgary Centre: Invitation to the 1992 General Assembly" - this is a video tape.	R. Huziak
13.	To look at software for library including books and correspondence. Rick Huziak to follow-up.	J. Wood
14.	Got a call from SAGE about an astronomy program. This has been deferred until spring.	R. Huziak
15.	Meeting adjourned 9:45 P.M.	R. Huziak

Minutes of the Executive Meeting
University of Saskatchewan Observatory
September 21, 1992

Attendees: Jim Wood, Rick Huziak, Mike Wesolowski, Ed Kennedy, Jim Young, Al Hartridge, Bill Hydomako, Gordon Sarty, Don Friesen

ITEM	DETAIL	ACTION
1.	Meeting called to order.	D. Friesen
2.	Still working on the Centre's Banner.	D. Friesen
3.	Budget for the 16" telescope was presented. Rough cost: \$1000 to \$1250 initially.	G. Sarty
4.	Will not be able to provide time for school presentation for the next few months.	M. Wesolowski
5.	Discussion on Item 7 from the Sept. 13 Executive Meeting about the expanded/reorganized executive. - We need more exposure to the national newsletter editor by someone like our editor. - Rick to write an article for the next newsletter about the executive and executive positions.	R. Huziak E. Kennedy
6.	Meeting adjourned 7:56 P.M.	B. Hydomako

Minutes of the General Meeting
Room B-111, Health Sciences Building
University of Saskatchewan
September 21, 1992

ITEM	DETAIL	ACTION
7.	Meeting called to order 8:06 P.M.	R. Huziak
8.	Review of items discussed in the executive meeting: - Gord Sarty gave a short presentation on the new 16" telescope. - Next month, October, will be election time for the new executive. The newsletter next month will contain more information. - Fees are due next month: \$35 regular, \$20 youth	R. Huziak
9.	Review of business at the National Council Meeting: - Review of the fee structure. The national fee structure was defeated and we will have the same fees as last year. - The National Treasurer will, in the future, have to present balanced budgets to the council. - It is important that this Centre feed more information to national reps. - Noted: The new Beginner's Observing Guide. - The national library is being changed to a reference library from a lending library. - There was a short discussion on the Journal and its future. - Pat Kelly in Halifax is the National Newsletter editor. He would like more input from members. - The Astronomy Day committee is being replaced by a coordinator. - The Seal Committee is being disbanded, so now the National Council is down to 18 committees.	E. Kennedy
10.	The Beginner's Observing Guide is available for \$5.35	R. Huziak
11.	The next Observer's Group meeting will be October 24, 1992.	
12.	Tonight's presentation: "The Mount Kobau Star Party '92" by Al Hartridge and Jim Young.	
13.	Meeting Adjourned 9:25 P.M.	

NOTICE OF OBSERVERS GROUP MEETING

The next Observer's Group meeting will be at the Rystrom Observatory at 7 P.M. on Saturday, October 24, 1992, weather permitting. To find the Observatory, drive south on hiway #11 to the Glenwood Esso station and drive-in, turn left past the KOA campground and head down the road approx. 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.

EDITOR'S NOTES

Let me introduce myself as this month's newsletter editor. My name is Gordon Sarty and Mike Wesolowski has asked me to put together this newsletter since he has to be out of town on a work assignment. As he mentioned in last month's newsletter, he will be stepping down as editor this year. I am eager to take his place so I'll be asking for your votes at the next General Meeting.

If elected I plan on retaining the present format of the newsletter at least until December. However, after I get a good look at what the other Centres are doing, I might change things. Regardless of format changes, I would like to include more graphics in the newsletter and make it more interesting to read.

For the graphics, I can use Postscript format for computer pictures (other formats might be possible) or I can cut and paste with the photocopier.

To make the newsletter more interesting I would like to receive lots of articles from you, especially on observing and observing experiences. One idea would be for you to write up a "Most Memorable Observing Experience", following a theme similar to the articles published in recent *Sky and Telescope* issues. Also I will be scanning research journals like *Nature* and the *Astrophysical Journal* for interesting material to translate into layperson language (i.e. English). One such article appears later in this newsletter.

Being of Mechanical Engineering background, I have been asked (for several years by Doug Miller) to do the mechanical design of our Centre's 16" telescope. I presented the projected cost of that aspect of the telescope at the last Executive Meeting. These costs are based on the considerations presented in another article in this month's newsletter. The time is now ripe for everyone to polish off their ideas for accessories (e.g. clock drives) and let the Telescope Committee know what they are.

I've read that subtle colors are supposed to be visible in the Orion nebula when viewed visually in a 16" telescope. I can hardly wait to see!

Gordon Sarty

NOTICE OF OCTOBER'S GENERAL MEETING

The October General Meeting will take place on Monday Evening, October 19, 1992 at 8:00 P.M. in Room B-111 of the Health Sciences Building. The annual elections will take place at that meeting. At press time the exact nature of the presentation is unknown - possibly a "What I did this Summer" presentation by club members so get your slides together, you may be asked to say a few words.

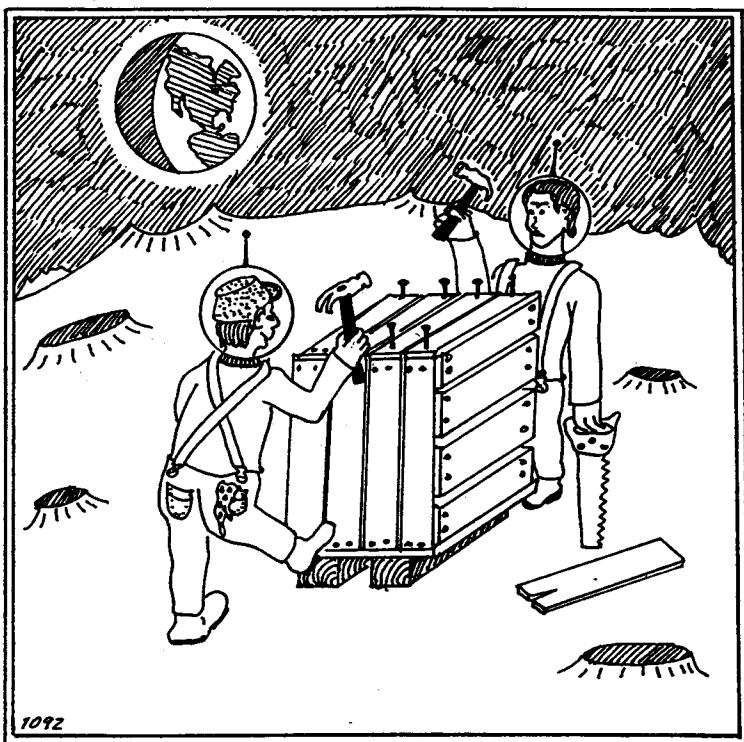
NOTICE TO EXECUTIVE MEMBERS

Please note the change in the location of the Executive Meetings for the months of October and November, 1992. Executive Meetings will be held in Room B-111, Health Sciences Building, beginning at 6:50 P.M., and ending at 7:50 P.M. This move is due to commitments of the Observatory by Stan Shadick's astronomy classes. Use of the Observatory AFTER the General Meeting is still probably possible after 9:30 P.M..

Rick Huziak

SPACE FUNNIES

R. Huziak



Craters on the Moon

An Now...The Annual Elections

The Annual Elections for the RASC Saskatoon Executive positions will be held at the October General Meeting. An Executive position is open to any member of the Centre in good standing. Positions are chosen by democratic vote by the membership. Anyone can nominate anyone else OR themselves for a position. Voting is done by a show of hands by those present at the General Meeting. In the event that you cannot attend the meeting, nomination by proxy will be gladly accepted. Please send these proxies to the Centre mailbox, or contact a member of the current Executive.

The following Executive positions are available:

Past President	Daryl Rybotcki (not vacant. Assumed position)
President	Don Friesen (not vacant. 2nd year of two year term)
Vice-President	Richard Huziak (not vacant. 2nd year of two year term)
Secretary	up for grabs (currently Bill Hydomako)
Treasurer	up for grabs (currently Mike Williams)
Centre Rep.	up for grabs (currently Ed Kennedy)
Newsletter Editor	up for grabs (currently Mike Wesolowski)
Librarian	up for grabs (currently Jim Wood)
Councillor	up for grabs (currently Carol Blenkin)
Councillor	up for grabs (currently Allan Hartridge)
Councillor	up for grabs (currently Jim Young)

The following positions are NOT CURRENTLY Executive positions, but these jobs have to be done anyway. If anyone would like to be nominated to one of these positions, the Executive will consider adding the position. Alternately, if a Councillor would assume one of these positions, the Executive will consider renaming the Councillor position to the new position, and thus reducing the number of Councillors on the Executive. However, the number of Councillors on the Executive is not fixed. Also, nothing prevents someone from holding more than one position (with a few exceptions).

Honorary President	General Meeting Coordinator
Programming	Historian/Photographer
Media Promotions	Activities Coordinator
Membership Coordinator	

If you know you have something to contribute to your Centre, please participate by voting or becoming a member of the Executive.

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

President	Chairman of Executive Council Chairman of General Meetings General Representative of RASC to the public
Vice-President	Stand-in for president in the event of president's absence Aid to President. Picks up from mailbox and distributes mail.
Secretary*	Recorder of 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
Past President	Advisor to new president Duties somewhat undefined

Honorary President	Provides tie to external organization, such as Physics Dept. May have membership paid by RASC Scope of executive privileges not clearly defined
Centre Representative	Represents Saskatoon Centre at National Council meetings Represents Saskatoon Centre at General Assembly
Newsletter Editor	Edits Saskatoon Skies Newsletter Solicits input of articles Arranges for copying services of newsletter Collate newsletter and stuffs envelopes Arranges to get newsletter mailed
Librarian	Maintains library book, journal and newsletter inventory. Maintains inventory list of books Files incoming correspondence and other Centre newsletters
Programming	Arranges for lecturers or programs for General Meetings Prepares advertising for General Meetings Chaperones external lectures as required for General Meeting Determines audio visual needs of lecturer and arranges for them.
Media Promotions	Promotes the RASC to the media in whatever form is possible. Promotes RASC General Meetings to the media. Promotes popular astronomical events to the media. Answers media questions and provides statements and interviews. Ensures all newspapers, radios, etc have been notified of RASC events. Edits and distributes "Astrofacts", a media/general public summary of important astronomical events
General Meeting Coordinator	Coordinates all aspects of general meeting EXCEPT program related activities Ensures brochures are available at General Meeting Ensures other handouts or giveaways are available. Sets up banner and display boards at General Meetings Ensures guest books is at General Meetings Plugs in coffee pot Books lecture room and ensures availability of audio visual equipment
Membership Coordinator	Lobbies members to renew their memberships Polls expires members to determine why they have not rejoined Attempts to sign up expired members, independent amateurs, people of known interest, membership leads. Is the phoning committee for contacting members about upcoming events
Historian/Photographer	Maintains history log of RASC events Photographs RASC events Aids in preparing lecture material from events
Activities Coordinator	Arranges for activities for RASC members to participate in Coordinates these activities May act as Observer's Group Chairman Coordinates Annual Public Starnight Coordinates Astronomy Day Display Coordinates Special events except for General Meetings
Councillor	May be entry level position in executive. Aids others as required. Position somewhat undefined

COST TO BUILD THE RASC 16 INCH TELESCOPE: MECHANICAL PARTS

by
Gordon Sarty

Summarized here for the purpose of presentation to the RASC Saskatoon Executive is an estimate of the material and machining costs that are required to complete the Center's 16 inch telescope.

The telescope is to be mounted to the old SED spin-room table bearing assembly presently in the possession of Doug Miller. A fork design as shown in the attached Figure 3 is to be used. The bearings between the telescope tube and the fork are 5 inch outside diameter bearings have been provided by Rick Huziak. The fork itself is to be welded of channel iron and Bill Hydomako has indicated that he can get this welding done free.

The design of the Mirror Mount (Figure 1), the Secondary Holder (Figure 2), Fork (Figure 3) and Pedestal (Figure 4) has been done by myself in collaboration with other members of the Saskatoon Center RASC. Based on these designs, a list of steel required to build the telescope has been assembled below in Table 1.

Scrap steel is available for 15 cents per pound from Inland Steel here in Saskatoon and if the material we require is not available they will sell new steel for 45 cents per pound. Several other vendors were telephoned and it was found that Inland offered the best price for scrap steel. Because of the potential to save money the list of steel given below should be given a certain amount of flexibility - that is - minor changes in the design are permissible in order to take advantage of available materials. In that regard, I should be involved in the material procurement so that I may modify the design on-the-spot and determine if substitutions are possible.

The other major cost is machining cost with the line boring of the holes for mounting the tube to the fork being the most expensive. Dwaine Friesen of AJ Machine and Manufacturing Ltd. has estimated that that operation will cost \$240. To account for the other miscellaneous machining operations required we should expect possibly another \$240 of machine work to be required. A more accurate estimate of machining cost can be had once detailed drawings of the parts have been made. However it would not be a good use of time to make these drawings before it is known exactly what materials are on hand.

In addition, I would allow for at least \$50 for miscellaneous items like nuts, bolts, springs, teflon for the Mirror Mount, etc. A short 2 inch rack and pinion visual focuser for the Newtonian focus is advertised in the Sky & Telescope by Wholesale Optics of Pennsylvannia for \$125 U.S. (about \$156.25 Can). A focuser for the Cassegrain focus has not been found yet but I have requested a catalog from Kenneth Novak & Co. and they should have one to meet our needs. For estimation purposes we can assume that the cost of the Cassegrain focuser is the same as that of the Newtonian focuser.

Based on the above discussion, I have broken down the cost of the mechanical parts of the telescope in the hope that procurement of the steel can proceed almost immediately so that detailed design and machining of the parts can begin. I expect that the focusers may be bought at a little later date but I have included cost estimates to give a general idea of the total cost to complete the instrument.

The costs therefore are broken down as follows:

Material (steel)	
a. New steel @ \$0.45/lb	\$301.28
15% Tax	<u>45.19</u>
Total	\$346.47
b. Scrap steel @ \$0.15/lb	\$100.43
15% Tax	<u>15.06</u>
Total	\$115.49
Machining	\$480.00
Material (miscellaneous)	50.00
Newtonian Focuser (incl Tax)	179.69
Cassegrain Focuser (guess)	179.69
Total cost with new steel:	\$1235.85
Total cost with scrap steel:	\$1004.87

TABLE 1
Steel Required for Telescope Mechanical Parts
(Weight in lbs., sizes in inches.)

Qty and type of steel required	Used for part #	Weight
1 of 4 1/2 Dia x 3/4 long Bar	1,4	3.4
1 of 3 1/2 Dia x 4 long Bar	2	10.9
1 of 14 x 14 x 1/2 Plate	3	27.6
1 of 20 x 20 x 3/4 Plate	5	84.6
1 of 4 Dia x 4 long Bar	6	14.2
1 of 1 1/2 Dia x 11 long Bar	7,13,8,14	5.6
1 of 1/2 Dia x 14 long Threaded Bar	9,15	0.8
1 of 8 x 7 1/2 x 1/4 Plate	10(4)	8.4
2 of 4 Dia x 1/4 Disks	11,16	1.8
1 of 4 Dia x 1/2 Disk	12	1.8
1 of 4 1/2 Dia x 5 long Bar	17	22.4
12 ft of 7 x 2.299 Channel Iron	18	177.0
3 of 7 x 7 x 2 1/2 Plate	19,20(2)	103.5
1 of 2 1/4 Dia x 20 long Bar	21(2)	22.4
2 of 7 x 7 x 1 Plate	22(2)	27.6
1 of 3 1/4 Dia x 2 long Bar	23(4)	4.8
1 of 8 x 6 x 1 Plate	24(3),25(3)	9.2
1 of 2 1/4 Dia x 1 long Bar	26(2)	1.2
2 of 6.5 x 6.5 x 1/4 Plate	27(2)	3.0
1 of 38 x 26 x 1/2 Plate	28	139.3
	Total Weight:	669.5

MIRROR MOUNT

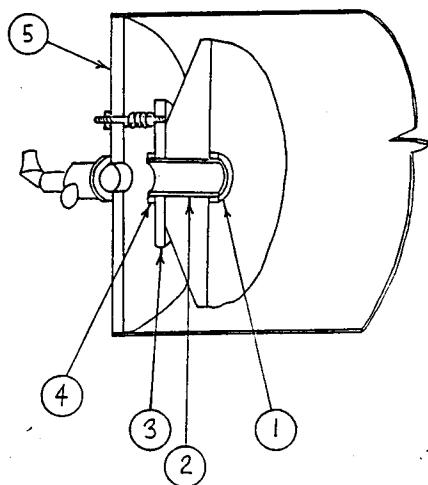


FIGURE 1

SECONDARY HOLDER

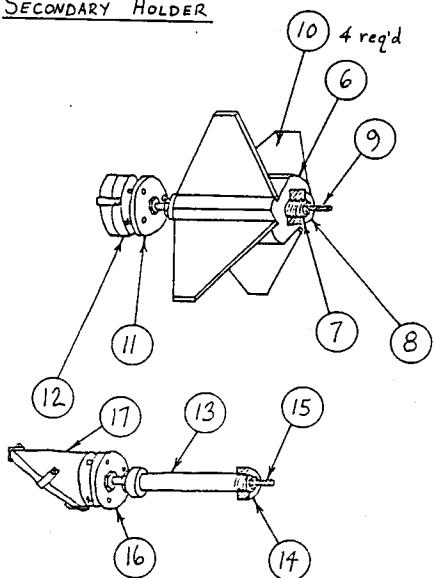


FIGURE 2

TUBE AND FORK

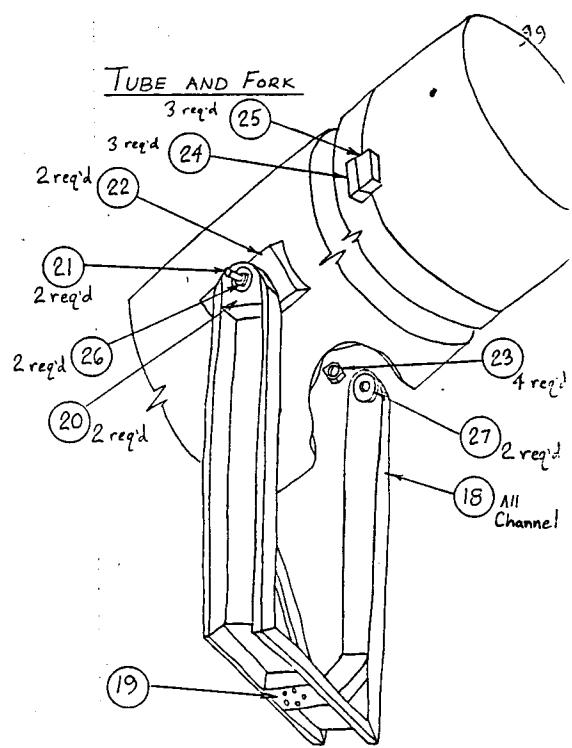


FIGURE 3

PEDESTAL

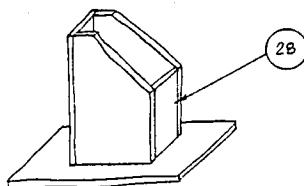
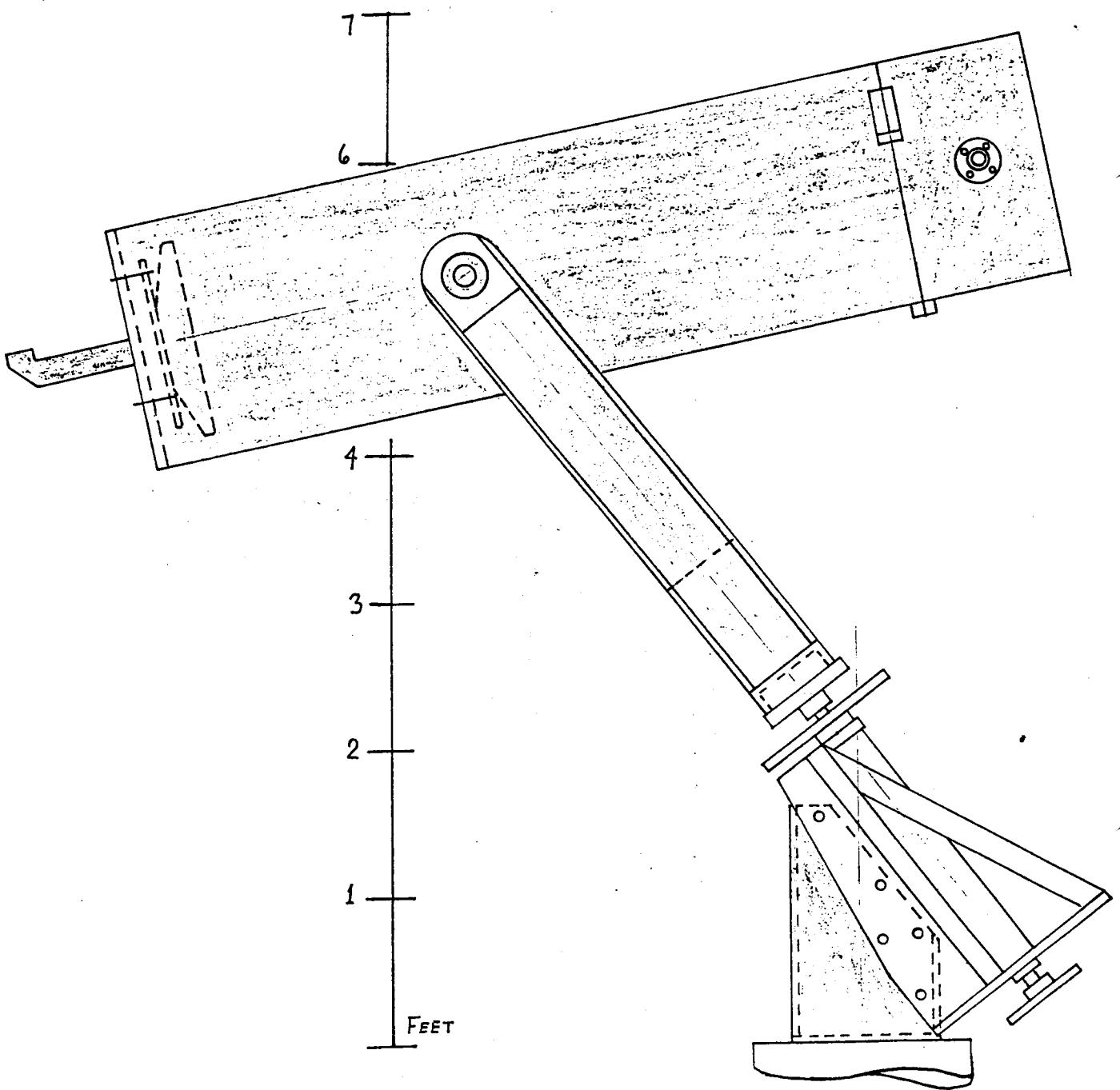


FIGURE 4



RASC, Saskatoon Centre's Proposed 16 Inch Telescope

DUES ARE DUE

Please remember to renew your membership as soon as possible. Note that the membership year runs from October 1, 1992 to September 30, 1993. Pay early as not to loose any benefits.

\$35.00 Regular Membership (over 21 years old)
\$20.00 Junior Membership (21 years or younger)

Note that this is the last year in which life memberships are available from the RASC. If interested, please call Mike Williams at 668-4365 for current rates. Memberships can be paid either in person at General Meetings, or by mailing your cheque to the Center mailbox. Key holders to the Rystrom Observatory, please remember that there is a voluntary \$5.00 surcharge for your key which goes toward maintenance of the observatory.

SUPERBUBBLES AND CHIMNEYS INTO THE GALACTIC HALO

Our Milky Way galaxy has the basic structure of a very large disk along with a massive spherical bulge at the center of the disk. The disk contains younger stars along with lots of dust and gas arranged into spiral arms. The bulge contains many more stars along with a possible massive black hole. Orbiting around this bulge at enormous distances are the oldest stars of the galaxy and the globular clusters. These form the "halo" of the galaxy.

It used to be thought that the gas in the galactic disk was more or less uniformly distributed. But, as reported by Leo Blitz in the June 4 issue of Nature (volume 357, page 361-362), radio astronomers B.-C. Koo, C. Heiles and W.T. Reach have found evidence to the contrary. It appears that the gas is full of very large superbubbles that expand out into the halo and burst.

Supernova happen when a massive O type star has used up all of its fusionable material. It then collapses under its own weight to the point of going out of existence and then explodes violently. But before the collapse, during their life as bright stars, they loose a lot of matter through high stellar winds. These winds fill the space around the star with gas which is compressed into a thin shell when the star explodes, thus forming an expanding "supershell". Stars of type O tend to form in clusters together (the constellation of Orion is such an example) so after a while all of these clustered stars will go supernova and their expanding supershells will merge to form a superbubble.

When the superbubble bursts, the gas inside the bubble will spew out in a worm-like structure much like smoke rising from a chimney. Theorists like the term "chimney" to describe this process for yet another reason. Since the gas inside the bubble is full of heavy elements formed in the supernova explosions, the bursting bubble can be thought of as polluting the relatively pristine environment of the halo which consists mostly of the lighter hydrogen and helium gases. These heavy elements from the chimney then rain back down onto the disk of the galaxy.

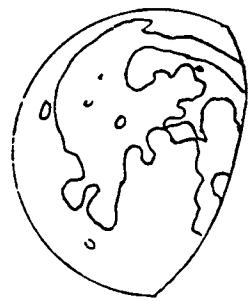
Koo, Heiles and Reach have found definite evidence for 35 of these chimneys. In addition, other observations of thermal (infrared) radiation from interstellar gas that have been previously hard to explain can now be explained as coming from the shells of the superbubbles. Thus it seems that the violent explosive events of supernovae actually account for most of the structure of the interstellar medium - the evolution of the galaxy is not a peaceful one.

Gordon Sarty

NOW AVAILABLE!

The Beginner's Observing Guide 1992

An Introduction to the Night Sky
for the Novice Stargazer



Leo Enright

The Royal Astronomical Society of Canada

The Beginner's Observing Guide
by long-time RASC member, Leo Enright.

1992 edition, 116 pages, softcover, spiral bound

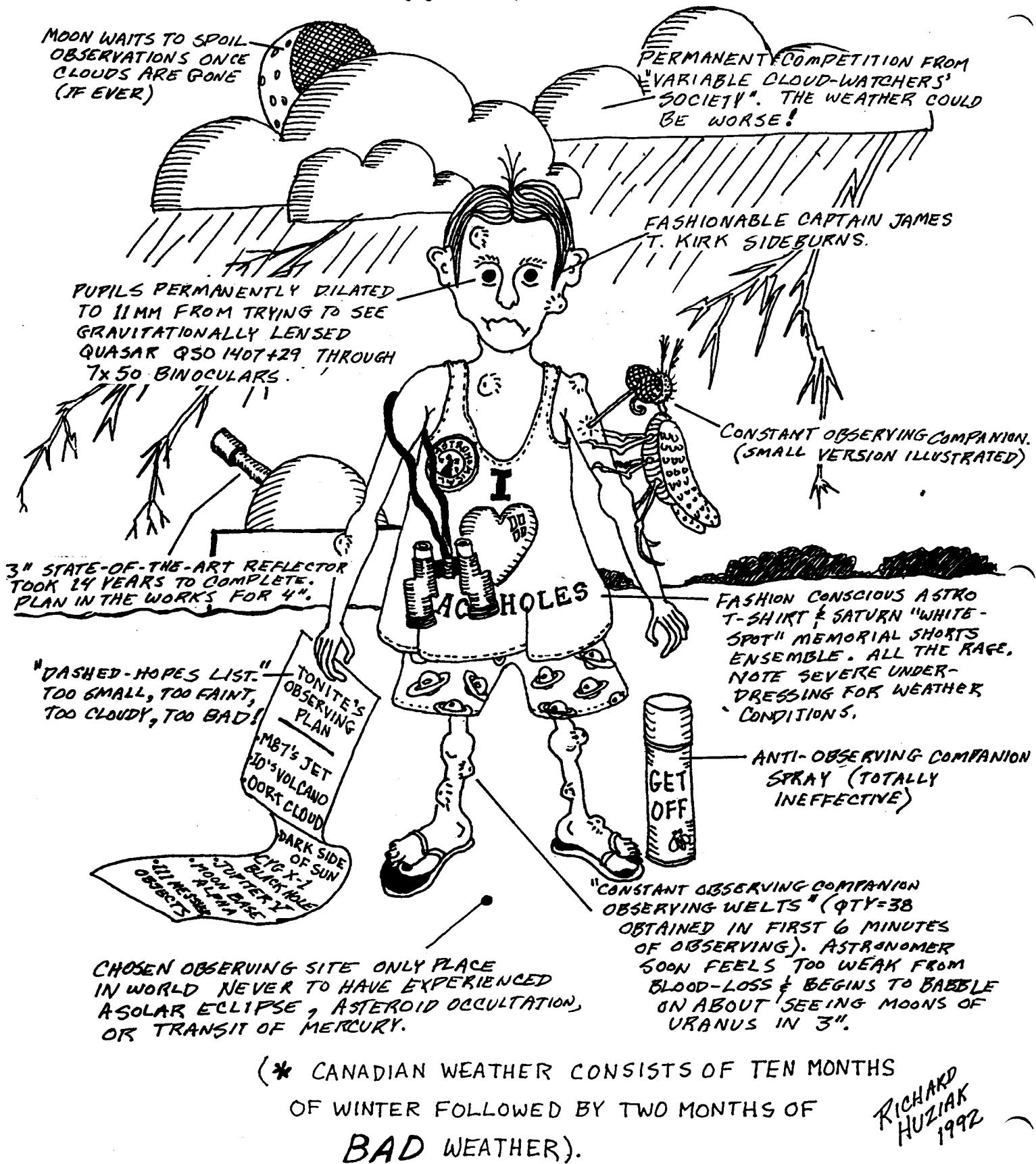
This publication is just what beginning observers need. It has clear and concise descriptions of what to look at, how to see it and what instrument to use. It emphasises using your eyes, binoculars and small telescopes. A great value and excellent resource for the beginner. And at this price, you can afford to buy one for a friend.

Order yours now at only **\$5.35** for pickup orders.

The Guide will be available at the General Meeting, or call Rick at 665-3392 to receive your advance copy. Please include \$1.60 postage if you want the book mailed to you. Make out cheques or money orders to "Saskatoon Centre, RASC".

THE CANADIAN ASTRONOMER

SUMMER VERSION*



RICHARD
HUZIAK
1992