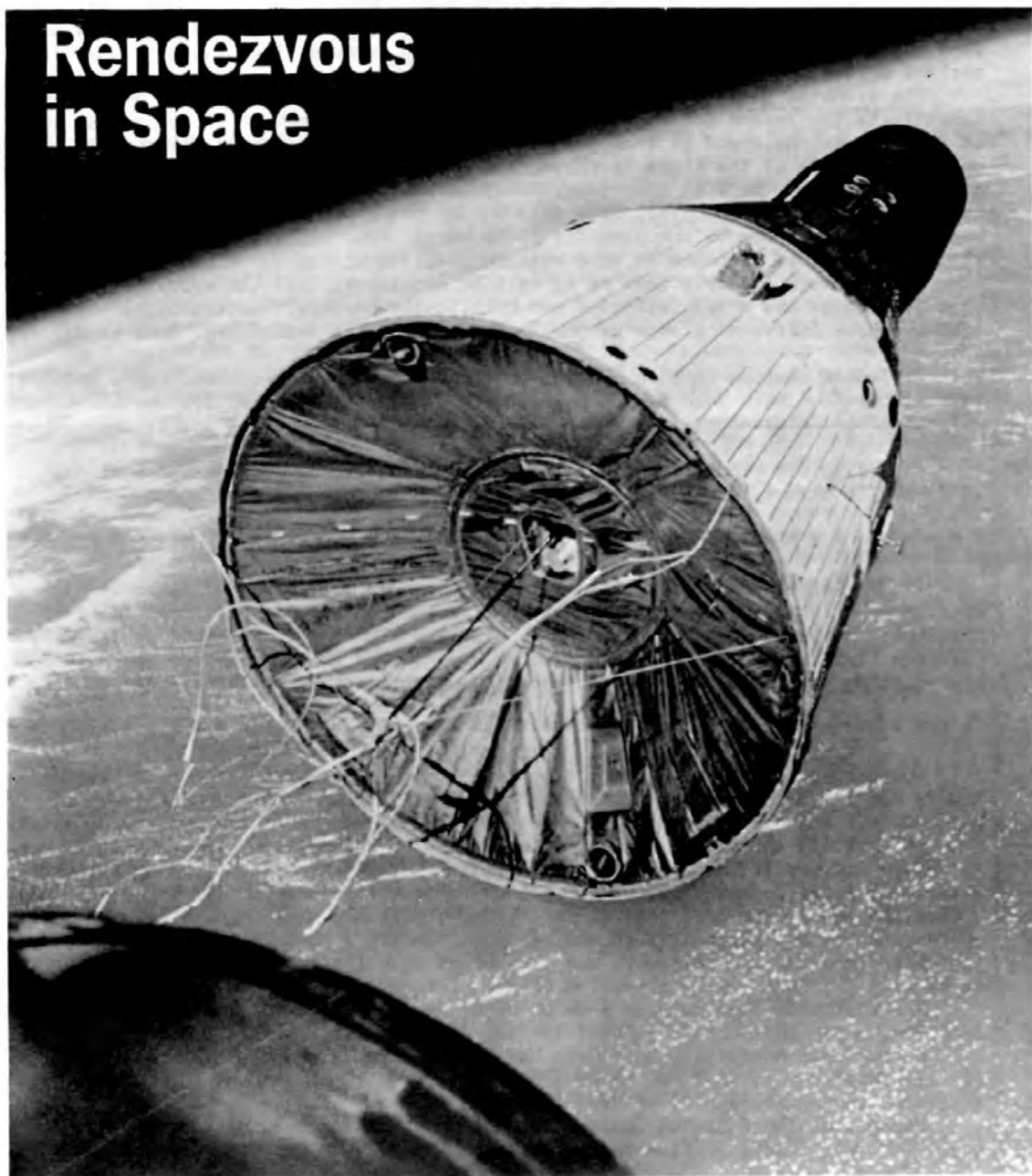


# Stardust

A Monthly Newsletter of the  
Royal Astronomical Society of Canada  
Edmonton, Centre

## Rendezvous in Space



\* \* \*    JANUARY MEETING NOTICE    \* \* \*

THE MONTHLY meeting of the Edmonton Centre, Royal Astronomical Society of Canada will be held on Thursday, January 13th, starting promptly at 8:15 p.m., at the Queen Elizabeth Planetarium. President W. J. CABLE will preside.

Following the usual business commitments, which we hope will be considerably abbreviated compared to the December business session, a film on Stonehenge will be presented. This is an hour long, black and white film which was shown on the C.B.S. network and was widely acclaimed. The film "stars" Professor Gerald S. HAWKINS, Professor of Astronomy at Boston University and research associate at the Harvard College Observatory. He lives in Wellesley Hills, Massachusetts.

On Salisbury Plain in southern England stands an awesome arrangement of stones that has been the subject of countless studies, poems, and legends dating beyond the days of King Arthur and his court. What did this somber group of stones signify to its architects? Was it a city of the dead? A Druid altar of sacrifice? A temple to the sun? It took the 20th Century, an astronomer, and computer techniques to unravel the ancient mystery.

The dramatic decoding of the mystery began when astronomer Hawkins decided to investigate the reason for that particular, peculiar arrangement of stones and holes at Stonehenge. He stood at each position and measured its various alignments. He got up in the middle of the night to photograph the dramatic midsummer sunrise over the giant heel stone. Back in Cambridge, Massachusetts, he fed the measurements he had taken and certain astronomical data into a huge computer and his original theories were confirmed. Some of the dramatic facts were: Each significant stone aligns with at least one other to point to some extreme position of the sun or moon. The mysterious aubrey holes were probably used as an eclipse predictor. All the evidence indicated that Stonehenge was a sophisticated and brilliantly conceived astronomical observatory, used by three different groups of people over a 400 year period beginning around 1900 B.C.

Professor Hawkins is also the author of the book "Stonehenge Decoded", written in collaboration with John B. White, editor and exhibits arranger for the Smithsonian Astrophysical Observatory.—This book has been purchased by the Planetarium.

This film was kindly loaned to us by Mr. Ron HASTINGS, of Page-One Limited, 18 Grenville Street, TORONTO 5, Ontario.

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AT THE December meeting, in addition to Observer Gary FINLEYS' interesting discourse on astrophotography, members were treated to the Planetariums' "Star of Christmas" presentation. Narrated by G. WILLIAMS with the compliments of the City of Edmonton Parks and Recreation Department., Dave RODGER remarked on the show of appreciation to him by those who attended the complimentary presentation.

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Commencing on Friday, January 7th, the Planetarium will present "The Sky Over Rio de Janeiro" in the Planetariums' Star Theatre. This show will run through to March 13th. Many unique special effects will be included in this popular presentation. A Lunar Orbiter, the Magellanic Clouds, the city of Rio skyline, etc., will all help to remove members of the audience, in imagination anyways, down to the more tolerable climate of Brazil. A transit of the planet Venus will be featured. Transits of Venus across the sun's disc are, just as for Mercury, rare occasions. Although the inclination of Venus's orbital plane is much smaller than Mercury's (3 1/3° instead of 7°), transits, just like Moon and Sun eclipses, can only occur when the earth is lined up with Venus at or near the nodes or intersection points of Venus's orbit with the earth's orbit.

The last transits recorded were on December 9th, 1874, and December 6th, 1882; June 8th, 2004, and June 6th, 2012, are the dates predicted for the next two transits.

During such transits a soft halo has been observed around the black silhouette of the planet Venus, believed to be the effect of sunlight passing through and being scattered in the atmosphere of Venus.

Members of the Edmonton Centre are invited to attend this showing of the "Stars over Rio" compliments of Planetarium Director Dave Rodger, and the City of Edmonton.



QUEEN ELIZABETH PLANETARIUM - CHRISTMAS 1965



A. V. PETTIGREW - Acting SUPERINTENDENT PARKS AND RECREATION  
DEPARTMENT CITY OF EDMONTON

ON DECEMBER 3rd at the Planetarium a preview of the "Star of Christmas" showing was presented to executives, employees and their families of the Parks and Recreation Department. All were deeply impressed by the presentations and complimented Dave Rodger on his abilities as producer of this moving and ever popular showing. Refreshments followed the showings, in the planetarium lecture room.

MEMBERS of the various local news media were also invited to this special preview and were equally enthralled by the beautiful story of the "Star of Christmas" as presented by the Queen Elizabeth Planetarium.

The month of December showed a marked increase in attendance at the Planetarium and helped to finish the year on a note of optimism and the assurance that Edmontonians truly appreciate the cultural and entertainment values inherent in their planetarium and will continue to support it on an ever increasing scale in the coming years.



"STAR OF CHRISTMAS" SHOW - RECEPTION - QUEEN ELIZABETH PLANETARIUM  
DECEMBER 1965

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THE PRESIDENT'S MESSAGE:



The talk given by Gary last month was very enlightening, and will, I hope, create more interest in the Observer's Group. The group has outlined a very interesting program and I would like to wish them good seeing and a very successful 1966 in observing.

W. J. CABLE,  
President,  
Edmonton Centre,  
R. A. S. C.

R. A. S. C. LIBRARY NEWS:

Star Atlases - The centre has several star atlases available to members. NORTON'S - Stars to 6th magnitude, Messier objects, Herschel objects, Struve double stars, as well as a tremendously helpful glossary. Good suggestions for objects to try for, suitable for naked-eye, binoculars and telescopes of all sizes. SKALNATE-PLESO - Stars to 7.75 magnitude. Messier objects, N.G.C. and I.C. objects marked and classified. Multiple stars indicated. An excellent atlas for the more advanced amateur. WEBB'S - Stars to 10th magnitude. A variable star atlas, a little awkward to use, and specialized. ATLAS ECLIPTICALIS and BOREALIS - Stars to 9th magnitude, spectral classification and multiple stars marked, no Messier or N.G.C. objects.

Robert ALLIN,  
Librarian,  
Edmonton Centre.

FOR SALE --- 3" UNITRON EQUATORIAL REFRACTOR --- Robert ALLIN ---

QUOTE - !! "I do not believe that Mercury is a true planet." !! end of quote.  
Dave  
Rodger

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Walter FRANIEL gave a special showing to Dave RODGER, Eldon ROGERS, and myself of his 8 mm film of the July 20th, 1963, total eclipse of the sun. The film is really quite something to see; especially the totality sequence. The camera was held perfectly rigid enabling the viewer to relax and marvel at this beautiful and vital portion of the film. This has to be one of the best filmed showings of that eclipse anywhere, and perhaps Walter could be persuaded to present this to the Edmonton Centre at some future date.

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Planetarium Director Dave RODGER left the balmy Edmonton scene for a brief tour to Saskatoon and Regina during the week of December 23rd. He reports that the Observatory in Saskatoon is not being adequately used and that this is apparently due to a lack of interest among those who should be interested. The Saskatoon Observatory is well equipped having a 7" refractor, classroom and darkroom facilities, maps, projectors, a sidereal clock, telescope making room, etc. When he arrived in Regina he was further rudely awakened to see the Observatory dome resting (?) the corner of College Avenue and Broad Street. We assume the Regina Centre is moving to new quarters but at that location there may be a few problems! Perhaps the Regina Centre could provide Stardust with further information regarding this matter.

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IN THE NEXT few weeks the Planetarium will be featuring a major display on amateur astronomy in Canada. Any members who have models, telescopes, photographs, display boards, etc., etc., suitable for displaying to the general public please contact Dave Rodger at the Planetarium. Bill Cable has constructed models of the Ranger Satellite and the TRS-1 satellite; I have completed a model of the Orbiting Astronomical Observatory, and many more along these lines are contemplated. This is the Edmonton Centre's chance to really let the public know what we are doing, what can be done by ambitious amateurs, and how much more could be done if Edmonton were to construct our proposed Observatory. We ask for your co-operation in this endeavour.

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Dave RODGER in recent correspondence with Ian McLENNAN tells us that Ian will be leaving for an European tour on January 17th. His itinerary includes visits to Russia and Germany and possibly Japan on planetarium promotion/business. On his return trip he expects to stop off at Northern Ireland to visit Patrick MOORE at the Armagh Observatory there. Dave hopes to meet Ian in Montreal at the opening of the Dow Planetarium on February 11th. Don DAVIS is the Dow Planetarium Director. Ian relates further that the United States will build approximately 1,000 planetaria over the next 3 years; will spend about \$3 BILLION in space education in 1966 alone, and the State University of New York (Albany) is preparing to offer a Masters Degree in Planetarium Administration!!! The Americans, in keeping with the spirit of that great nation, it would seem have truly been educated to the unlimited potential and enormous value to the country of stimulating and encouraging the development of planetarium institutions throughout the land. It is hoped that Canada will strive for a similar, proportional development very soon. So far Montreal, Toronto and Edmonton seem to be the cities with foresight. Procrastination has already hurt the development of the Calgary proposal - still without a Director!!

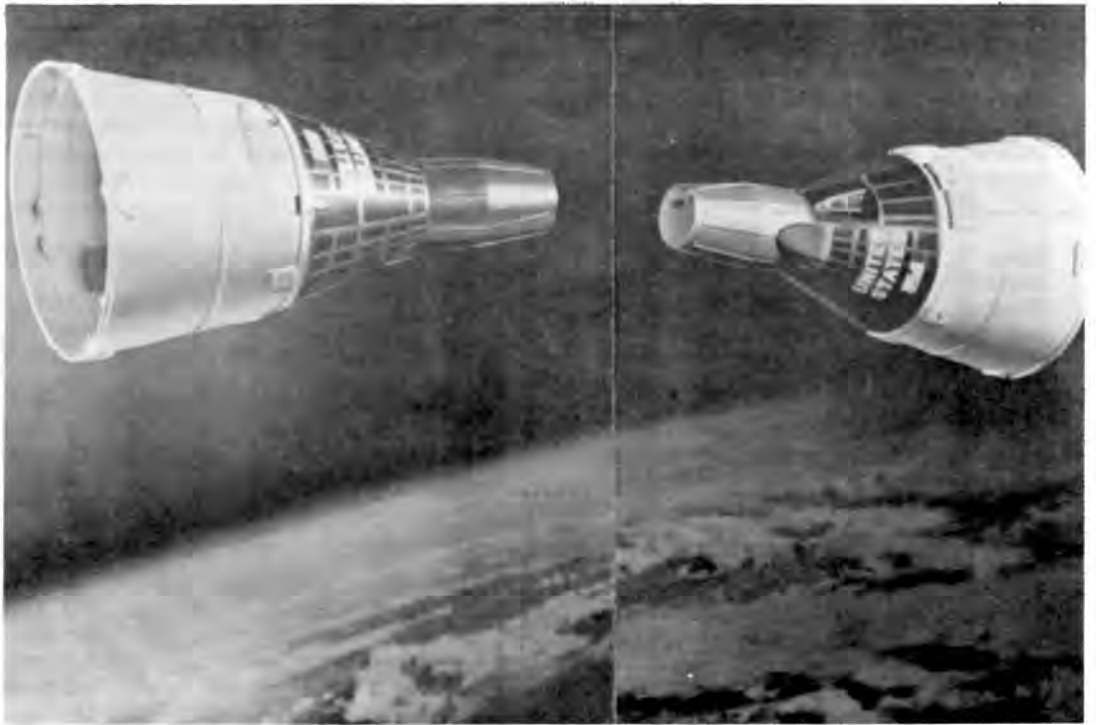
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UNQUOTEABLE QUOTES \*\*\* Astronaut Frank BORMAN on TV program "This Hour has Seven Days" in reference to the elimination of micturation while in orbit remarked that it was (quote) ".....like going through the constellation of Orion..." (end of quote). Those who watched the television program and the above sequence in particular may recall the Astronauts' use of less discreet diction. Aside from this the filmed portions were quite spectacular and the planetarium is eagerly awaiting its copy of the space rendezvous.

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Franklin LOEHDE reports that the proposed Observatory Brochure is progressing satisfactory and that the artwork is now being done. ALL PLANETARIUM books that are still being held by individuals should now be returned to the planetarium without delay. R.A.S.C. OBSERVER'S HANDBOOKS 1966 are available to anyone for \$1.00. Please write or phone the Queen Elizabeth Planetarium, attention: Dave RODGER, DIRECTOR.

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GEMINI 6 - W. Schirra - T. Stafford

GEMINI 7 - J. Lovell - F. Borman



J. Lovell (left) and Frank Borman

GEMINI, MARINER SUCCESSES MARK YEAR IN SPACE \*\*\*\*\* For the sophisticated space observer, 1965 was an International Quiet Sun Year (IQSY). For others, it was the year of the two-man Gemini flights and the year that American spacecraft sent photos back from Mars and the Moon. NASA began the year with an unmanned suborbital flight of its Gemini 2 spacecraft in January. There followed, in the year, five manned flights of the Gemini which included a space walk, a rendezvous in space, and two long-duration flights. The Cooper-Conrad flight in the Gemini 5 (Aug. 21-29) was for eight days, and the Borman-Lovell flight in the Gemini 7 (Dec. 4-18) was for 14 days. It was in the McDivitt-White flight (June 3-7) that the United States first succeeded in EVA (extra vehicular activity) when Astronaut Edward H. White II, climbed out of his orbiting Gemini 4 spacecraft and took a 20-minute, 17,500 miles-per-hour stroll across the U.S. Once outside the spacecraft he used a hand-held propulsion gun for maneuvering in space. These manned missions shared public attention with the exploits of a highly successful stable of scientific spacecraft which included the Ranger, Mariner, Pioneer, Pegasus and five more of the Explorer series, bringing to 31 the number of Explorer satellites launched by the U.S. (continued page 7)

Rangers 8 and 9, between them, televised to Earth some 13,000 photos of the lunar surface. These, added to those taken by Ranger 7 in 1964, brought to more than 17,000 the number of Moon surface photos taken by three U.S. Ranger spacecraft. The photos are under study by scientists throughout the world. The Mariner 4, after its 325-million-mile, 228-day journey to Mars returned the first close-up pictures of the Martian surface. Mariner 4 was not a life-detection spacecraft and it neither confirmed nor ruled out the possibility of some form of life on Mars but found no measurable meteoritic dust, magnetic field or radiation belt. A thin atmosphere was detected. In the scientific series, NASA also succeeded for the second time in orbiting two satellites with one launch vehicle. On November 28th the ALOUETTE II (CANADIAN) and the Explorer 31 spacecraft were launched together from the Western Test Range by a Thor-Agena booster. The Alouette was the first of two international launches during the year. On December 6th NASA put into orbit from the Western Test Range the French scientific satellite, FR-1. These launches were part of a broader program of international co-operation in space which included more than 65 countries. The first commercial satellite, Early Bird, was launched April 6th and Tiros 10, a weather satellite was placed in orbit July 2nd; this satellite was paid for by the Weather Bureau.

In the university program about 10,000 scholars at 100 universities in every state of the Union were working on space-related projects at the year's end.

(NASA News Release No. 65-368)

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A NEW ADDITION to the Planetarium Library - - - "Star Gazing with Telescope and Camera" by George T. Keene., a well-known lecturer in the field of astronomy and currently the president of the Rochester Academy of Science, this book contains all the necessary know-how for photographing the phenomena of outer space. Mr. Keene begins by telling the would-be astronomer how to choose telescopes and binoculars and, for the more ambitious, how to make a reflecting telescope---grinding and polishing the mirror and making a mounting to most effectively compensate for the earth's rotation. Hints on using the telescope include tips on observing---how to find celestial objects, magnifications to use, and limitations imposed by air turbulence, small telescope apertures, and the nature of light itself. Here is a book that may be used to advantage by everyone from the beginner with a box camera to the owner of a large telescope with motor drive. Mr. Keene recommends the best lens, camera and film for each specific situation. A list of the equipment needed for astrophotography and the names and addresses of the suppliers of this equipment is also included. A graduate of Massachusetts Institute of Technology and now a photographic engineer with Eastman Kodak Company, George T. KEENE has many hobbies---particularly, astronomy, photography, and rocket research. He is a member of the Society of Motion Picture and Television Engineers, American Men of Science, and the Astronomical League. In addition, he has written and lectured extensively in the field of Astrophotography. This distinguished gentleman has also paid a visit to the Queen Elizabeth Planetarium and conversed enthusiastically regarding astronomy with the Planetarium staff.

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No Observer's Report was received for this issue. But the following was offered by Robert ALLIN:

BIG LAKE OBSERVATORY---Big developments at the Lake:

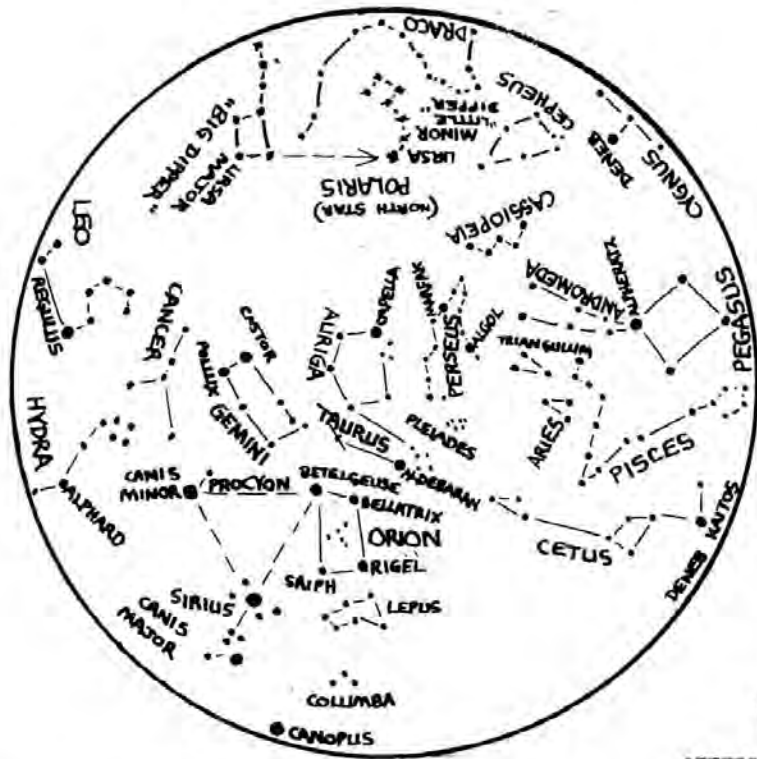
The 8" Wates telescope has been repaired and is due to be mounted in the observing shelter when 70 pounds of counterweight has been obtained, (hint! ed.) and some warmer weather. The 8" mirror turns out to be actually a plate glass 9" on a 9 point floating suspension. Workmanship is really excellent on this telescope, and I hope it can be put to worthwhile use.

Robert ALLIN,  
Librarian

Robert reports the following observing accomplished by him during December:  
13 Variable estimates, 2 drawings of Jupiter and 5 Double Stars.

This is the only observing report I have and this from the Librarian---what happened to the other 74 members of the Edmonton Centre???? (Ed.)

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The night sky in JANUARY - 40° N - 9 p.m.  
 Highlights: the Dog Star, Sirius, and the constellation of Orion.

PLANETS for January/66:

Mercury - Too close to the sun for observation.  
Venus - For the first half of the month it is visible as an evening star very low in the south-west after sunset, but later it is too close to the sun for observation.

Mars - Too close to the sun for observation.

Jupiter - In Taurus, it is well up in the east by sunset and is visible most of the night.

Saturn - In Aquarius, past the meridian at sunset and sets about 3 hrs. later.

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STARDUST \*\* A monthly publication of the Edmonton Centre, R.A.S.C.  
 Editor - G. E. WILLIAMS  
 Production - Walter FRANIEL  
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LETTERS to the Editor are welcome and should be addressed: Editor, Stardust, c/o Parks and Recreation Dept., City Hall, Edmonton, Alberta.