STARDUST

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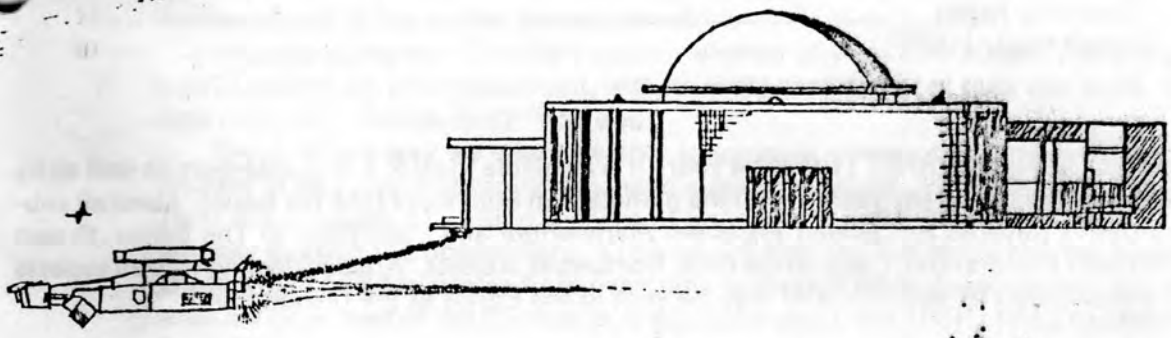

STARDUST

November 1979
Volume 25, #02

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DEADLINE FOR THE DECEMBER ISSUE IS THE MEETING OF NOVEMBER 12, 1979.

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PRESIDENT'S MESSAGE

The Ellerslie Observatory -- As the cold arctic air descends upon us once again, the ardent observers among us begin to shiver at the thought of standing out on long winter nights, eyelids frozen to the eyepiece. Last January we were treated to a winter fashion show where we were shown how to survive sub-zero observing sessions with multi-layers of down-filled clothing. However not all of us are so taken with observing that we are prepared to spend a couple of hundred dollars just for special arctic survival gear! Yet one hates to give up observing altogether during the cold months since there are so many interesting objects to gaze at in the winter sky.

Is there a solution to this problem? Yes, in the form of the Ellerslie Observatory. This facility, built over the past couple of years by Centre members Tony Whyte and Doug Hornbeck, is available for use by any Centre member. All we ask is that anyone wishing to use the Observatory be checked out beforehand on the operation of the telescope and dome. We would not want to hand out keys to someone unfamiliar with the operation of the instrument, a ruling I'm sure you can appreciate. You can familiarize yourself with the scope by attending one of our scheduled observing sessions at Ellerslie -- there will be a number of them throughout the winter.

You are likely aware of the fact that observatories are not heated, to ensure the "seeing" is not spoiled by hot air escaping through the dome slit. You might well ask why, then, would any observatory improve the comfort of winter observing? The reason is, of course, that you are out of the wind. This, combined with a certain feeling of "coziness" that comes from having four walls and a roof around you, always makes the interior of the observatory feel quite a bit warmer than standing on the open prairie. It is still necessary to bundle up, but likely not to the extent that we saw so humorously demonstrated at the winter fashion show!

Also, by using the Ellerslie refractor instead of your own scope, you avoid the fuss of setting up your equipment, with its likely assortment of nuts and bolts, in the cold night air. Convenient? You bet!

There is one way we might be able to improve winter observing even more, as readers of *Sky and Telescope* may have already guessed. We have discussed with Tony the prospect of putting a sheet of transparent mylar over the dome slit, then actually **heating** the observatory. (This would also require insulating the building.) There would be a few problems to overcome in making these modifications, but from what we have read of the technique, it would be worth the effort. Imagine observing Orion in a shirtsleeve environment! Perhaps we will be able to accomplish the project

for this winter, but if not, the Ellerslie Observatory will still be a very valuable site for cold weather observing sessions.

If you wish to borrow a set of keys to Ellerslie, please contact either Mark Leenders), Dave Belcher , or yours truly). Of the three of us, at least one person should be home on any given night. Keys are loaned out for one night's use and should be returned the next day.

When using the Observatory, please be sure to sign the Log Book located in the writing desk in the dome. All those visiting the Observatory for the first time should sign the Visitor's Page at the front of the book. Further on in the book, the Observing Log commences. Please make a note of your presence, guests who were with you, what you looked at, any unusual sights you saw, any technical problems you encountered, and so on.

When heading out to Ellerslie, please remember to take some eyepieces with you, especially low-power ones if you intend to do deep-sky observing. (Any $1^1/_4$" eyepiece will fit the focusing mount, and with the removal of the adaptor, 2" eyepieces will also fit.) The eyepiece that you will likely find inserted in the holder when you arrive (and which you should replace when you leave) serves no other function than to act as an achromatic dustcap. You might also want to take along your favorite star atlas as well.

If you have any further questions about Ellerslie (like "How do I get out there?), please do not hesitate to call any of the three previously listed individuals.

Clear skies, and good observing!

Alan Dyer

EDITOR'S MESSAGE

I would like to start by thanking everyone who had a comment or two regarding the new format of STARDUST. It was unanimously agreed that typesetting added a great deal to the overall appearance of the newsletter. However, opinion was slightly divided regarding the actual page format of the issue. While some individuals liked the idea of two columns, the majority seemed to favor the one column format used for most of the issue. The problem with two-column small type was one of legibility, and I have to agree. Since STARDUST is Xeroxed and not printed, there is always the danger of smeared copy (or faint copy for that matter). Larger type will stand up to the vagaries of Xeroxing much better than the smaller type needed for two columns.

For this issue, I have slightly altered the format by reducing the line length and therefore increasing the margin size. The reduced line length may make the reading of

STARDUST slightly easier since the eye doesn't have to scan quite as far for each line. This does not mean that STARDUST will never more be altered. I am quite willing to consider any suggestions regarding content, format, or any other aspect of the newsletter. If you have any ideas, please let me know.

This month sees the beginning of two new features. One is the first of a series of five installments detailing the history of the Edmonton Centre. The series was prepared from an article originally written in 1962 by Professor E.S. Keeping, one of the founding members of the Edmonton Centre. With so many new members now in the Centre, a little history will provide a good background to the activities now underway. Since the series ends at 1962, I hope that one of our distinguished not-yet-elderly members will fill in the rest of the years.

Feature number two is the result of newsletter exchanges. *The Reflector* is the newsletter of the Astronomical League (a non-profit organization that links a variety of U.S. astronomy groups and clubs). Among the features of this fine newsletter is something called Consumers' Corner. It features reports (good and bad) from different members of the League on a variety of astronomical products. Other articles in the newsletter will also be of interest to Edmonton Centre members, so look for articles almost every month from *The Reflector*.

Finally, I should mention that this does **NOT** mean that I do not need articles from Edmonton Centre members. I am not very happy with the variety of articles now being received. Most of the last few issues have been written by one individual, and while I do appreciate his efforts, I think that others should take up some of the load. I would like to see more articles on observing and astrophotography (hints, ideas, etc) even if they are only one or two paragraphs long. Remember, there are lots of new members in the Edmonton Centre who may be unaware of even the simplest observing tricks. Put some thoughts on paper, and give a helping hand to other members.

Deadline for the December issue is the meeting of November 12, 1979.

Paul Deans

MEETING SUMMARY

The October meeting of the Edmonton Centre was held at the Edmonton Public Library on the 15th, starting at 8:00 pm. The President, Alan Dyer, called the meeting to order. Treasurer Christine Kulyk introduced 5 new members.

Alan Dyer directed the member's attention to the various items on display in the meeting room: a set of maps depicting the paths of future solar eclipses, a set of deep sky drawings, some astrophotography prints, a newly-completed 8" f/5 reflector, and

six panels of the Shopping Centre display. Alan pointed out that the panels represent only 1/3rd of the final display, with the other 12 panels currently under construction.

Alan then introduced the guest speaker for the evening -- Dr. Doug Hube from the University of Alberta who spoke on *Rotating Stars*. He stressed the importance of stellar rotation in modern astronomy, and touched on a variety of stellar types where rotation plays an important role and significantly affects the object's spectrum.

The film, *Journey Into Light*, scheduled for showing, was unavailable as it had not yet arrived from Kitt Peak.

The meeting concluded with a request for volunteers for the Junior Astronomy Club; a sign-up sheet was available for this purpose and 11 members indicated their willingness to help out.

The meeting adjourned at 10:00 pm, with many people lingering on, over refreshments, to view the displays. Approximately 60 members and guests were present.

PLANETARIUM NEWS

Continuing until the 25th of November is *The Vela Apparition*. The programme was written by Terry Dickinson (who, among other things, is now Editor of *Star & Sky*) and produced at the Queen Elizabeth Planetarium. The show deals with supernovas -- their causes and effects. As a link to the past, the idea that ancient peoples may have seen a supernova blast is mentioned. The theory proposed by George Michanowsky is that the ancient Sumerians saw a supernova in the constellation of Vela (the location of the Gum Nebula). Michanowsky suggests that the Sumerians may have been so overwhelmed by the sight that they tried to record its existence for future generations, thereby inventing writing.

Most of the programme is devoted to the astronomy of supernovas. Stellar evolution leading up to the unstable state of a pre-supernova star is discussed, at which point we proceed to blow up Rigel. Mention is also made of the part supernovas play not only in the formation of new stars, but also in the synthesis of heavy elements. The Crab Nebula, cosmic rays, and neutron stars (pulsars) are also covered. It is the spin rate of pulsars (which can be used to determine an approximate age for such objects) that brings the show back to the question of the Vela supernova and what might have been seen from the Middle East nearly 6,000 years ago.

Between November 26 and December 2, the planetarium will present a basic night sky show that illustrates what can be seen in the winter night skies. From December 4 to December 31, *The Case of the Christmas Star* makes what will probably be its final

appearance for a number of years. Plans now call for a new Christmas show to be produced for the 1980 season. If you have not seen Inspector K.L. Metre (of the Yard), Professor Werner Von Beaker, and the rest of the 'gang', do make a point of dropping by during Christmas. The show is astronomical -- it relates the various theories that have been put forth to explain The Star of Christmas -- but it is presented in a most unusual fashion. The show relies entirely on original artwork, and resembles a cross between a radio play and a cartoon show.

Paul Deans

FROM OTHER CENTRES

As you all know, it is once again time to renew your membership in that splendid organization known as the Edmonton Centre of the Royal Astronomical Society of Canada (Edmonton Centre). The fees are $20 for Adult members, $12 for Students (age 17 and under), and $8 for Associate Membership (for the children and spouse of Adult members only). If you feel rich, you can always pay $200 for a Life Membership and thereby avoid the hassle of having to pay every year!

However, how does this compare to other Centres? Well, a quick look at four recent newsletters from other Centres revealed the following membership costs:

HALIFAX CENTRE: Regular $16, Student $10.
MONTREAL CENTRE: Regular $20, Student $12.
LONDON CENTRE: Regular $20, Student $12.50.
VANCOUVER CENTRE: Regular $17, Student $10, Associate $6.

So as you can see, Edmonton Centre fees are right in line with the others across the country. Naturally, to do a proper comparison, you do have to include the services offered by each Centre, and it seems that the Edmonton Centre is right up there in terms of meetings, observing sessions and other functions. SO PAY UP!!!!!

Paul Deans

MERTON STREET NEWS

On Sunday December 9, the Edmonton Centre will be hosting a meeting of the R.A.S.C. National Council. This meeting (only the second time the National Council has met in the west, outside of a General Assembly) will be held at the Four Seasons Hotel, in the Rowland Suite, starting at 1:30 pm. All Centre members are invited to

attend, but of course only elected members of the National Council are eligible to vote on the various items of business.

In organizing this special meeting, we are asking for assistance from Centre members in two areas: providing transportation and accommodation. Over the weekend of December 8/9 we need people to:

1) Make one or two trips out to the airport to pick up arriving delegates, and perhaps to return them to the airport.

2) Provide free accommodation in their homes for one or two nights to an out-of-town member. We aren't expecting Centre members to provide luxurious accommodation, simply a comfortable, friendly place to stay.

Andrew Lowe is co-ordinating these two aspects of the National Council meeting. If you are willing to help out, please give Andrew a call at 998-2624. We have contacted all the National Councillors across Canada, and should soon begin to learn of the details of their visits. Once we learn who is arriving, at what time, and if they require accommodation, we will be in touch with you to confirm the appropriate arrangements.

Thank you.

Alan Dyer

THE I.A.U.

The International Astronomical Union is the oldest and largest international organization of astronomers. Founded in 1919, there are now approximately 50 adhering countries -- the most recent to join was Indonesia -- and approximately 4500 individual members of whom some 700 joined in 1979. The I.A.U. receives most of its financing from national science organizations (normally governmental within each country. In Canada the National Organizing Committee for the I.A.U. operates under the auspices of the National Science and Engineering Research Council (the successor to the N.R.C.)). Each adhering country is assessed a financial contribution to be paid in Swiss francs, the amount being based on the number of I.A.U. members and the ability of the country to pay this support. Developing countries pay less per head than do industrialized nations.

New members are proposed by the national committees and formally elected at the General Assemblies which are normally held every three years. The 17th General Assembly was held in Montreal from August 13 to 26, 1979. (Previous Assemblies were in Grenoble, Brighton, Sydney, etc.) Membership is restricted to individuals who are actively engaged in astronomical research and/or teaching in astronomy, and are at

least 4 years past the Ph.D. In practise during recent years, these requirements have been relaxed somewhat.

The General Assemblies provide astronomers with the opportunity to meet with one-another on a regular basis for the exchange of ideas, presentation and discussion of new research results, the organization of cooperative research and observing programmes, and so on. Between assemblies the I.A.U. sponsors the publication of colloquim and symposium volumes and other specialized monographs; sponsors specialized and local meetings; coordinates activities between astronomers and scientists in related fields; acts as a lobbying agency in seeking support for astronomy from both international (e.g. UNESCO) and national (e.g. NSF in the United States) organizations; provides funding and planning for the exchange of astronomers between developed and under-developed countries; organizes international schools for young astronomers; and more.

In summary, the purpose of the I.A.U. is to support the study and development of astronomy in all its aspects, and to promote cooperation at the international level.

Doug Hube

DID YOU KNOW: that one of the discoveries made by Pioneer 11 as it flew past Saturn was that the planet emits $2\frac{1}{2}$ times as much heat as it receives from the sun? One explanation is that the heat is generated by denser helium sinking through the planet's liquid hydrogen interior.

TELESCOPE MAKING

An enterprising person can build his own telescope at a fraction of the cost of an equivalent commercial instrument. The construction of a telescope is not difficult and generally turns out to be a lot of fun and a good project for the winter months.

Most amateur telescopes have an aperture (mirror size) of either 150 mm (6") or 200 mm (8"), and a focal length of about 1000 mm (40"). The construction of such a telescope will take typically between 100 and 200 hours of work spread over several months and will cost between $100 and $200. About half of the time will be spent on grinding, polishing and figuring the primary mirror. The optical work does not require any elaborate facilities or equipment, and can be done, for example, on a kitchen table. The construction of the mechanical parts of the telescope will take about the same amount of time as did grinding the mirror. The mechanical parts can be constructed from scrap materials at very little cost if you have access to a small workshop and a few

tools. Alternatively, most of the mechanical components can be purchased in kit form and assembled with a minimum of tools.

The finished telescope, depending on the skill and care of the individual builder, can be as good or better than standard commercial instruments. It will show detail on the Moon as small as several kilometres across, considerable detail on the atmosphere of Jupiter, the rings of Saturn, star clusters, nebulae, galaxies and much more.

TELESCOPE MAKING CLASSES: I am planning to offer a series of classes on telescope making during this winter. These classes will be of a workshop nature in which techniques for constructing a Newtonian reflecting telescope of 150 or 200 mm aperture will be discussed and demonstrated. Tentatively, classes will start during the first week in December and will be held on either Saturday mornings at 10:00 or on Thursday evenings at 7:00. There will be approximately 15 classes.

There is no charge for the classes, but as space is very limited, it may be necessary to restrict these classes to those who actually propose to construct a telescope (as opposed to those who simply wish to find out what telescope making is all about). I can supply most of the materials (mirror making kits, tubes, diagonal holders etc) at a reasonable cost, as well as provide machine shop and aluminizing service. The total cost of building a telescope will probably be in excess of $100.

If you are interested in attending the classes or wish further information, please contact me, preferably during the last two weeks in November. My address is 16126 100A Avenue, Edmonton. Telephone 484-5995.

Jack Winzer

FOR SALE

I have three 320 mm (12½") mirror making kits left in stock. As I no longer plan to handle this size of mirror kit, I wish to dispose of this surplus stock and consequently am selling them for only $175 each. This will be your last chance to get a 320 mm kit at such a low price. If I still have any left after January 1, the price will be $230. Contact Jack Winzer,

During the course of the talk *Rotating Stars*, it was pointed out by Gary Finley that if stars did not rotate (in particular neutron stars) then the pulsar in the Crab Nebula would not be illuminating that object, therefore the Crab Nebula would be invisible, therefore Messier would never have seen it and would, therefore, never have been inspired to compile his famous catalogue of nebulae and clusters!

REFLECTIONS

(Articles from *The Reflector*, the newsletter of the Astronomical League.)

The Ad Astra III is a three inch Maksutov-Cassegrain reflector that shares with others of its type, lightweight and high performance in a compact size. This statement must be qualified by one serious fault and several all too common complaints -- but first the good news.

The telescope has a clean appearance. The front corrector moves smoothly, allowing precise and accurate focusing. A camera T-mount adapter can be exchanged for the eyepiece holder, and the scope has a standard tripod mounting thread. Stars magnified 300 times give well-centered diffraction rings and Airy disks which indicate good performance. The double star, alpha Geminorum (Castor) with main components at magnitudes +1.9 and +2.9, separated by 2.16 seconds of arc, was cleanly resolved. Some detail in the bands of Jupiter could also be seen. Although exacting optical tests were not performed, the scope appears to give first class images under temperate viewing conditions.

One major flaw that I noted was the appearance of distorted images after the Ad Astra III had been out in the cold night air for about an hour. A cross-shaped diffraction pattern appeared, probably due to a pinched mirror or corrector. I would not buy an Ad Astra telescope unless I received assurances from the company or dealer that this was not a reoccurring problem with the instrument.

My other complaints relate to the advertised performance of the Ad Astra III and were independently detailed in the February 1979 issue of *The Reflector*, page five. The company claims resolution of 1.0 seconds of arc and photographic resolution of of 249 lines per millimetre. Both of these qualifications are better than the theoretical performance of any telescope with the specifications of the Ad Astra III. It is interesting to compare the Ad Astra with its main competitors, the Celestron 90 and the Quantum 100.

Just a few final comments. The Quantum 100 offers much better potential performance for a modest difference in cost. I have seen the Quantum Four, the fully equipped version of the Quantum 100, and it is a quality instrument. The Celestron 90 is certainly priced competitively. I have seen only one of these scopes and was disappointed by its very loose focusing mechanism. If I were in the market for an ultra-compact telescope and had the money, I would investigate the Quantum 100. If my monetary resources were limited, then I would carefully select a Celestron 90.

Al Bowen
The T.A.S. Spectrum
Texas Astronomical Society

	Ad Astra III	Celestron 90	Quantum 100
Price, excluding mount or finder	$399	$245	$460
Aperture inches/mm	3.07/78	3.54/90	3.94/100
Light gathering ratio (Ad Astra = 1.00)	1.00	1.33	1.65
Weight in kilograms	1.05	1.36	2.5
Near focus in metres	2.5	3.1	3.8
Effective focal length, inches/mm	30/760	39/1000	60/1500
Focal ratio	9.75	11.0	15.0

THE EARLIER YEARS OF THE EDMONTON CENTRE

This is the first of a five-part series dealing with the history of the Edmonton Centre, Royal Astronomical Society of Canada. It was written by one of the founding members, Prof. E.S. Keeping and extends from the founding of the Centre in 1932 to the very successful General Assembly in 1962.

The Edmonton Centre came into existence in 1932, mainly because of the interest and enthusiasm of Dr. J.W. Campbell, Professor of Mathematics at this University. His special field was Mechanics and Astronomy and for many years he gave a course on general descriptive astronomy.

At that time the R.A.S.C. was about 30 years old, and was expanding vigorously under the leadership of Dr. Chant, the grand old man of Canadian astronomy. Starting in Toronto, new centres were formed in Ottawa, Peterborough, Hamilton, Winnipeg, Regina, Guelph, Victoria, Montreal, London and Vancouver, all before Edmonton, although some of these subsequently died out.

A preliminary meeting was held in the Arts Building of the University in January 1932, at which Dr. Campbell explained that we would need 50 members to start a new Centre. In February a petition, with the necessary number of signatures, was forwarded to head office in Toronto, and in March the authorization was granted. That same month officers were elected and a constitution and by-laws were drawn up. The first president was naturally Dr. Campbell. I was vice-president, and Dr. E.H. Gowan of of the Physics Department was Treasurer. Few, if any, of the founding members (except myself) still belong to the Centre. The membership fee at that time was $2.00 per year, for which one obtained the Handbook and ten issues of the Journal.

A special meeting of the Centre was held in June 1932 in Athabasca Lounge to welcome a party of British scientists passing through Edmonton on their way up north to Fort Rae, where they were to spend 15 months studying meteorology, terrestrial magnetism and the aurora. This was part of the International Polar Year, and for it the Meanook observatory in Alberta was equipped with special magnetographs. Mr. J.M. Stagg, the leader of the British party, described the kind of work they proposed to do, establishing two stations 25 miles apart to make simultaneous observations. Balloons would be used to take instruments into the upper atmosphere. The great mass of data collected took more than 6 years to be worked up and published, and I remember reviewing one of the reports for the Centre in May, 1938.

At our first regular meeting the plan was adopted of having a short talk on some topic of immediate interest, such as a planet in good position for observation, or permanent constellations visible at that time, or a forthcoming eclipse, and also a main paper given by a member or by someone on the University staff. From the beginning the University was counted on heavily for main speakers. Drs Campbell, Gowan and myself gave papers nearly every year, sometimes twice a year, and other members of the Mathematics, Physics and Geology staffs were frequently drawn in. The custom of an annual banquet, at which reports of the year's work and nominations of officers were received, started in 1932. For many years the Corona Hotel was the scene of the banquet. At the first one I was elected President, and Mr. M.J. Hilton, then Principal of the old Technical Institute, was the new Vice-President.

In January 1933 I gave a talk on the Calendar, describing the reasons for the present inconsistent and illogical calendar and various schemes of reform. I advocated the so-called World Calendar, and I thought the chances pretty good that it would be in use by 1939. Now it seems farther off than ever.

In May, Dr. and Mrs. J.A. :Pearce were guests of the Centre. Dr. Pearce was Director of the Dominion Astrophysical Observatory at Victoria, and an excellent, popular speaker. He described some of the recent work that he and Dr. Plaskett had done on distribution of interstellar calcium and the effect of this on the estimated size of our ga-

laxy. For several years we had visits in May from the professional astronomers who stopped off at Edmonton on their way to meetings in the East.

In 1934 for the first time Dr. Campbell was appointed Honorary President, a post he continued to occupy until his death in 1955, since when I have been regularly re-elected. Also in 1934, Dr. Crosby became a member, along with his brother Fred. Dr. Gowan gave a talk on spectroscopy, well illustrated with all the resources of the Physics department for demonstrating spectra and spectroscopes. We were fortunate in those days to meet in the main physics lecture room (in the Arts building) and to have several of the Physics staff willing to give talks. In May, we had a visit from Dr. W.E. Harper of the Dominion Astrophysical Observatory, who gave an account of the building of the 72-inch telescope at Victoria, in 1915-16, which for a short time (until 1918) was the largest in the world. He described the work done on radial velocities and concluded that "the amount of money spent by a country in astronomical research is truly an indication of the cultural development of that country".

The only telescope we had in those days was a portable 4-inch refractor, belonging to the Mathematics Department. It was often in use at meetings, as it could be set up anywhere, although it had no drive and so needed constant adjustment. It was quite common on clear evenings to troop outside, after the main talk, and look at Saturn or the Moon or whatever object was of interest at the time

At the banquet in 1934, Mr. C. G. Wates was a guest and he soon became a most active and valued member of the Centre. He gave the main talk in January 1935 on the construction of a home-made telescope. He had built a 9-inch reflector mounted in an observation hut in a commanding position on the bank of the North Saskatchewan River near what is now Kinnaird Park. This instrument was depicted on the cover of the Scientific American for October 1934. Mr. Wates described the care and precautions necessary in grinding and silvering a mirror (this was before the days of aluminizing) and mentioned that he intended to go ahead with a 12 1/2 inch instrument with an improved mounting.

That year, 1935, Dr. Gowan was president. Dr. Carl Beals from Victoria (later Dominion Astronomer) spoke to us on "What is a Star?" At the banquet in December I took on the job of Secretary which I kept for five years, until succeeded by Dr. Gowan, who continued to act until his last illness in 1957.

NEXT MONTH: The Centre Library is started; the Planetarium dream begins; the Centre publicizes its meetings; a comet is discovered by a Centre member.

Prof. E.S. Keeping

CENTRE NEWS

THE R.A.S.C AT NON-CON II: Over the Thanksgiving longweekend, Non-Con II, the second annual Edmonton science fiction convention was held. Over 350 people, SF fans, and aliens were registered. In the midst of all the madness was the R.A.S.C. staunchly defending our display against the swordfight ravages of the society for Creative Anachronism! The Centre display, designed to inform the delegates of the existence of the R.A.S.C and amateur astronomy, was manned by Andrew Lowe, Keith Montgomery and Lori Walton. The display consisted of 4 newly completed shopping centre display panels, a telescope, a batch of JPL Voyager and Viking photos (by far the most popular conversation piece), and a smattering of free propaganda.

On Sunday, October 7, the late night CBC television news featured a report on the convention in which our display was prominently shown. The announcer stated, ". . .And there to separate fact from fiction was the Royal Astronomical Society", at which point they zoomed back from the Celestron to show the display panels. The group is hard at work on the remaining panels; those who were at the October General Meeting will no doubt agree that the completed display should look quite impressive.

FAMILIARIZATION SESSIONS PROVE SUCCESSFUL: On September 24, we held a sky familiarization session at the Queen Elizabeth Planetarium. About 25 members were in attendance for a general introduction to the autumn and winter sky. We trust everyone found the session informative and enjoyable. Perhaps we can look forward to similar sessions in the near future.

The September 30 Ellerslie session also worked out very well with about a dozen members in attendance. Those present were instructed in the use of the Ellerslie Observatory, and are now "qualified" to use the instrument without any further assistance. An added attraction was solar observing with the 20 cm refractor. Using the projection method, we were able to create a 2-foot diameter solar image on the observatory floor, complete with some huge sunspot groups and areas of bright faculae. The scene of a dozen people gathered around the projected solar disk was reminiscent of the McMath Solar Telescope at Kitt Peak!

By the way, the refractor has recently been polar aligned (to within 20' of arc of the Pole) and the electric declination motor has been connected.

EXCHANGE SPEAKER GRANT AWARD: The Edmonton Centre was the only Centre to apply for a grant from the new speaker exchange programme set up by the National Council. As such, we have received $123.00 - 75% of the cost of a return air fare to Victoria. The Victoria Centre received an identical grant. This will enable our two Centres to exchange speakers for the first time, with Jack Newton of Victoria, being our special guest in April.

Our application for a grant for a Winnipeg exchange did not go through, since the necessary half of the application from the Winnipeg Centre was never received by the National Ofice. The matter has been deferred to the December 9 National Council meeting here in Edmonton, so perhaps we'll be able to sort out the matter at that time.

VOLUNTEERS REQUIRED: The Junior Astronomy Club, set up by the Planetarium under the guidance of Stewart Krysko, is well underway. Over 25 youngsters attended the first session on October 13. Club sessions are held on Saturday mornings at the Planetarium. R.A.S.C. members are required to assist in these sessions, to help with astronomy projects, to present brief talks on observing, photography, telescope making, etc., and to help out with observing sessions. A sign-up sheet was available at the October General Meeting, and 11 people have already volunteered their assistance. Anyone else wishing to help out in this very worthwhile task are asked to call Stewart at the Planetarium at 455-0119 or at home 452-4046.

CENTRE MEMBER PUBLISHES NEW BOOK: At the September meeting, Anthony Whyte announced the forthcoming publication of his book, "The Planet Pluto". 1980 marks the 50th Anniversary of the discovery of the ninth planet, and Tony's book commemorates that event. We congratulate Tony on his fine accomplishment as he joins the ranks of other R.A.S.C. members-turned-authors: Helen Hogg, Don Fernie and Jack Newton.

FIRST CONTACT WITH THE CALIFORNIA ASTRONOMY CLUBS: Recently, Rod McConnell had an interesting long-distance phone conversation with Cliff Holmes, organizer of the annual Riverside Telescope Makers Conference, an event held near Big Bear Lake in Southern California. Rod was making arrangements for the tour that he, Dave Beale and Dave Belcher were planning, a tour that took the three travellers to Arizona, New Mexico and California in October. Rod exchanged news of activities in our respective clubs, a welcome first in establishing contact between our groups. Southern California is the centre of amateur astronomy, with Riverside being the mecca for western amateurs, the equivalent of Stellafane in the east. There is some talk about a group of Centre members making the pilgrimmage to Riverside next year (on the last weekend in May). Anyone interested in joining the expedition to Riverside is invited to call Alan Dyer at 482-4209. Once we know who is remotely interested in going, we'll begin to formulate our travel plans. The best way might be to fly to L.A., and rent a vehicle from there, perhaps touring some of the Californian observatories as well. (No we're NOT chartering a Boeing 737!!)

A CENTRE EXPENDITURE VOTE: At the Dec. 10 General Meeting, the following motion, approved at the October 22 Council meeting, will be put to the membership for a vote. This is in accordance with our Centre By-laws, which requires that any single expenditure of over $200.00 be approved by the Council and the membership.

MOTION:

"That the Council be authorized to spend up to $300.00 from the General Fund of the Centre for the purpose of renting a meeting room for the monthly General Meetings for the 1980 calendar year."

By the time December rolls around we will have already committed ourselves to $90.00 in rent for the Oct., Nov., and Dec. meetings. However the rent for the Music Room for all other meetings up to June, 1980 need not be paid for until June 30, 1980.

ELECTION TIME DRAWS NEAR: January is election time for the Centre. This year, as in all years, every position on the Centre Council is up for grabs: President, Vice-President, Secretary, Treasurer, Observing Chairperson, Editor, National Council Rep., and the 5 new Councillor positions. A nominating committee, consisting of Alan Dyer, Mark Leenders, and Christine Kulyk, has been formed to come up with one nomination for each of the above positions. In particular, Ivan Rogers, Christine and Mark have all indicated a desire to step down from their respective positions, leaving the Secretary, Treasurer, and Observing Chairperson positions wide open. And as with most years, we are also looking for a capable Vice-President. The nominating committee has a few people in mind for some of these council positions, BUT ....

Would anyone out there like to have a go at helping run the Centre for a year or two? If so, simply pick the Council position that most interests you and give either Mark (437-7410), Christine (420-6765) or Alan (482-4209) a call. They can give you more details on what the job entails.

In addition, any Centre member may nominate a fellow member (with his/her permission of course!) for any of the Council offices. To place a nomination, or even just to suggest a potential candidate, please call one of the nominating committee members. Nominations will also be accepted from the floor at the January "Annual Meeting". While it has never happened in living memory, it is perfectly feasible for us to have an actual election, where more than one person is nominated for the same position!

The nominations proposed by the committee will be printed in the January issue of STARDUST.

ANNUAL BANQUET POSTPONED: The Centre's Annual Banquet, normally held in November, has been postponed until later in the winter. The Council, at a recent meeting, felt this change was necessary due to the proximity of the Banquet to a number of other important events this year, notably the visit to our Centre of John Percy in December. A February or March Banquet date puts it in an otherwise dead time of year for Centre social activities, and we trust we can expect excellent attendance at that

time. The date and programme of events for the Banquet will be announced in a forthcoming issue of STARDUST. When it does occur, you can be sure the Banquet will be an evening to remember!

UPCOMING EVENTS

NOVEMBER GENERAL MEETING: We are back to our "normal" schedule again, with the November G.M. on the usual second Monday of the month. Despite the fact that November 12 is a holiday for City employees, the Library will still be open and our meeting will proceed as usual, starting at 8:00 pm. The location is the Music Room of the Edmonton Public Library (downtown). Last month's meeting was well-attended, and we trust everyone found the new meeting room suitably comfortable.

This month, we will be featuring a talk by a long-time member of the Edmonton Centre, Mr. Tom Morrison. Tom is currently a 4th year Physics student at the U. of A., with plans to continue his studies in physics and astronomy towards an MSc degree at an appropriate out-of-province University. Tom's talk to us will deal with an area of study of particular interest to him (which, we understand, Tom may pursue as a professional career) -- radio astronomy. Tom will review some of the techniques involved in radio astronomy, as well as some of the discoveries, particularly those stemming from research conducted at millimetre wavelengths. Tom tells us that he will be concluding his talk with a quick review of "some of his favorite things" in physics.

The November G.M. will also feature a showing of the Kitt Peak film *Journey Into Light*, which arrived too late for screening at the October meeting. (The film arrived, quite predictably, two days after the October meeting, but Kitt Peak gave us permission to retain it until November.)

NOVEMBER OBSERVER'S CORNER: The main feature of this month's O.C. will be a short talk by Ivan Rogers dealing with the application of astronomical observation to surveying techniques. Ivan's combined qualifications as professional surveyor and ardent amateur astronomer make him very well qualified to present this month's O.C. topic, one that will be an interesting departure from our usual observational fare.

By the time the November 26 O.C. rolls around, our 3 Arizona tourists (Dave Belcher, Dave Beale and Rod McConnell) will have been back in the chilly climate of Edmonton for 3 weeks or so. We have asked them to present a showing of some of their astro-photography taken under the legendary skies of the south-western U.S., and to tell us their "observing stories". This will be a sneak preview of their full-length "Arizona Trip" slide show scheduled for the January General Meeting.

For all those travelling to the Observer's Corner meeting locale by car, you will likely find it most convenient to park in the Windsor Car Park, on the west end of the campus. The entrance to Windsor Car Park is on 116 Street. Saskatchewan Drive and Parking Lot E will likely be filled with cars owned by evening students, but Windsor is usually roomy and is free after 7:00 pm.

OBSERVING SESSIONS: In November there are three weekends of observing free from the interference of the moon. The first weekend (Friday November 9 and Saturday November 10) AND the third weekend (November 23 and 24) are devoted to astronomy at Ellerslie. The second weekend (November 16 and 17) is slated for observing at Buck Mountain, since there is a new moon. But come prepared for a chilly observing session as it is likely to be very cold at Buck. This is also the weekend for the peak of the Leonid Meteor Shower, though the hourly rate is a poor 15 meteors.

On any given observing night, if you wish to check on who else might be going out, please phone Mark Leenders at IF the weather holds, November could be the last good month for observing before winter sets in. Though lacking the rich clusters of galaxies of the spring skies, the autumn sky still contains a wealth of individual galaxies spread throughout Andromeda, Pegasus, Aries, Triangulum, Sculptor, Cetus, and Perseus, as well as interesting open clusters in Perseus and Cassiopeia.

OBSERVING NOTES

Mercury: By the end of the month it can be seen low in the south-east just before sunrise. On December 7 it will be 16° above the south-eastern horizon at sunrise.

Venus: may be glimpsed very low in the south-west just after sunset.

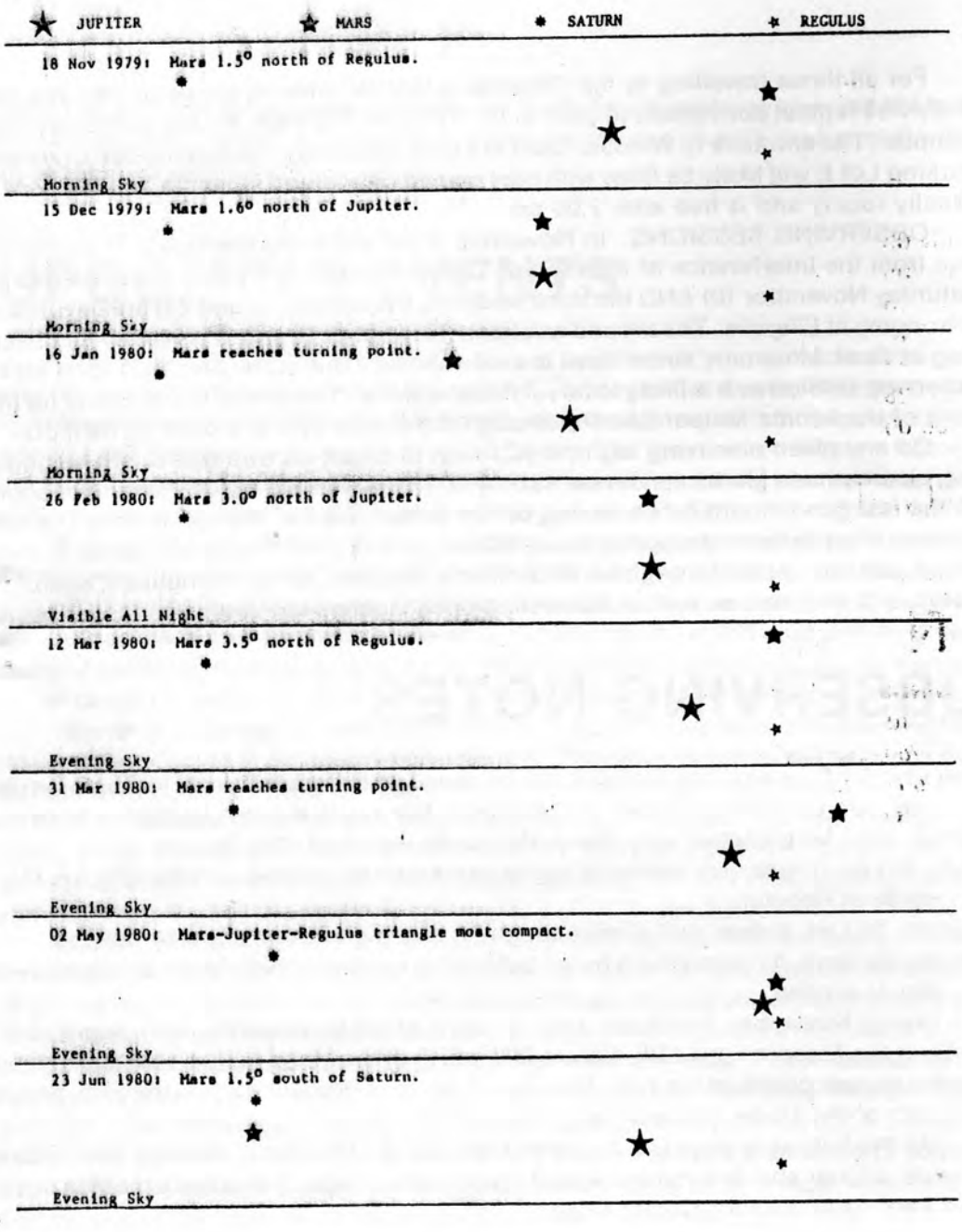
Mars: in Leo, it rises near midnight and is past south by sunrise. On the 17th it is $1\frac{1}{2}$° north of Regulus.

Jupiter: in Leo, it rises just after midnight and is high in the south by sunrise.

Saturn: in Virgo, it rises about 5 hours before the sun and is high in the south-eastern sky at sunrise.

During November, watch for: Mars 3° north of the Moon on the 12th, Jupiter 0.8° north of the Moon on the 13th, Saturn 0.3° north of the Moon on the 14th, the Leonid meteor shower peaks on the 17th, Mars is 1.6° north of Regulus also on the 17th, Venus 6° south of the Moon on the 21st.

On the following page is a diagram (from *Sky & Telescope*) showing the motions of Mars, Jupiter and Saturn for the next few months. Page 19 lists the expected positions and magnitude for Comet Meier.


JUPITER
MARS
SATURN
REGULUS
18 Nov 1979: Mars 1.5° north of Regulus.
Morning Sky
15 Dec 1979: Mars 1.6° north of Jupiter.
Morning Sky
16 Jan 1980: Mars reaches turning point.
Morning Sky
26 Feb 1980: Mars 3.0° north of Jupiter.
Visible All Night
12 Mar 1980: Mars 3.5° north of Regulus.
Evening Sky
31 Mar 1980: Mars reaches turning point.
Evening Sky
02 May 1980: Mars-Jupiter-Regulus triangle most compact.
Evening Sky
23 Jun 1980: Mars 1.5° south of Saturn.
Evening Sky

COMET MEIER (1979i)

DATE	R.A.	DEC	MAG.
Nov 03	12hr 38.01m	+56° 16.0'	11.8
Nov 08	12hr 31.27m	+55° 29.4'	
Nov 13	12hr 23.52m	+54° 49.8'	11.8
Nov 18	12hr 14.44m	+54° 16.4'	
Nov 23	12hr 03.67m	+53° 48.4'	11.8
Nov 28	11hr 50.81m	+53° 23.8'	
Dec 03	11hr 35.46m	+52° 59.8'	11.7

Note that the comet passes within 6' of arc of M106 sometime between Nov. 23 - 26.

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ROYAL ASTRONOMICAL SOCIETY OF CANADA, EDMONTON CENTRE

Anyone with an interest in the many facets of astronomy can find opportunities for sharing and increasing those interests by becoming associated with the Edmonton Centre of the Royal Astronomical Society of Canada. Membership includes: The annual RASC **Observer's Handbook**, *the bi-monthly* **Journal** *and* **Newsletter** *of the RASC,* **Stardust** *(the monthly newsletter of the Edmonton Centre), plus complimentary admission to all Planetarium shows.*

General Meetings of the Centre are held in the Music Room of the Edmonton Public Library on the **second Monday** *of each month (except July and August) at 8:00 PM. These meetings feature guest speakers whose topics cover all aspects of amateur and professional astronomy.*

The Observers' Group of the Edmonton Centre meets on the **fourth Monday** *of each month at the University of Alberta in Room 445 of the Physics Bldg. starting at 8:00 PM. Anyone with an interest in observational astronomy and astro-photography is invited to attend. Each month also features regularly scheduled group observing sessions at one of the Centre's dark Sites in the country. Members also have the use of the Centre's* **Ellerslie Observatory** *and 20cm refractor telescope. For details of these activities, please feel free to call the Observing Chairperson.*

Enquires regarding membership in the Edmonton Centre may be directed toward the President or the Treasurer, or come to one of our regularly monthly meetings and enquire at that time. Guests are always welcome. Currently, annual membership fees are: **$20.00** *for Adults,* **$12.00** *for those age 17 and under.*

President: Alan Dyer.....
Vice-President: Ted Cadien.....
Secretary: Ivan Rogers.....
Treasurer: Christine Kulyk.....
Editor, STARDUST: Paul Deans.....
Observing Chairperson: Mark Leenders .....

STARDUST
EDMONTON CENTRE, Royal Astronomical Society of Canada
c/o Queen Elizabeth Planetarium
10th Floor, C.N. Tower
Edmonton, Alberta

GENERAL MEETING

Monday November 12 @ 8:00 pm
Music Room, Edmonton Public Library

TOPIC AND SPEAKER
Mr. Tom Morrison
Radio Astronomy at Millimetre Wavelengths

OBSERVER'S CORNER

Monday November 26 @ 8:00 pm
Room 445, 4th Floor, Physics Building
University of Alberta

Topics
Astronomical Survey Techniques
Observing Under Arizona Skies

OBSERVING SESSIONS

November 9 & 10 -- Ellerslie
November 16 & 17 -- Buck Mountain (Leonid Meteors)
November 23 & 24 -- Ellerslie