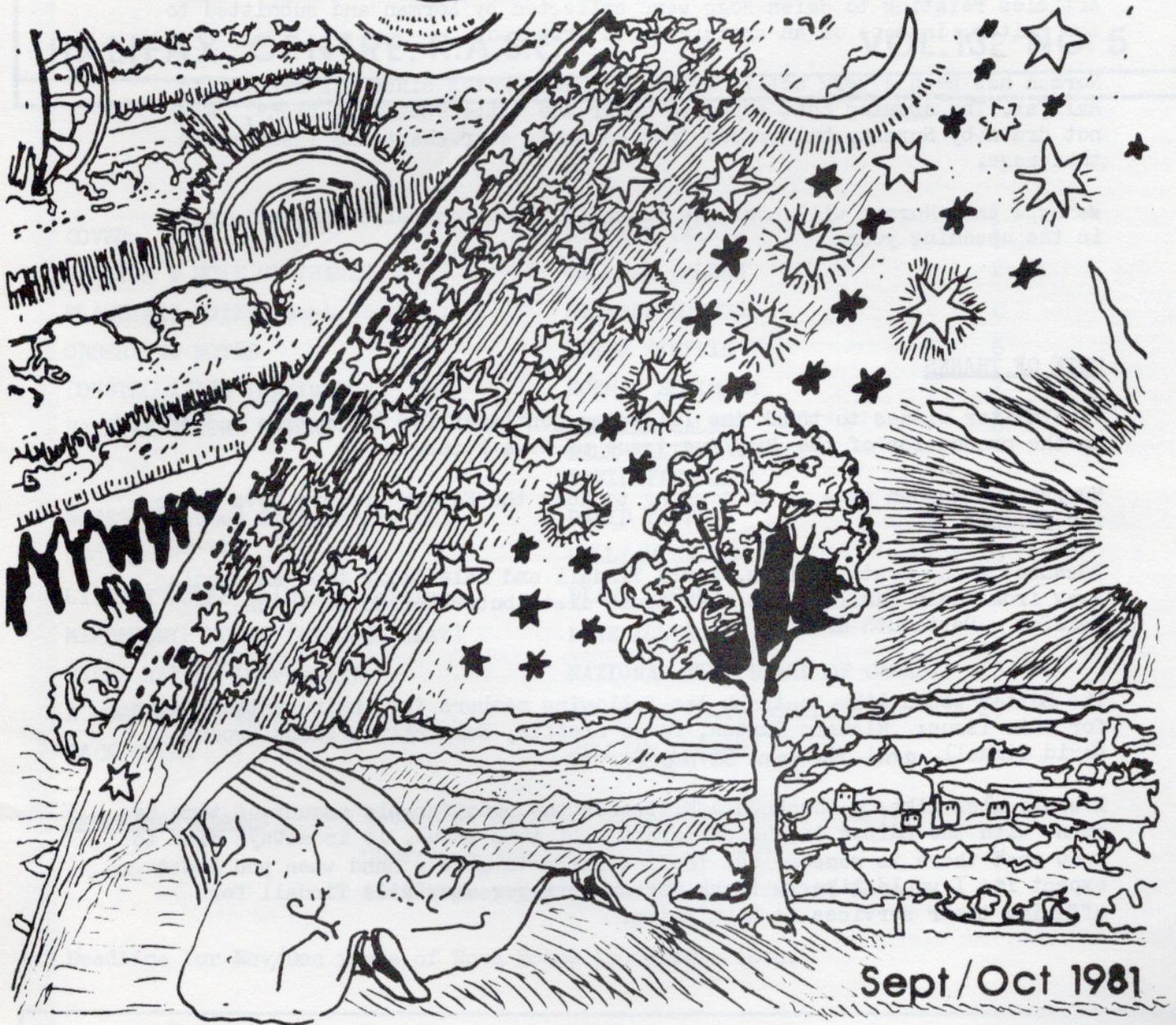


NOVA NOTES



Sept / Oct 1981

ASTRONOMY

Erratum

The Editor wishes to apologize to Norman Scrimger for the following errors which resulted in the last issue of Nova Notes.

The Life History of Helen S. Hogg was not written by Norman Scrimger, but articles relating to Helen Hogg were collected by Norman and submitted to the Editor, in hope of an article to be prepared.

Norman has been a very active writer for Nova Notes since his arrival to Halifax. The drawing that appeared under the title "Constellation", was not drawn by Norman, but traced from Norman's star chart and inserted in that page.

We hope that Norman will continue to write these Constellation articles in the upcoming year.

NOTE OF THANKS

The Editor wishes to thank the following gentlemen for their time and effort in the production of the July/Aug issue of Nova Notes.

Murray Cunningham gave up an evening to help the Editor prepare Nova Notes for mailing.

Because of the postal strike, David Tindall and Dale Ellis took an evening away from their families, so they could distribute Nova Notes to the Halifax - Dartmouth area.

The Editor would like to thank the following members for their contributions for this issue: Richard Burton, Peter Steffin, Dale Ellis, Diane Brooks, David Tindall, and Norman Scrimger.

I would also like to thank Dale Ellis for the considerable amount of time he spent with the Editor in the preparation of this issue. It is always nice to know that there is someone out there willing to give a hand when you least expect it. I would like to thank Norman Scrimger and David Tindall for offering their services to Nova Notes.

"NOVA NOTES"

(BIMONTHLY ASTRONOMICAL JOURNAL)

SEPTEMBER 1981 EDITION

EDITOR: WILLIAM J. CALNEN

HALIFAX CENTRE, R.A.S.C.

VOL.13 NO.5

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Deadline for Nov/Dec issue of Nova Notes is October 10th.

"Nova Notes is Printed Courtesy of the Nova Scotia Museum"
1747 Summer Street, Halifax, N.S. B3H 3A6.

Planetary Notes

For the beginning amateur astronomer, the planets are the easiest astronomical objects to find. Venus, Jupiter, and Saturn are the brightest planets, while Mars is at its brightest around times of opposition. Mercury is a little more difficult to find, except when it is at its brightest, or when it is near one of the other bright planets. Neptune and Uranus are rather hard to locate unless one knows where to look for them.

Mercury passes through phases like the Moon. These phases are visible around the time of each elongation. A 6-inch telescope will show these phases. Smaller telescopes down to 4 inches should be able to detect them also, although no details can be observed with a small scope.

Venus also passes through phases, which are quite easy to see. A small refractor, such as a 2.4-inch (60mm), can reveal some of the phases, but not all of them. No details can be seen with small telescopes.

A small telescope will reveal two or three belts of Jupiter's atmosphere. These belts are clouds that lie parallel to one another, due to the great velocity of the rotation of the planet. Depending upon the size of the telescope being used, the Great Red Spot should be visible. The four bright "moons" are of interest to the amateur. These "moons" move around the planet, sometimes moving behind the disk of the planet, and sometimes in front of the disk. At these times, only three moons appear through small scopes. Larger telescopes will show a moon that is passing in front of the planet's disk. A large telescope often reveals the shadow of this moon, moving across the face of the disk.

Any size telescope should show the rings of Saturn. Larger scopes will show the gap (Division) in the rings, and the shadow of the rings on the planet's disk. Still larger scopes will reveal the blackness of the polar regions and the equatorial belt. Several moons can be seen with a 6-inch telescope, but these are sometimes hard to recognize as moons, because they look like stars. The only exception to this is Titan. It can be found approximately five ring-diameters away from the planet. Rhea should be visible in a telescope over 2.4 inches (60mm) in size. It appears approximately two ring-diameters away from the planet.

September Skies

Throughout the month of September, Mercury is low in the west at sunset. The greatest elongation east (26°) occurs on September 23. This is an unfavourable time to observe the swift planet; however, it can be seen with some difficulty, low in the west as the sun sets. Mercury looks like a star, much the same color as Saturn, to the unaided eye, Mercury will have a magnitude of +0.3 on September 23, and its apparent diameter will be 6.8 seconds of arc.

Venus can be found low in the southwest at sunset and it sets shortly thereafter. The planet will be moving from Virgo into Libra. On September 1, Venus will have a magnitude of -3.5, and its apparent diameter will be 14.2 seconds of arc at that time. The disk will be approximately 77% illuminated on this date.

At sunrise, Mars can be seen in Cancer, high up in the east. Mars looks like a reddish-orange star to the unaided eye. It passes near the Beehive star cluster (M44), in Cancer, on September 13. This should aid the observer in locating the red planet. The planet will have a magnitude of +1.8 on September 15. At this time, very little (if any) surface detail can be seen, because of its great distance from the Earth.

Continued on the next page

Jupiter can be seen low in the southwest at the present time. The giant planet will have a magnitude of -1.2 on September 15th. It becomes too low in the sky to be seen easily, by the end of the month.

Saturn is located near Jupiter in the southwest. It will also be too low to see easily, by the end of the month.

More experienced observers might try to locate Uranus and Neptune (if you have not done so already). Their positions are R.A. 15h 38m, Dec. $-19^{\circ} 15'$ and R.A. 17h 26m, Dec. $-21^{\circ} 54'$ respectively. Uranus is presently located in Libra, and Neptune is in Ophiuchus (also see "CONSTELLATION", page 7). Both planets will be remaining in these constellations for most of the year. A high magnification is required to show the disks of these two planets.

October Skies

Mercury will be in inferior conjunction on October 18th. The planet will be located in the southeast, at the end of the month. It will be approximately 17' above the horizon, this month.

Venus will have a magnitude of -3.1 on October 1st. It will be located in the southwest at sunset. The planet will be 67% illuminated, with an apparent diameter of 17.2 seconds of arc.

Mars will have a magnitude of $+1.7$ on October 15th. Its apparent diameter will be 4.73 seconds of arc, on this date. The red planet will be moving from Cancer into Leo.

Jupiter will be too close to the sun to be observed, at the first of the month, but will be seen low in the east, shortly before sunrise. On October 15th, Jupiter will have a magnitude of -1.2 . Its apparent diameter will be 30.6 seconds of arc, on October 1st.

Saturn will also be too close to the sun to be observed, during the earlier part of the month, but will be seen low in the east, during sunrise by the end of the month. The rings will be opening wider as the year progresses.

Uranus will have a magnitude of $+6.0$ on October 15th. Its position on this date will be R.A. 15h 44m, Dec. $-19^{\circ} 34'$.

Neptune will have a magnitude of $+7.8$ on October 15th, and it will be located at R.A. 17h 28m, Dec. $-21^{\circ} 57'$.

Further information may be obtained from the Observer's Handbook 1981, of the R.A.S.C. (Royal Astronomical Society of Canada).

"Let us strive with diligence but humbleness to see what the stars are telling us about themselves."

Robert M. Petrie (1906 - 66)

Observing Notes

TRAINING THE MIND'S EYE

Who hasn't heard the saying that "practice makes perfect." So it is also with amateur astronomers who want to be able to get the most out of their telescope. There is no doubt that spending many hours looking through a telescope sharpens the eye. In fact one sees more and sees it quicker with practice. However there is another consideration to be taken into account. This involves researching whatever object one is about to look for in the night sky. This mental briefing will add much to the "working knowledge" of the heavens and increase the enjoyment of observing. Let me give you an idea of what can be done.

The OBSERVER'S HANDBOOK will tell you what celestial objects to search for and when and where to find them. If one desires more than a brief description of these objects, then other reference material is required. Here is where the enjoyment begins. Many of these fine reference books give either photographic or pictorial representation and in the majority of cases detailed analysis of deep sky objects. The book that I have come to value highly in this context is BURNHAM'S CELESTIAL HANDBOOK (3 volumes). Just recently, to get ready for my fall viewing schedule, I read up on M 31, the Great Andromeda Galaxy. The following information, that I found, is just enough spice to intrigue any amateur observer.

The Great Andromeda Galaxy (M 31) is the only one of the spirals in the local group, which includes the Milky Way, to be a definite naked eye object. Since it is also the closest spiral to us, it can be seen without optical aid and appears as an elongated bit of fuzzy light. Known for at least a thousand years it has given up its secrets slowly. Visible to the earliest telescopes it did however escape accurate analysis. The earliest descriptions included "an ionized gas cloud" and "a solar system in the making." It wasn't until 1923 that Edwin Hubble through the study of cepheid variables definitely established the great spiral as an extra-galactic object.

Later investigation has shown that the galactic stars are arranged in two different populations. The outer spiral arms consist of bright blue giant stars and lanes of gaseous nebula. At the center are located vast numbers of fainter red and yellow stars. Further study has also placed M 31 at a distance of 2.2 million light years. With a total of well over 300 billion stars it is also one of the most luminous galaxies. Although we regularly compare it with our own Milky Way Galaxy, M 31 is probably one of the largest known.

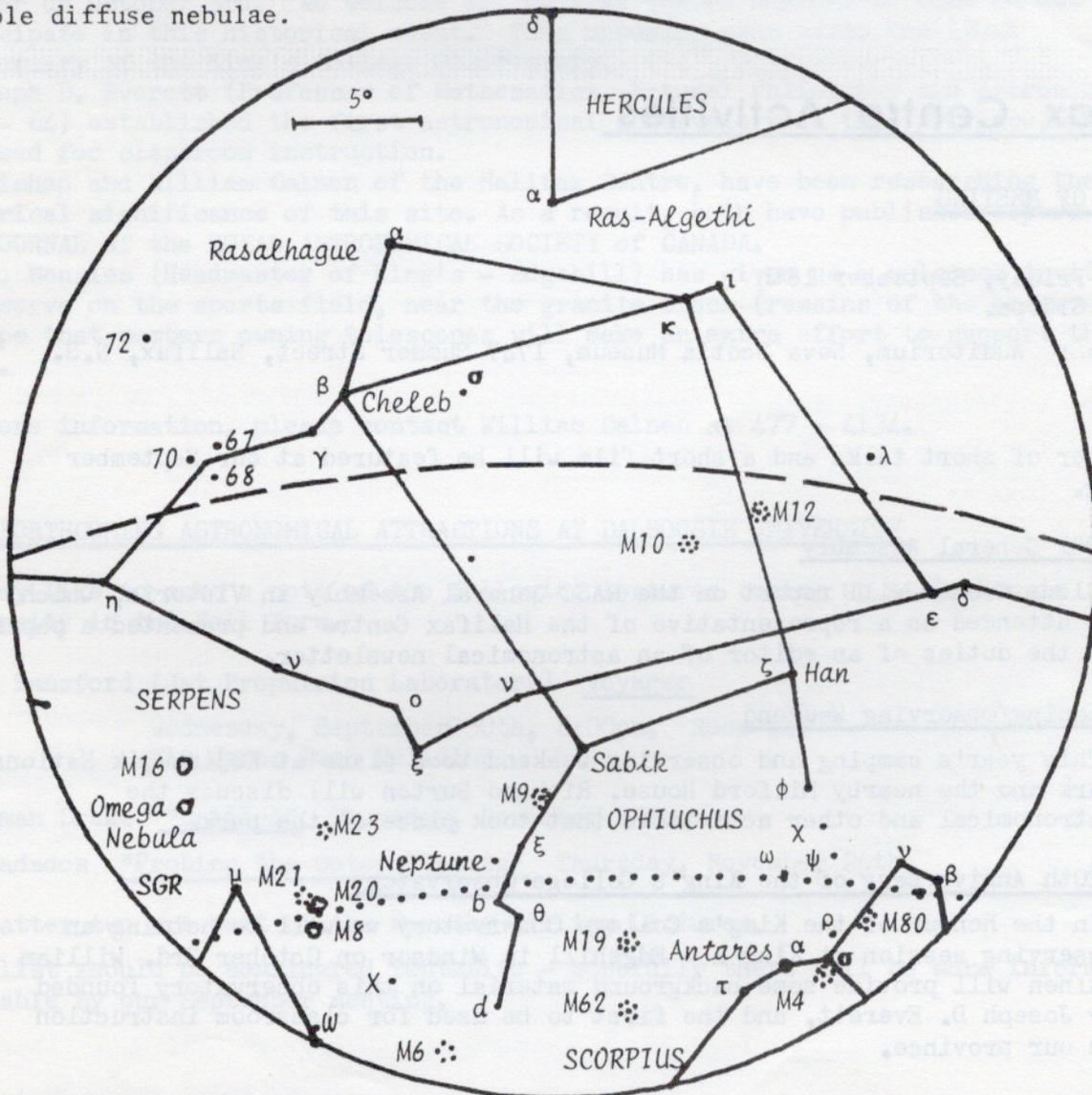
Remember, an investment in the understanding of what we see can only sharpen our sense, increase the appetite and lead to greater enjoyment of amateur astronomy.

Constellation

OPHIUCHUS: The Serpent-bearer

Ophiuchus, the mortal son of Apollo, had such an understanding of medicine that he could not only heal the sick, but he could restore the dead to life. This power ultimately led Ophiuchus to his downfall. At Neptune's request, Ophiuchus succeeded in reviving Hippolyte who had been drawn apart by four horses. This success encouraged Ophiuchus to try to bring back to life the mighty Orion who had been killed sometime before by the scorpion. Pluto, who ruled over the dead, feared his own dominion would be diminished by the power that Ophiuchus possessed, so he asked Jupiter to intervene. Jupiter struck Ophiuchus down with a thunderbolt and then placed him in the sky with Serpens, the symbol of prudence, renovation, wisdom, and the power of discovering healing herbs. Today this symbol is used by physicians around the world.

Ophiuchus, sometimes called Serpentarius, is not one of the original Zodiacal constellations although the sun does pass along the ecliptic contained in Ophiuchus between December 1st and 16th. The ecliptic is the dotted line in the diagram below, and the celestial equator is the dashed line. The planet Neptune is now located in Ophiuchus and is marked on the diagram. Several globular and open clusters that are worthwhile objects to view through small telescopes are included as are a few notable diffuse nebulae.



Halifax Centre Report

Halifax Centre Executive

c/o 1747 Summer Street, Halifax, Nova Scotia B3H 3A6.

Honorary President:	William Holden M.D., F.A.C.S.	
Acting President:	David Tindall	455 - 7456
President:	Peter Edwards	
Secretary:	Murray Cunningham	429 - 4751
Treasurer:	Dale Ellis	466 - 7315
Editor:	William Calnen	477 - 4134
National Rep.:	Roy Bishop	1 - 542 - 3992
Librarian:	Diane Brooks	434 - 7274
Observing Chairman:	Michael Boschat	455 - 6047

Halifax Centre Activities

NOTICE OF MEETING

Date: Friday, September 18th
Time: 8:00pm.

Location: Auditorium, Nova Scotia Museum, 1747 Summer Street, Halifax, N.S.

Agenda

A number of short talks and a short film will be featured at our September meeting.

(1) 1981 General Assembly

Glenn Graham will report on the RASC General Assembly in Victoria, which he attended as a representative of the Halifax Centre and presented a paper on the duties of an editor of an astronomical newsletter.

(2) Camping/Observing Weekend

This year's camping and observing weekend took place at Kejimikujik National Park and the nearby Milford House. Richard Burton will discuss the astronomical and other activities that took place at the park.

(3) 120th Anniversary of the King's College Observatory

In the honour of the King's College Observatory we will be holding an observing session at King's - Edgehill in Windsor on October 3rd. William Calnen will provide some background material on this observatory founded by Joseph D. Everett, and the first to be used for classroom instruction in our province.

(4) Upcoming Astronomical Events

Michael Boschat (Observing Chairman) will discuss the upcoming astronomical events for September and October. Also, Michael recently purchased a compact reflecting telescope and will be displaying it at our meeting.

(5) Herzberg Film

We will also feature an 18 minute film on Gerhard Herzberg, a Canadian Nobel Prize winner. See "Media Review" (page 18) for more details.

OBSERVING SESSION

Date: Saturday, October 3rd

Time: 7:00pm.

Location: King's - Edgehill, College Road, Windsor, N.S.

The Halifax Centre, R.A.S.C. will hold a special observing session in the town of Windsor on October 3rd. We welcome all Halifax Centre members to come on out and participate in this historical event. This upcoming year marks the 120th anniversary of the King's College Observatory.

Joseph D. Everett (Professor of Mathematics, Natural Philosophy and Astronomy, 1859 - 64) established the first astronomical observatory in this province, which was used for classroom instruction.

Roy Bishop and William Calnen of the Halifax Centre, have been researching the historical significance of this site. As a result, both have published papers in the JOURNAL of the ROYAL ASTRONOMICAL SOCIETY of CANADA.

T.T. Menzies (Headmaster of King's - Edgehill) has given us a welcomed invitation to observe on the sports field, near the granite block (remains of the observatory). We hope that members owning telescopes will make an extra effort to support this event.

For more information, please contact William Calnen at 477 - 4134.

SOME FORTHCOMING ASTRONOMICAL ATTRACTIONS AT DALHOUSIE UNIVERSITY

You may like to make a note of the following lectures coming up at Dalhousie University in the Fall Term.

Garry Ransford (Jet Propulsion Laboratory) Voyager

Wednesday, September 30th, 8:00pm. Room 117
Sir James Dunn Building

Stillman Drake "Galileo" Thursday, November 12th.

Ben Cadados "Probing the Outer Planets" Thursday, November 26th.

The latter two are part of the Dorothy Killiam Lectures.

This list should be considered tentative - hopefully there will be more information available by our September meeting.

Halifax Centre Notes

1982 MEMBERSHIP FEES

Membership fees are now due for the 1981 - 82 year:

Regular:	\$20.00
Student:	\$12.50 (under 18 years)
Life:	\$300.00

Your membership in the Halifax Centre, R.A.S.C. provides the following:

- a copy of the 1982 Observer's Handbook
- six issues of the Journal of the Royal Astronomical Society of Canada (Bimonthly)
- six issues of the National Newsletter (Bimonthly)
- six issues of Nova Notes (Halifax Centre Bimonthly Publication)
- use of the Halifax Centre Library (see Library Notes of this issue, page 14)
- monthly meetings at the Nova Scotia Museum (except July & August)
- monthly observing sessions (depending on weather conditions)

In addition we offer the Burke-Gaffney Award for the best paper submitted in an annual competition, and we organize special activities such as:

- Astronomy Day (May)
- Annual Halifax Centre Dinner (May)
- Annual Camping - Observing Weekend (July)
- Annual Tour or Picnic (August)

A special event is the annual R.A.S.C. General Assembly (to be held in Saskatoon next year), at which you may wish to present a paper or compete for one of the many awards.

To renew your membership, or join for the first time, pay your dues during the coffee break at one of our meetings, or mail your cheque or money order (payable to "Royal Astronomical Society of Canada, Halifax Centre") to:

Royal Astronomical Society of Canada (Halifax Centre)

c/o Nova Scotia Museum
1747 Summer Street,
Halifax, N.S.
B3H 3A6.

PERSEID METEORS

Again this year, we were given an invitation to observe the Perseid Meteor shower at Maktomkus Observatory in Avonport. In the afternoon, clear skies were reported over Avonport. Clouds that prevailed by early evening did not prevent us from having an enjoyable time, thanks to the hospitality of the Bishop family.

CALL FOR PAPERS

Nova Notes requires a steady flow of material from the membership, in order that we may present interesting items to all. Papers may range from a few lines to several pages in content. Drawings of any astronomical phenomena and a short note to be included, are always welcomed. Members who have access to observatories (professional or amateur) are asked to submit their observing reports to the page, "Notes From Observatories". Members who don't have access to an observatory, may submit their reports to "Observing Notes". Papers can be sent to the following address at any time (either delivered by hand or in the mail).

William J. Calnen
14 Green Acres Road,
Halifax, N.S.
B3R 1C6.

1981 BURKE-GAFFNEY AWARD

The 1981 Burke-Gaffney Award was won by Diane Brooks for her essay "Mythology in Astronomy". An earlier version of her article has appeared in Nova Notes, vol. 11, nos. 4 and 5. Diane is an active member of the Halifax Center, participating in many activities, a former vice-president and secretary, and currently Librarian. For her prize, Diane has selected the book Black Holes and Warped Spacetime by Kaufman. Our congratulations to Diane.

A QUOTE FROM THE "ESSAY ON MATHEMATICAL STUDY"*

In the science of Astronomy, the telescope itself owes all those refinements upon which its great power depends, to mathematical investigations, which have shown the correct form for the speculum in the reflecting telescope, and the combination of lenses necessary for producing achromatism in the refracting telescope; and it is by analytical investigations of the profoundest kind that modern Astronomy is able to predict the motions of the heavenly bodies with that unerring accuracy which is of such inestimable value to the modern navigator.

Joseph David Everett
King's College
Windsor, N.S.

* Everett, J.D. 1860, in The Calendar of King's College, James Bowes and Sons, Halifax, N.S., p.55.

Notes

Elected Officers of the Halifax Centre Executive

Since election time for the 1982 executive will soon be upon us, it seems a good idea to have a brief rundown of the principal duties of each of the officers of the Centre. That way, when you are considering running for office, you can have some idea of what you are getting into!

President

Chairs meetings of the society. Prepares agenda for executive meetings and finds speakers for Centre meetings.

Vice-President

Acts for president when the latter is unable to perform his duties. Sends announcements of meetings to the press or T.V. Responsible for handbook sales.

Secretary

Takes minutes of centre meetings for Nova Notes. Receives and answers correspondence. Annual Report to National Office (for Journal).

Treasurer

Manages finances of the Centre. Prepares Annual financial statement for National Office (for Journal).

Editor and Assistant Editor

Jointly responsible for the Centre's newsletter "Nova Notes" - all the way from soliciting articles to stapling and mailing.

National Representative

Represents the Centre at the National Council Meetings. Attends the General Assembly on behalf of the Centre.

Librarian

Responsible for managing the Centre's book collection. (This is kept in our locker in the Societies room at the N.S. Museum).

Observing Chairman

Arranges observing sessions. Coordinates observations made by Centre members. Gives notice of principle forthcoming Astronomical phenomena at meetings.

In addition, of course, there are numerous other tasks not mentioned above which are divided up on an ad hoc basis at Centre Meetings. This year for example, we had: The Annual dinner, Societies Show, Astronomy Day, Camping/Observing Weekend, Perseids at Maktomkus.

You are reminded that the executive meetings precede the regular meetings of the Centre at 7:00 p.m. in the South Room of the Museum. The executive meetings are open to all members - so come and see how the Centre is run!

NOTE: There are two functions worth mentioning, these are the cookie monster and the preparation of the mailing list. Without the mailing list, it would be very difficult to keep track of our membership (changes in address, etc.). Everyone in the Centre knows the importance of the cookie monster and his role during the monthly meetings. (Editor)

"The sole aim of science is the glory of the human spirit"

Jacobi (19th-century mathematician)

"The fundamental concern of basic research is the discovery of truth about the natural universe. The search for truth is a central part of what it means to be human."

Jimmy Carter (President of USA, 1977 - 80)

"the present universe has evolved from an unspeakably unfamiliar early condition and faces a future extinction of endless cold or intolerable heat. The more the universe seems comprehensible the more it also seems pointless"

Steven Weinberg (from the book "The First Three Minutes")

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- a few issues of miscellaneous journals

Membership Notes

Membership in the Halifax Centre for 1980-1981

The following list gives the names and addresses of the 88 regular, student and life members of the Halifax Center of the RASC as of July 31, 1981. During the past year four members have taken out life membership, giving us a total of 15 life members.

R.B. ABEL, 195 Main St, Middleton N.S., BOS 1P0
 P. BAKER, 14 Tigo Park, Antigonish N.S., B2G 1T2
 G. BASHOW, 1840 Robie St, Halifax N.S., B3H 3G3
 R.L. BEARNE, P.O. Box 879, Wolfville N.S., BOP 1X0
 R.L. BISHOP, Avonport N.S., BOP 1B0
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Media Review

HERZBERG

Commissioned to Les Productions Tourneval Ltee by National Film Board of Canada for the National Research Council of Canada.

Distributed by: National Film Board of Canada (NFB)

16mm Color (18 minutes and 15 seconds)

Ordering Numbers: 16mm format - 1060 0179 602

3/4" Video - 1160 0179 602

Summary

Gerhard Herzberg searched 15 years to capture on film the tracks of a substance which can live only one millionth of a second. Finding the methylene spectrum was a memorable moment in his career. Receiving the Nobel Prize in 1971 - Canada's first Nobel Prize in the sciences - was another.

Gerhard Herzberg is a molecular spectroscopist. He studies the composition of molecules by examining the spectra of light which they emit or absorb. The science of spectroscopy has come a long way since. Sir Issac Newton first realized, through experimentation with prisms, that light can be resolved into a band of colors known as its spectrum. Today scientists use a spectrograph, an instrument that records the composition of light on photographic plates.

This film shows Dr. Herzberg in his laboratory at the National Research Council in Ottawa where, with the aid of highly sophisticated instruments, he tracks down elusive bits of matter which are the keys to discovering what the planets, stars and the universe are made of. He chose to be a scientist because science "tells us something about who we are".

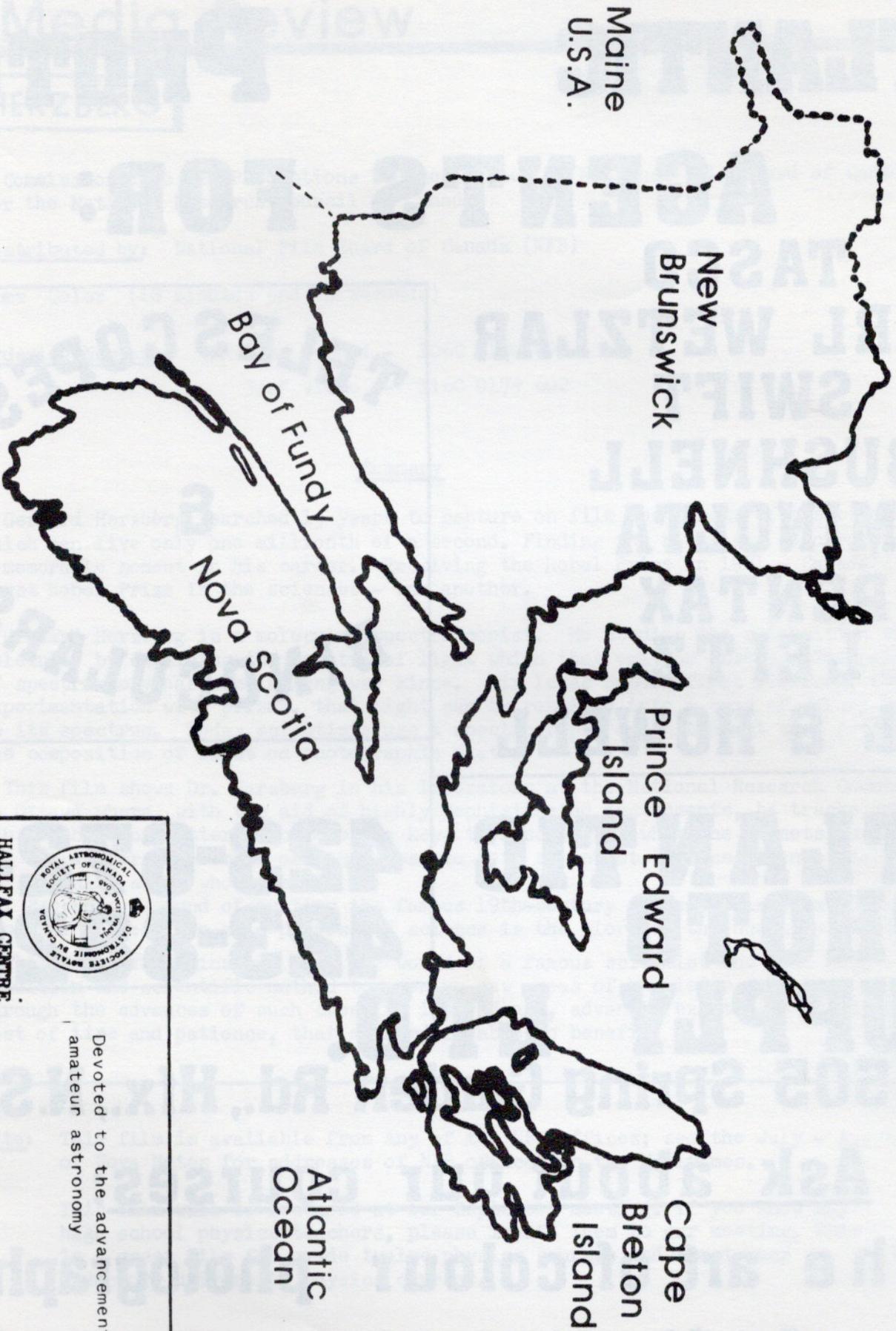
Dr. Herzberg is fond of quoting the famous 19th-century mathematician, Jacobi, who once said: "The sole purpose of science is the glory of the human spirit."

This film offers insight into the world of a famous scientist who uses both intuition and scientific method to open up new areas of knowledge. It is through the advances of such creative individuals, advances exacted at enormous cost of time and patience, that mankind is able to benefit.

Note: This film is available from any of the NFB offices; see the July - Aug issue of Nova Notes for addresses of NFB offices in the Maritimes.

This film will be featured at our September meeting. If you know any high school physics teachers, please invite them to our meeting. This is a great film for grade twelve physics courses and first year inductive university physics courses.

Astronomy in Maritime Canada



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