



STARDUST

Published Monthly
by the Edmonton Centre of the
ROYAL ASTRONOMICAL SOCIETY OF CANADA

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October, 1960

THE ANNUAL MEETING

As this will be the only notice you will receive concerning our Annual Meeting and banquet, you are asked to make yourself well acquainted with the following facts concerning it:

The Time: Thursday, October 13, 1960, at 6.30 p.m.

The Place: The Corona Hotel Dining Room

The Price: \$2.25 per person (not including any tips for service)

The Speaker: Dr. D. B. SCOTT, of the Physics Department of the University of Alberta

The Subject: "FROM TYCHO BRAHE TO THE SPACE AGE". Dr. Scott will deal with the general topic of space travel - its background, achievements to date, and possibilities for the future.

It will help the Executive considerably if you will kindly phone in the number of reservations you wish to either:

The Secretary, Dr. D. R. Crosby

Phone No. GE3-7933

or The Assistant Secretary, S.F. Page

Phone No. GE9-1403

This is an important meeting. We should like to make it a truly representative gathering, and we hope that all members, new and old, will do their utmost to be present. Remember that your friends also are welcome.

NEW OPPORTUNITIES

The day on which we are writing this, September 22, marks the official opening of the new planetarium, reported elsewhere in this issue. It is certain that this will give a tremendous impetus to astronomical interest in Edmonton and vicinity, as well as an increased responsibility on the part of the Society to channel this interest to useful ends. It is unfortunate that at such a time our large telescope should be dismantled, and we cannot relax our efforts to have it installed as soon as possible in a suitable building. It occurs to us, however, that in the meantime we have a good opportunity to encourage decentralized observing. To this end, we hope to present during the year a series of brief articles on the practical observing and recording of various phenomena - meteoroids, sunspots, aurorae, eclipses (two lunar eclipses will be visible here during 1961), double stars, and so forth - the material for the articles being contributed by those of our members having special experience in these particular fields.

The President's Message Quo Vadis - Edmonton Centre - R.A. S & C.

"The old order changeth yielding place to new". In other words I feel we are now at the cross roads facing a new era in the life of our society ; one phase of which could be introduced at this time.

The City of Edmonton encourages us and invites us to carry on our activities from the Planetarium at Coronation Park. This is an invitation which cannot be lightly refused. They have appointed one of our esteemed members, Ian MacLennan as manager of this new institution. They have made it known that they will be depending on our society for assistance. We are encouraged to submit displays; to file the records of the centre and to establish there a library in Astronomy. Excellent lunch and kitchen facilities are available, which should really be a delight to our loyal social committee. (The tables set, come let us dine my friend) As noted elsewhere in Stardust, our centre now has a telephone listed under the same number as the Planetarium.

Our association with the University over past years has been a happy one. They have assisted and co-operated with us in many ways and we should be most grateful. University Faculty members have been most prominent in the affairs of our society. We have had rent free accommodation for our meeting place. They have housed and maintained our observatory.

But perhaps we are becoming an imposition to the University, when other demands are made upon its time, space and facilities. Perhaps we are no longer a fledgling requiring its protection and assistance. The observatory is now completely dismantled with no further prospect of it being located on the campus. We have experienced some embarrassment when we remained beyond the allotted time of our meetings. For more than a year we have missed the convenience of a lunch room which is separate from the lecture room. We wish to enlarge our library facilities but cannot do so with out conflicting with University interests, A change of headquarters from the University to the Planetarium should receive the approval of the majority of our members, but,

There is a tide in the affairs of men
Which, taken at the flood leads on to fortune,
Omitted, and all the voyage of their lives,
Is bound in shallows and in miseries.
On such a full sea are we now afloat
And we must take the current as it flows
Or lose our venture.

James Harrington.

Five Planets in Evening Sky October will be an interesting month to all who are interested in planetary observation. Even the elusive mercury will be visible for a few days before and after the 15th, although very low in the south-western sky, just after sunset. Venus also will be visible in the southwest for about an hour, with a magnitude of -3.4. Mars, rising in the east in late evening, will be visible for most of the night. Jupiter will be well towards the south-west by sunset, and Saturn almost due south. Another item of interest for October will be the Orionid meteor showers for a few days around the 20th.

(22)

Edmonton's New Planetarium

The official ceremonies marking the opening of the new Queen Elizabeth Planetarium in Coronation Park took place on the evening of September 22, and it was a warmly enthusiastic audience which applauded the young director, Ian McLennan, at the conclusion of his inaugural lecture. When he expressed the hope that his guests would come again, we heard a voice on our right - and we are pretty sure it was that of the Queen's representative himself, Chief Justice Ford - saying most emphatically, "I certainly will!"

Brigadier A. Simester, President of the Edmonton & District Council of churches, gave the invocation with the very appropriate reading of Psalm 8: "When I survey Thy heavens, the work of Thy hands, the sun and the moon, which Thou hast ordained, what is man, that Thou art mindful of him?" Alderman Mitchell took the chair, and Mayor Elmer Roper declared the planetarium open. A message conveying the Queen's good wishes was read by Chief Justice Ford. Greetings were brought from the Edmonton Centre of Royal Astronomical Society of Canada by its President, James Harrington, who presented the City with a set of large astronomical murals for display in the planetarium. Professor Keeping, on behalf of the University, presented the City with a 67 - lb. fragment of the great Bruderheim meteorite. The "Star Show", under Ian's direction, followed the official opening. Refreshments were afterwards served in the lecture room.

The building itself is an architectural gem, a credit to the city architects who so capably surmounted all the problems arising in the construction of a circular edifice. Made of hewn field stone, with windows of glass set in gold-anodized aluminum, all surmounted by a brilliant orange dome, the structure makes an impressive appearance in its lovely setting in Coronation Park. The interior is beautiful beyond words. Variegated hardwood, terrazo and tiled floors, walls and ceilings in various types of decor, vertical Venetian blinds in the foyer, lovely drapes in the lecture room enhanced by a choice selection of potted plants contributed by the Parks Department, combine to give the visitor an impression of almost drawing-room luxuriousness, and somehow, of more spaciousness than one anticipates.

Ian McLennan

Few people would have guessed, from the smoothness with which the initial lecture was carried off, the strain under which the new director had been working during the days preceding the opening. The late arrival of essential equipment gave practically no time for more than a most hurried practice with the controls, and, as Ian reminded his guests, they were actually being invited to see "a rehearsal". It proved a most successful one. We must not forget the weeks of careful planning and hard work put in by Ian and Earl Milton and others, who spared no efforts to ensure technical perfection. From Earl we have this appreciation of Ian, with which we most fully concur: "Ian is well-qualified for his new position. Besides the excellent background he has acquired in the various disciplines of astronomy, he has first-hand experience in the mechanics of show-production from his stay at CFRN-TV, where he has worked since leaving school four years ago. In addition, Ian has been active for the past year in the field of public relations work."

The Society and The Planetarium

The Edmonton Centre may be justly proud of the part it has played in advancing the planetarium idea. We are personally happy to recall that it was a STARDUST editorial (see Nov. 1958 issue) that initiated the idea of suggesting a planetarium to the City Council, and as a result a Planetarium Committee was appointed

to make representations to the Council. We owe a great deal to Professor Keeping for the excellent job he did in "putting the idea across". There were also many individuals and organizations that did their part in swinging support in favor of the planetarium.

Now the Society reaps its reward. Even the opening lecture revealed what a powerful effect the planetarium could have in arousing interest in astronomical matters, an interest which should lead to many new applications for membership. But that is not quite all. Ian informs us that the City has consented to allow the Astronomical Society to use the facilities of the auditorium for its meetings, in exchange for help from the members in putting on the programmes. This means that the Centre would have, in effect, a sort of "headquarters" at the planetarium, with use of the phone, library space, lecture room with time unlimited, use of kitchen, etc. Most Thursday evenings, when the planetarium would be closed to the public, there would be opportunity for practice at the control board of the machine and for the rehearsal of future lectures. Ian also felt it would be possible to provide the Centre with reading room facilities, so that the various astronomical magazines and exchanges which we receive may be readily available to members.

So there is the proposal! Possibly Ian will present it more fully at our annual meeting, but he has permitted us to give you this preview so that you will be prepared to consider it seriously in advance. Personally, we haven't too much doubt as to what the ultimate decision will be.

S. F. Page

Echo I - by Earl Milton As a result of the considerable public interest aroused in the passing of artificial satellites over Edmonton and vicinity, a satellite division of the observers' group has now been formed under the joint chairmanship of Dave Marven and Earl Milton, who have attempted to keep predictions up to date and before the public. Dave has been recording the elevation and transit times of Echo, using a theodolite, while Earl has been noting the rising and disappearance times of Echo and its path across the stars. These paths have been plotted on meteor plotting maps, which are available to members for this purpose if they wish them. Robert Allin, Ian McLennan, and Earl Milton have been photographing the trail made by Echo as it "floats" across the Edmonton skies, and several very successful exposures have been made to date.

Since the first observed passage, our observers have seen the balloon in seven consecutive segments of the northern half of its orbital loop. With the satellite in an equatorial orbit and 1000 miles above the earth's surface, these observations have covered sightings between latitude 25 degrees North (Sinaloa Province, Mexico) and 50 degrees North (Claresholm, Alberta). Up to Sept. 12, 50 passes of the satellite have been recorded in the files of our new division. Many more have probably been seen by our members, but we have no record of them. So if YOU have been observing Echo and have recorded any dates, times, and - we hope - elevations, we would like to hear of them. They might just fill up some gap in our files.

Canada's Newest Big
Telescope

This June, while enjoying a brief holiday at Lake Okanagan in B.C., I was privileged to be present as a guest at the official opening of the new Dominion Radio Astrophysical Observatory.

The main instrument is an 84-foot-diameter parabolic "dish" made of stout aluminum wire mesh, and mounted so as to be pointed at will towards any part of the sky. It is intended to be used as a telescope and not, for example, for tracking satellites. There is a radar reflector of equal size at Prince Albert, but this is designed as a tracking and detecting device, rather than for basic scientific research, so the two instruments complement one another.

The telescope is situated near White Lake about ten miles from Penticton, which is at the south end of Lake Okanagan. It lies in a hollow of the hills, protected on all sides from radio interference. Radio astronomy involves the detection of exceedingly weak signals emitted by celestial objects at enormous distances from the earth. It is very difficult to make measurements in a region where there is interference from man-made objects such as electric razors, car-ignition systems, high-tension transmission lines, etc., and the Penticton site was chosen after a long search for a sufficiently remote and yet accessible place. Fortunately for the staff, the site is also conveniently near to the amenities of Penticton and the beautiful Okanagan lake and valley.

The formal opening took place on the afternoon of June 20th, and brought together a group of about 150 astronomers and guests from Canada and the United States. The Dominion Astronomer (Dr. C. S. Beals) the head of the Victoria Astrophysical Observatory (Dr. R. M. Petrie) and his wife, formerly Jean Macdonald of Edmonton, who is herself a trained astronomer, Dr. Gerald Heard and Dr. Helen Hogg from the David Dunlap Observatory, Dr. C. W. R. Steacie (head of the National Research Council), Dr. W. E. Van Steenburgh (Director General of Canadian Science Service), Dr. Peter Millman (meteor expert) and Dr. Ruth Northcott from the Royal Astronomical Society, were some of the noted Canadians present. Alberta was represented by Mr. W. H. Stilwell from Calgary and myself.

The group sat out in the open air, between the tall pillar supporting the telescope, and the main building which houses the offices, control apparatus, computing devices and workshops. It was a bright day, but a 30 mile-an-hour wind whipped up the sand soil and almost tore the notes out of the speakers' hands. Dr. Steacie remarked that as a chemist he often envied astronomers the places to which their work took them. It might not be so windy in a laboratory, but it was certainly not as beautiful.

Dr. Beals gave an introductory talk about the genesis of the project, part of this talk being delivered in very creditable French. The new Director of the Radio Observatory, Dr. J. L. Locke, spoke about its future, stressing that radio astronomy is not a separate science. The radio telescope is an additional tool for investigating the same problems that optical astronomers have been facing for years. It happens that the radiation emitted by hydrogen in the great clouds of interstellar matter between the galaxies is in the band of radio frequencies to which the radio telescope can be tuned. One of the principal lines of research at the observatory will be the study of these interstellar clouds, from which it is likely that stars and planets are formed.

The opening itself was performed by the Hon. Paul Comtois, Minister of Mines and

Technical Surveys, to whom the Director of the Observatory will be responsible for administration. He was there, he said, as the godfather of the project, and he wished that all man's endeavours were as peaceful and unprejudiced as the search for scientific truth. He called the new telescope a jewel added to the crown of Canadian science. Then he pressed a button and set the great parabolic dish in steady motion. As the direction of its axis swept across the radio source in Cassiopeia, the receiver picked up the signals, transmitted them into sound and sent out a musical note through the loud speakers. Three times the telescope passed across Cassiopeia and each time the sound swelled out, showing that the telescope was picking up the emission. Thus was the new observatory well and truly opened.

For the two following days a symposium on the objectives of Radio Astronomy was held in the main observatory building. Also on Tuesday evening, after the opening, the Director held a reception at his lakeside home. To wander in the garden lit by Chinese lanterns on a beautiful summer evening, to look across the lake and chat with dozens of astronomical friends and acquaintances, was an unforgettable experience.

E.S. Keeping

Distinguished Visitors

-- E. Milton

One result of the opening of the Penticton Radio Telescope was to bring to the west Dr. P. M. Millman, National President, and Miss Ruth J. Northcott, editor of the Journal. En route they stopped over at Calgary, where they were entertained by the executive of the Calgary Centre at a special dinner, at which an Edmonton delegation, consisting of Fred Jensen, Ian McLennan, and Earl Milton, was fortunate enough to be present. At a special meeting of the Calgary Centre held afterwards in the Calgary Auditorium, Miss Northcott conveyed the Society's best wishes to the "newest" Centre and expressed a desire for more close ties with the national office. The audience was then treated to an illustrated lecture by Dr. Millman, "Around the World with an Astronomer", in which his views of the world's great observatories proved him to be an artist as well as an eminent scientist capable of photographing with precision such technical subjects as meteor spectra. After the meeting, Dr. Millman journeyed north to Edmonton to see first hand the numerous fragments of the Bruderheim meteorite.

A Landmark Lost

Earl Milton reminds us of the serious problem presently confronting the Centre as a result of the dismantling of the University's 12^{1/2}" water reflector and its storage with its smaller sister in the Physics Department. Thus, since August 11, no observatory has been available to the Centre, a fact which has resulted in considerable restriction of the Society's activities.

While recognizing the University's need for clearing the site to make way for new buildings, the timing came at an unfortunate time for the Society. As Earl remarks, it was particularly desirable that the observatory should be in operation for the benefit of the many who through the Planetarium will undoubtedly discover a new interest in astronomy.

In the meantime, the site at Winterburn is awaiting the construction of a new Observatory building, and we think it is not unreasonable to hope that the

University will rehabilitate the Wates telescopes in a suitable structure as soon as possible. Or is there some philanthropic business concern which would be willing to spend \$50,000 for the advancement of science?

September Eclipses It was probably owing to the inaccessibility of the large telescopes that we received no observers' reports on the lunar eclipse of September 5 or the solar eclipse on the 20th. However, we gather that a number of individuals made observations of both eclipses, and that various photographs, not yet developed, were taken of the solar eclipse. In both cases visibility was very good in the Edmonton area, with only the occasional passing cloud to obscure the view. We should be interested to hear of any reports on the lunar coloration. We estimated it at 2.5 on the Danjon scale at its brightest. The beginning of the solar eclipse was obscured by cloud for about 4 minutes. Doubtless the photographs will permit a more exact estimate of the timing.

Calgary Visits -
E. Milton During the summer months several intercentre visits have occurred between Edmonton and Calgary. The first was on Saturday, May 21, when Earl Milton met the Calgary observers to discuss a definite observing programme for the Calgary Centre. It seems that Calgary is well on the way to becoming a major force in the RASC's new observing programme. Our neighbors to the south may have a younger group than we have, but they need not take a back seat to anyone when it comes to getting organized and observing. They have, first of all, a very efficient system of telephoning other members when getting groups together. They have done excellent satellite observing. Bruce Bohannon is pioneering the Calgary newsletter, the Observer, much as his Edmonton compatriots did with Stardust some years ago. Bruce and "Buck" Rogers head the meteor teams in the Calgary area. Dr. Carl Phillips is heading the AAVSO programmes for variable stars and nova search. Most of the remaining telescopic observations are directed by Jim Wright and Bob Nelson, who are also radio hams and form a valuable link to the "outside north" for their Calgarian observing astronomer friends. Many plans for closer observing co-operation between Calgary and Edmonton have been discussed for the near future. Let us here in Alberta show the way for the rest of the country in the quest for observing co-operation between centres.

1960 Perseid Meteor Report, Edmonton Centre, R.A.S.C.
-- Earl Milton Observations were planned for three nights during the 1960 Perseid meteor shower. The group met at the observatory and proceeded from there to their observing site west of Edmonton at Winterburn.

On the first evening, August 10-11, observations were not started until 11 P.M. due to a delay in arriving at the site. Only one hour of actual observations was possible due to a promised midnight curfew for this night of observations. However, despite a bothersome gibbous moon in the eastern skies, the group was favoured with good seeing conditions. Five observers, Brian Miles, Ron McLennan, Ian McLennan, Don MacPhearson, and Adrienne Frame, plus two timekeepers, E. S. Keeping and Earl Milton, were on hand for the observations. The number of meteors seen and their magnitudes were as follows:

	0 (or less)	1	2	3	4	Total
Perseid	1	9	10	8	3	31
Non-Perseid	0	0	1	0	2	3.

The target night for all night observations was scheduled for August 11-12 but an almost completely cloudy sky until well after midnight prevented a large enough group from gathering for serious observations. The few who did come out could only look on the clouded skies with hope. However, the sky did not clear so no observations were carried out.

The third and final group met on August 12-13 for another try. This time, smoke forest fires near Jasper Alberta made the seeing difficult, at times including stars as bright as third magnitude for minutes on end. However despite this hardship, six observers, Adrienne Frame, D. R. Crosby, W. Cable, Earl Milton, Ron McLennan, and Walter Nacuk, plus two timekeepers, Ian McLennan, and Brian Miles, observed for two half hour intervals through the haze. By midnight it was decided that the seeing did not warrant a later stay and the group adjourned. The numbers of meteors and their brightnesses were as follows:

	0 (or Less)	1	2	3	4	Total
Perseid	2	2	8	8	5	25
Non-perseid	0	1	0	0	0	1

We regret that owing to the unusual amount of material this month we have been obliged to condense or combine certain of the articles. As you see, our newsletter is still somewhat larger than usual. Address all communications to:

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