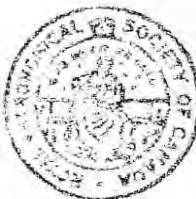


THE ROYAL ASTRONOMICAL SOCIETY OF CANADA



President: Kalyan Turley  
Editor: Greg Tomsicgo  
Published by the Saskatoon Centre, R.A.S.C.

P.O. Box 317, Sub 6  
Saskatoon, Saskatchewan  
S7N - 0X0  
October, 1976  
Vol. 6 - Copy 10

# NEWSLETTER

## ANNUAL GENERAL MEETING

TUESDAY, 19<sup>th</sup> OCTOBER 1976, 8:00p.m.

Room B-110, HEALTH SCIENCES BLDG.  
University Campus

*The Annual General Meeting on Tuesday, 19 Oct.  
will have as its main objectives the Election  
of your new Executive Council and the  
renewal of your Centre membership for 1977.*

Membership Fees - includes Newsletter

*Adult (18 yrs & over) — \$15.50*

*Junior (under 18 yrs) — \$10.50*

*-- NEW MEMBERS WELCOME --*

EDITORIAL

This will be my last entry into the Newsletter as Editor, as the elections will be held on the 19th. I will not be standing for re-election as Editor, as I no longer have the time needed for the task. I will, however, be standing for election as Librarian.

Although being Editor is quite time consuming, among other things, I would like to say that I have no regrets about being Editor. I have learned a great deal about many things in the past two years through being Editor and as people say, experience is the best teacher. I would also like to give a sincere thank you to all of the people who have gone out of their way to make the Newsletter better for you. I feel that the following people deserve a special thanks for being truly concerned about the Centre and the Newsletter: Dr. BW Currie, our Honorary President, for several excellent articles on interesting subjects, all of which were within the understanding of the amateur, and for the extra effort which he put into their preparation. Mr. GN Patterson, for several articles and much assistance in Newsletter preparation, and to Merlyn Melby and Kevin Atchison for many articles and help in publication. I would also like to thank all other people who contributed articles.

I expect that you will see several changes and improvements in our Newsletter as our new Editor, who will likely be Mr. Merlyn Melby, takes control. I am sure that he will do an excellent job and I am sure that he will be looking for articles (HINT).

You will also notice that fees for the Newsletter have been increased by 50¢. This is of course due to rising postal rates and supply costs. Without this extra 50¢ per subscription, the Newsletter would run under a deficit, which would not be a very good way to run things.

I'll sign off for now, hoping to see you all at the General Meeting.

*Greg Toustego*  
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NOTICE TO ALL MEMBERS ..... MEMBERSHIP

All members are advised that their membership in the RASC, Saskatoon Centre, is up for renewal as of the October General Meeting. Membership dues are as follows:

Adult (19 years of age and older)	\$15.50
Student (18 years of age and less)	\$10.50

All people, whether new or old members, who attend the next General Meeting can pay their dues at that time to the Treasurer and get their membership cards and receipts at that time. Those, who by distance or for other reasons, cannot attend the meeting can mail their fees to the Secretary, Saskatoon Centre, RASC, P. O. Box 317, Sub 6, Saskatoon, Sask., S7N 0W0. Their new cards and a receipt will be mailed to them. Please pay dues ON TIME.

A slate of possible Executive members will be presented at the October General Meeting, and if no objections or other nominations are made by Centre members as to the positions, these people will then be voted in by acclamation. The Executive feels that this is the easiest and fastest method of choosing next year's executive. The proposed Executive is as follows:

HONOURARY PRESIDENT . . . . .	DR BW CURRIE
PRESIDENT . . . . .	JIM YOUNG
VICE PRESIDENT . . . . .	DOUG BECK
SECRETARY . . . . .	LILLIA WILCOX
TREASURER . . . . .	ALAN BLACKWELL
EDITOR . . . . .	MERLYN MELBY
ACTIVITIES . . . . .	KEVIN ATCHISON
PROGRAMMING/ CENTRE REP. . . . .	GN PATTERSON
LIBRARIAN . . . . .	GREG TOWSTEGO
COUNCILLOR . . . . .	WENDEL FRENZEL HALYNA TURLEY

=====CNCP

PLEASE MAKE IT A POINT TO BE AT THIS MEETING, AND BRING A FRIEND IF HE OR SHE WANTS TO JOIN.

Please note that the 50¢ increase in fees is due to a price increase in postal rates along with an increase in various other costs such as paper, stencils and fluid, etc. This will bring your annual Newsletter subscription to \$3.00 as opposed to \$2.50, if you wish to receive it. This cost is already included in the fees given above.

## THE NEW ASTRONOMY - A Short History of Unmanned Planetary Exploration

K.P. Atchison

Astronomy has entered a new era which goes beyond the telescope; man is just beginning to probe the solar system with interplanetary spacecraft which has so far enhanced our understanding of the planets and their moons far beyond what Earth based telescopes could ever be expected to do.

Two of the prime goals of the space-probe programme are to improve our understanding of the origin of the solar system and to determine if life exists on our neighbouring worlds. I have included in this article an adaptation of a list<sup>1</sup> from Scientific American concerning the space-probe programme of both the United States and Soviet Union. This will give you some idea of what has been achieved so far by the successful missions carried out by these two countries.

In February of 1961 the Soviet Union initiated the exploration of Venus with Venera 1 which approached its target planet to within 100,000 kilometres. Unfortunately, radio contact was lost and little data was returned. The Americans replied in their second attempt during December of 1962 with a 35,000 kilometre approach on Venus by Mariner 2. It revealed that the planet's high temperature ( $400^{\circ}\text{C}$ ) arises from the surface rather than the atmosphere.

Although it failed to return data, Venera 3 in 1965 became the first spacecraft to land on another world (Venus). This feat was followed up by Venera 4, 5, 6 and 7 spanning the years of 1967 (Venera 4), 1969 (Venera 5 & 6) and 1970 (Venera 7). Venera 4 transmitted data concerning temperature, pressure and atmospheric composition during its 94 minute descent through the atmosphere of Venus. The following crafts (5, 6 and 7) accomplished similar feats but their landings on the planet's surface proved more successful. Venera 3 in 1972 landed on the surface of Venus and transmitted data for 50 minutes concerning radioactive content of the surface. It also measured winds and sunlight penetration of the clouds on entry. The Americans sent Mariner 10 to encounter Venus and Mercury during 1974. Eight thousand pictures along with other data was returned from both planets. Its closest approach to Venus was 5,800 km. and of Mercury, 700 km.

Throughout the 1960's and the 70's both the Americans and Soviets explored Mars. The Americans with their Mariner series eventually managed to get Mariner 9 to orbit Mars in 1971. This, along with previous flybys, produced a total of about 8,000 photographs. The Russians, however, were not idle during this period, for their Mars series was able to achieve an orbital status about the planet and also land a probe which transmitted featureless data back to Earth for 20 seconds.

<sup>1</sup> "The Solar System" by Carl Sagan. page 28, Scientific American, Sept. 1975.

The climax in the exploration of Mars, however, came this summer with the American landing of the Viking probes on Mars. Both are still operational and they have so far proven that the Martian polar caps are composed of water; that same water that had once flown over the Martian surface in the past, when the atmospheric pressure was far greater than it is now. There is also evidence of biological activity within the Martian soil - and there is much more yet to be learned.

In 1973, the American probe, Pioneer 10 payed the gas giant of Jupiter a visit. It investigated the interplanetary medium, the Jovian magnetosphere, and atmosphere, and returned over 300 pictures of Jupiter's clouds and satellites. It was the first spacecraft to successfully pass through the asteroid belt, to use a gravity assisted trajectory, and will be the first spacecraft to leave our solar system. Pioneer II repeated the Jupiter flyby in 1974 and it is hoped that by 1979 this probe will reach Saturn.

Such is my short history of the unmanned exploration of the planets. What has so far been achieved has answered some questions but inevitably caused more to be asked. The secrets of our solar system are about to be revealed; their answers lie in future missions. It is up to us to realize that the continuing compilation of knowledge can only be improved by the cooperation of nations involved. Now is the time to stop repeating missions other nations have made, for only through sharing can we achieve our goals. To find out the composition of Saturn's rings or Jupiter's atmosphere presents implications to man that reaching for these things may have far greater significance than we are now aware of. Only tomorrow's Pioneers, Mariners, Venoras and Vikings will tell.

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#### DEEP SKY OBSERVING (Mike Vesolowski)

One night, while sweeping in Cassiopeia with 7X35 binoculars I discovered a nebulous object between δ & ε Cassiopeia. This turned out to be NGC 663 at R.A. 1h. 42.6m. and Declination +60°59'. Surprisingly bright, it is easy to find. Further sweeping revealed NGC 7654 (M52), appearing to be of equal or slightly less brilliance. It is located at R.A. 23h. 23.3m. and Declination +61°29'.

NGC 581 (M103) is inconspicuous, appearing in my binoculars to be a cluster of 3 to 4 and 7 to 8th magnitude stars. The fact that it is easy to find should encourage people to look for it, even if it isn't a prize object. It can be found at R.A. 1h. 31.9m. and Declination +60°35'.

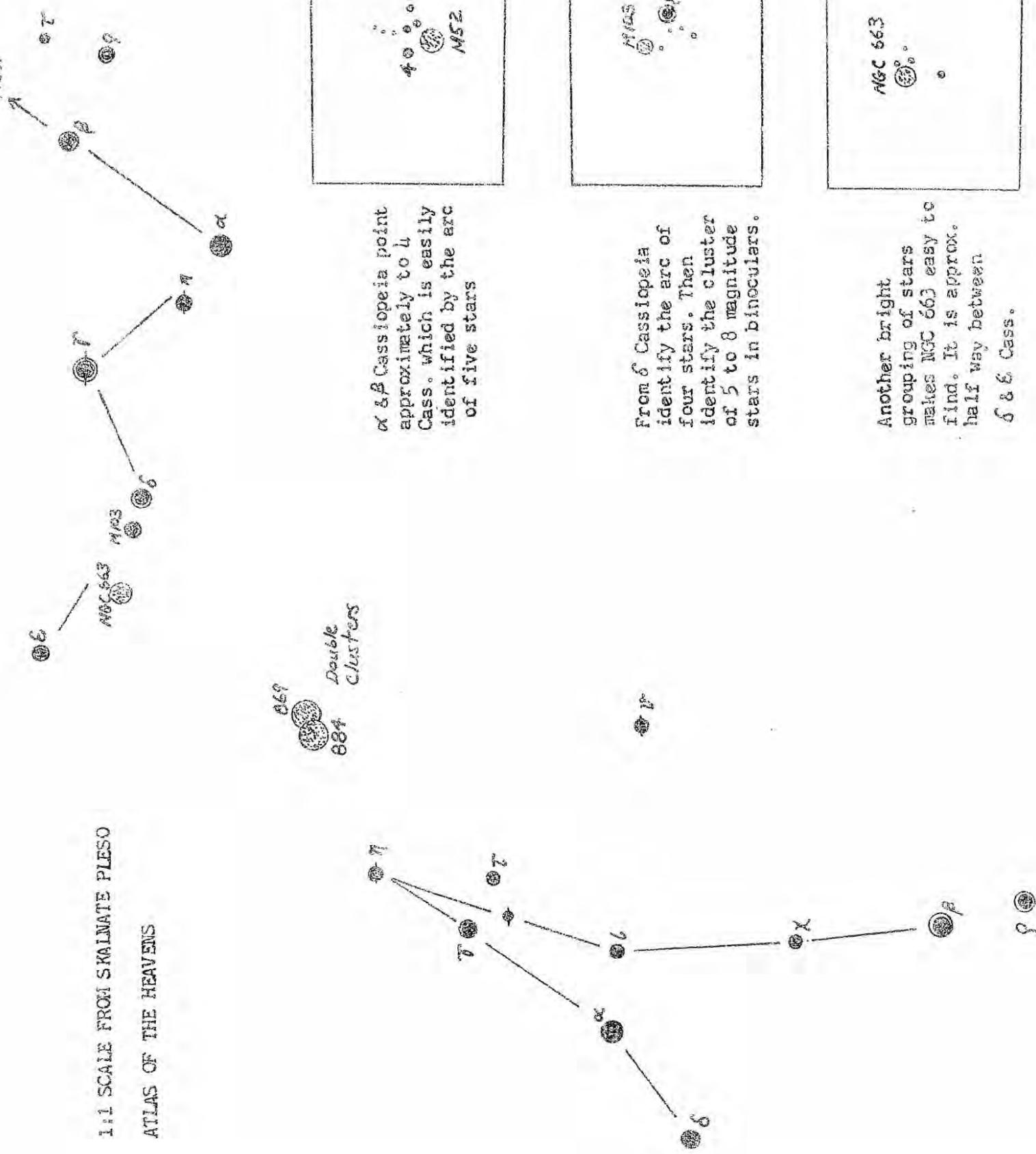
While in the area, look at NGC 869-884, the Double Clusters in Perseus. A naked eye object, see the September issue of the Newsletter for more information on it. It is an unequalled sight in the University 7 inch refractor.

The night that I made these observations was quite cold and a parka was necessary. Remember, personal comfort is essential. Because Cassiopeia is high in the sky, use a lawn chair. Good Hunting!

(see chart following page)

1:1 SCALE FROM SKALMATE PLESO

ATLAS OF THE HEAVENS



# OBSERVERS CORNER

On Wednesday, 6 October '76, several of the Centre members, all from the active Observers Group, were privileged to listen to a talk given by Mr John Howell of the Calgary Centre on the techniques and values of observing Lunar Occultations.

John was on a short visit to Saskatoon and offered to give this talk. As it was a Wednesday evening, (Open House at the Observatory), the talk was given at Mr Patterson's residence, and at such short notice it was not possible to call a General Meeting. Those attending, however, received a very informative talk on the subject of occultations.

The accurate observing of occultations, carried out only by amateur astronomers, was used to determine the accurate position of the Moon - did you know that the first American satellites impacting on the Moon missed their programmed target by as much as 50 miles due to the fact that the position of the Moon was not known to any degree of accuracy ? The data obtained from precise observations of lunar occultations, made by a few amateur astronomers including Mr Howell, were used by the American Space Agencies to establish the accurate position of the Moon at all times so that later manned flights to the Moon landed exactly on target !

Now that the position of the Moon is known precisely at all times, lunar occultations are still used but at this time to establish the exact positions of the occulted stars. All such observations are still done only by amateur astronomers. Additionally, grazing occultations of the planets Jupiter and Saturn have shown a glow that can be seen just prior to the emergence of the planet. This phenomena has given rise to the possibility that these planets have a tenuous atmosphere - again data that was determined by amateur astronomers.

From John's talk, it is apparent that amateur astronomers can still provide a meaningful contribution to our Big Brother - the professional. Possibly the Centre should seriously consider including this in its list of activities.

Again, a big THANK YOU to Mr John Howell for his interesting talk.

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MINUTES OF AN EXECUTIVE MEETING, SASKATOON CENTRE, RASC,  
HELD IN THE OBSERVATORY, U of S, 7:45 PM, TUESDAY 21 SEPT. 76.

Present:

Halyna Turley..... President  
 Mr Jim Young..... Vice President  
 Mr GN Patterson..... Centre Rep.

Mrs Lillia Wilcox.. Secretary  
 Mr Merlyn Nelby.... Activities  
 Greg Towstego..... Editor

Absent:

Mr Alan Blackwell.... Treasurer  
 Doug Beck..... Councillor

Mr Hugh Hunter.... Librarian

Minute	Subject	Action
117.	Meeting called to order at 7:45 pm.	Halyna Turley
118.	Discussion on Centre publicity on the "Jim McCrory Show" on CFQC-TV. Gordon Patterson volunteered to appear on the show for an interview before the October General Meeting.	Halyna Turley Jim Young
119.	Moved that June minutes be adopted as published. Carried.	Jim Young
120.	A September Newsletter is to be sent to the Aucklands.	GN Patterson
121.	The 1976-77 Executive committee was discussed.	Halyna Turley
122.	Query as to the Executive's position regarding the enlisting of a publication staff for the Newsletter.	Merlyn Nelby
123.	1977 Observer's Handbooks to be ordered.	GN Patterson
124.	Due to the rising cost of materials and postage, there will be an increase in Newsletter fees.	Merlyn Nelby
125.	Meeting adjourned for General Meeting, 7:45 pm.	Jim Young

Minutes prepared by . . . . .  
 (Lillia Wilcox, Secretary)

MINUTES OF A GENERAL MEETING, SASKATOON CENTRE, RASC,  
HELD IN ROOM B-110, HEALTH SCIENCES BUILDING, U of S, 8:00 PM, 21 SEPT. 76

Present:

Mrs Halyna Turley..... President  
 Mr Jim Young..... Vice President  
 Mr GN Patterson..... Centre Rep.  
 Mr Alan Blackwell..... Treasurer

Mrs Lillia Wilcox.. Secretary  
 Mr Merlyn Nelby.... Activities  
 Greg Towstego..... Editor

Absent:

Mr Hugh Hunter..... Librarian

Doug Beck..... Councillor

Minute	Subject	Action
126.	Meeting called to order, 8:00 pm.	Halyna Turley
127.	Moved that June minutes be adopted as published. Carried.	Kevin Atchison GN Patterson

128.	The Observer's Group was thanked for the wedding present given to the Turleys.	Halynda Turley
129.	Library conditions are to be kept clean at all times and returned books are to be left on the desk.	Halynda Turley
130.	Observatory Tour Guides are needed for the coming year. Centre members are preferred and the pay is 3.00/hour. Contact Gordon Patterson if you are interested.	GH Patterson
131.	Membership fees for the coming year can be paid at the October General Meeting. Newsletter costs are up.	Halynda Turley
132.	A proposed new Executive committee was written on the blackboard. All positions are open to nomination.	Halynda Turley
133.	Society crests are available and can be ordered from the National Office in Toronto. Crest - \$5.00 each Lapel Pin - 3.00 each	Halynda Turley
134.	A slide show was given concerning the year's activities along with the General Assembly at Calgary. Gordon Patterson narrated.	
135.	Prof. Kennedy gave a short talk on various subjects, these being the following: a.) Astronomical conference in Granobel which he attended. b.) Archaeological-astronomical discoveries in Alberta i.e., possible astronomical knowledge and structures built by early inhabitants of the province. We in Saskatchewan knew nothing of the discoveries prior to the Granobel meeting. c.) Jack Eddy of Boulder University in Colorado may be visiting us in the near future. We will be notified if he can make it to this area.	
136.	Meeting adjourned to Observatory at 9:00 pm.	Jim Young

Minutes prepared by (Lillia Wilcox, Secretary)