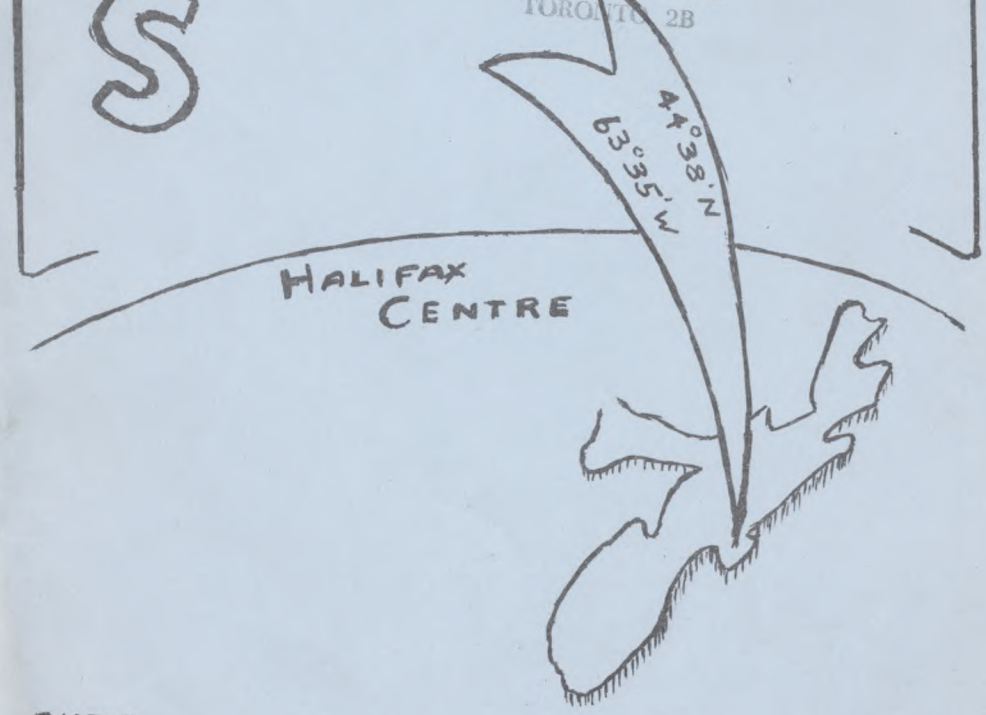
From: Halifax Centre: R.A.S.C.
Nova Scotia Museum,
1747 Summer St.
Halifax, Nova Scotia.

Dec 70

To Mrs. Marie Fidler
Exec. Secretary R.A.S.C.
252 College St.
Toronto 2B. Ont

Volume .....
Issue .....

NOVA NOTES



EH70

Vol. 1
Issue: 2 - December, 1970.

EDITORIAL

The Halifax Centre of R.A.S.C. has a new slate of executive officers. We will do our best to provide an informative and interesting newsletter each month, but we need help. We need articles for the newsletter. This should not be just an executive effort as it is a newsletter of the members, for the members and hopefully, necessarily by the members.

Any contributions will be gratefully accepted. Our secretary, Mrs. Eileen Humphrey, has kindly agreed to type any and all articles for the newsletter and it is hoped many of you will take advantage of her good nature.

The R.A.S.C. is a learned society whose amateur members, while entertaining themselves, are engaged in activities that are potentially useful to professional scientists. They can use data we can collect. We hope that programs planned by our Vice-President and Co-ordinator of observational activities, Walter Zukauskas, will be met with enthusiasm and that as many menbers as possible will participate.

This centre of R.A.S.C. has virtually no reference material. We are in the process of rectifying this and it is hoped that by January, a lending library will have been started. Several books have been ordered and they will be loaned for a period of one month at a time.

To ensure that books are available for circulation and because books can only be lent or returned at meetings, it has been decided to set a fine of $1.00 for overdue books. Any fines collected - (the executive, except for Peter McQuigan, our treasurer, hopes there won't be any) - will be put in a new book fund.

We ask that anyone who has materials of interest to astronomers, (pictures, books, back issues of "Sky and Telescope", catalogues etc.) and who has finished with them, to please bring them to the meeting so they can be shared with other members.

I find, as President, that a large pair of shoes, belonging to one Barry Mathews, is to be left here at the Halifax Centre, while he goes to Ottawa. The shoes are large and are in proportion to Barry's feats (sorry), and will be difficult to fill. He has, in the past few months, organized the Society, arranged for speakers, newsletters, distributed observational sheets, refreshments and established friendly relations with the Museum, other people in the community and with other Society Centres. The executive wishes to thank Barry for all his help, suggestions, references, and hard work in helping to get us started.

Barry will be keeping in touch with us, while in Ottawa, to keep us informed of developments there, to supply us with articles and (we hope) to give the executive a helping hand when needed.

Barry, we the members of R.A.S.C. Halifax Centre thank you and wish you clear skies in Ontario.

J.M.S.

About the Executive:

President: John Shaw

John was born in Montreal, but is now a naturalized maritimer, married to a P.E.I.'er. He received a B.Sc. degree with a major in bacteriology from McGill and while an undergrad received room and board in a hospital - working in a bact. lab. Consequently, he has spent much more time in looking down a microscope than up a telescope. He is now completing an M.Sc in biology and a B.Ed at Dalhousie. While he is relatively new to organized observing, he has ground, made and used a 6" Newtonian reflector. He hopes we can all learn a lot together.

Secretary: Eileen Humphrey

Eileen was born in London, England, married to a fellow country man. The Humphrey's have two sons. She is a Secretary and teacher of Business Education at Prince Arthur Junior High School in Dartmouth. Roy and Eileen have a 2½" refractor, but are at present building a 6" reflector telescope. She would echo the words of the President in hoping that we can all learn together, and would specifically like to see part of the programme geared to instructing young people.

Vice President & Co-Ordinator: Walter Zukauskas.

Walter was born in Boston, he is married. Teaches at Sir John A. MacDonald school in the County. Attended Dalhousie 1966. Registered M.Sc student. For past 10 years has been a member of The American Association of Variable Star Observers. Worked for two years at Smithsonian Institute on star catalogue. Interest in astronomy started in 1956 when he began viewing with naked eye, later with binoculars and finally he had to get a telescope! He has built a 6" reflector.

Treasurer: Peter McGuigan

Peter has been doing an excellent job as Treasurer since the Society began meeting in September. He was also one of the original members of the Halifax Centre. His association with the R.A.S.C. began therefore, approximately ten years ago. At present he is attending Dalhousie University, working on his M.Sc. and studying specifically Geology and Biology. Peter has a 6" reflector.

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N O T I C E O F M E E T I N G

Date:	December 18, 1970.
Place:	Theatre of the Nova Scotia Museum 1747 Summer Street, Halifax, Nova Scotia.
Time:	8:00 p.m. sharp
Speaker:	Mr. David Levy Physics Student - Acadia University
Subject:	Comets and Comet Hunting Information will also be given on Observational Procedures by Centre.

All members and guests are most welcome.

Members are urged to bring along to the Meeting, observational charts, or pictures of any equipment which they may have.

For January meeting, the film "Fields in Space" will be included.

The Art of Comet Hunting by David H. Levy.

On September 8, 1965, Kaoru Ikeya, a piano-factory worker, was peering through the eyepiece of his homemade eight inch reflector when he spotted a little spot of haze in the field of view. Ikeya, knowing the sky, was fairly certain that that object was not supposed to be where it was. His star atlas showed nothing in that position, and a look through the eyepiece a short while later convinced him that he really was looking at something new, for the fuzzy patch had moved.

This new object was doubtlessly a comet, and Ikeya lost little time in sending a wire to the Tokyo observatory. Just one hour later, Tsutomu Seki found the same object, and the finding of new comet Ikeya-Seki was made known to the world.

The rest of that story, is familiar to most of us - an eighth magnitude fuzz that sprouted a tail and danced around the sun, rivalled the full moon in brighness and the Sistine Chapel in beauty, displayed a gorgeous tail seventy million miles long, and started to move away toward the dark void of interplanetary space from where it came.

All this started through the effort of one amateur astronomer who, with a little enthusiasm, quite a bit more patience, lots of warm clothes and an eight-inch telescope, has since found several comets.

Although there are several modes of comet hunting, the type that is the most challenging, and, in my opinion, the most fun, is the telescopic comet hunt. Point your fairly short focus telescope at any area of the sky. Looking through the eyepiece you check the field of view for any fuzzy object. After a five-second gaze you move on to the next field, and to the one after that. Sooner or later a little spot of haze will enter your field and you must then refer to a star atlas to locate the precise position of the object you see. In almost every case something will be shown there, for the sky is full of galaxies, star clusters and nebulae (gas and dust clouds) which are thousands of light years from us. In a telescope, however, a comet bears strong resemblance to these masqueraders. Luck and perseverance will one night bring you an object that does not belong, and, before panicing, make sure of the position, and see if there is any motion. If there is, panic. The Smithsonian Astrophysical Observatory in Cambridge, should however, know the reason of your unusual psychological state, in the form of a telegram stating all the information about your new object. The observatory will try to confirm your discovery; of it; and if it succeeds, the comet will be named after you; otherwise you try harder next time.

Comet hunting has attracted the fancies of many men, including William Brooks, who, in the late 19th Century, hunted in his yard with a nine-inch refractor and picked up over twenty comets; Charles Messier, better known for his "non-comets" Leslie C. Peltier, who between 1925 and 1954 gathered twelve comets and an assortment of novae; and David H.Levy, who between 1965 and 1970 has found nothing - absolutely nothing.

How long should you count on hunting before a little comet hails you? A rough average is 400 hours for your first comet and 200 hours for each subsequent comet (almost like using a parking lot, isn't it?) But you could go on almost forever without any luck. Or to be more optimistic, you could have the luck of Alcock, who found two comets within a week, or Brooks, who dared discover three comets in five weeks.

How can we justify these many hours at the eyepiece in a seemingly hopeless search? Leslie Peltier (Starlight Nights, 1965) rationalizes this way:

> Time has not lessened the age-old allure of the comets. In some ways, their mystery has only deepened with the years. At each return a comet brings with it the questions which were asked when it was here before, and as it rounds the sun and backs away toward the long, slow, night of its aphelion, it leaves behind with us those questions, still unanswered.
>
> To hunt a speck of moving haze may seem a strange pursuit, but even though we fail the search is still rewarding, for in no better way can we come face to face, night after night, with such a wealth of riches as old Croesus never dreamed of.

The regular meeting of the Royal Astronomical Society was held on Friday, November 20, at 8:00 p.m. It was with regret that the Centre learned that our Acting Chairman, Mr. Barry Mathews would be returning to Ottawa. We are most grateful to Mr. Mathews for the hard work on his part in getting the Centre established. A new slate of officers was installed. The following were elected:

President and Representative to Council:	John Shaw
Vice President & Co-ordinator:	Walter Zukauskas
Treasurer:	Peter McQuigan
Secretary:	Eileen Humphrey

Photos of the new officers were taken by the Photographer for the Museum, Mr. R. E. Merrick. Our thanks to Mr. Merrick for this service.

A most interesting lecture was then presented by Dr. Robert McCorkell of Dalhousie University, Geology Department. His lecture dealt with the subject of meterorites and the origin of the planets. Samples of meterorites were studied at the meeting. Dr. Roy Bishop thanked Dr. McCorkell on behalf of the Halifax Centre.

Mr. Mathews urged members to design a cover for our newsletter, the prize for this being a year's subscription to Sky and Telescope. He also suggested that more members should be taking their telescopes out and inviting other members to join them in viewing.

Dr.Bishop showed photos which he had taken, one showed the transit of mercury across the sun, one of Comet Bennett, and the third, Mercury Venus, Saturn and Crescent moon. Each photo was excellent. Meeting adjourned 10:30 p.m. Coffee was available.
Members of the Centre were in attendance to display the Planetarium on Saturday and Sunday. There were many interested people viewing the exhibits. Visitors asked whether or not it would be possible to come back to view the stars through the telescopes at night. Possibly, we might have a public viewing night some time in the future.

Date of next meeting: December 18, 1970 - 8:00.

E.H.

In order that a Library might be started, the following books have been ordered:

All about Telescopes	Sam Brown
How to make a telescope	Jean Texereau
Larousse Encylopedia of Astronomy	
Lunar Atlas	Dinsmore Alter
New Handbook of the Heavens	Bernard Bennett Rice
Norton's Star Atlas	A.Norton & J.Inglis
Outer Space Photography for Amateurs	Dr.Henry Paul
Penguin Dictionary of Astronomy	A.Wallenguist
Science Projects Handbook	
Sky Observers Guide	E.N. da G. Andradel
Skyshooting Photography for Amateur Astronomers	Mayall
Stars	Herbert Zim & Robert Baker
Skalnate Atlas	

International Astronomical Youth Camp, Bologna, Tialy, 1971.

We are indebted to Dr. Luigi Baldinelli, President of the International Union of Amateur Astronomers, for the following information

Following the resounding success of the previous camps in Germany, it has been decided to hold a further one. This will take place from 28th July to 11th August, 1971 in Italy. It will be organized by the A.A.B.(Associazione Astrofili Bolognensi) and the U.A.I. (Unione Astrofili Italiani), under the auspices of the I.U.A.A. (International Union of Amateur Astronomers), whose President, Dr. Luigi Baldinelli, will be general director.

The camp will be a meeting of youths of every nationality who are interested in astronomy from a practical point of view, and it will provide an opportunity for an exchange of ideas and experiences.

The work that will be carried out in the camp will include lectures, discussions, and astronomical observations. English and French will be official languages of the camp. The participants will have at their disposal complete instruments, a dark room, a library, etc.

The total price will be no more than $35.00. For further information please write, as soon as possible since the number of participants will be limited, to the General Secretary at this address: I.U.A.A.(International Union of Amateur Astronomers)
40121 Bologna
piazza dei Martiri 1
ITALY.

Please note that early applications are of the utmost importance.

From: Astro Notes Nov. 1970.

For the astronomer the sun has a double significance. It is, of course, the primary body of our solar system, about which all the planets revolve. Also, the sun holds the unique distinction of being the nearest of all the stars, the only one we can study in great detail.

The sun is the source of our light and heat. Its very brightness forms an obstacle to observation, with or without telescopic aid. Never look directly at the sun unless you have taken special precautions to reduce its brilliance with the aid of smoked glass or special reflectors. On rare occasions, when the sun is low on the horizon and dimmed by smoke, fog or haze, you can safely look at the sun directly and observe a few of its more obvious features.

Note first of all that the sun's disk is not uniformly bright. The edge, or limb, is distinctly less luminous than the center. When we look diagonally into the sun's atmosphere, near the limb, we see a cooler and therefore less luminous region than when we look straight down at the center of the disk. Occasionally we may even glimpse some of the dark areas called sunspots. The Chinese annals contain many records of spots observed on the solar surface long before the invention of the telescope.

Observing the sun through a telescope, even one of comparatively low power, can be tremendously exciting. The simplest- and safest - method employs the telescope to project the bright solar image on a white card or other convenient white surface. Try changing the distance of the card from the end of the telescope, refocusing the eyepiece until a clear, sharp image, 7 inches or more in diameter appears. If possible, attach the card firmly to a support behind the eyepiece. Also, to keep the glare of sunlight off the card mount a second card pierced by a hole large enough to admit the telescope objective, so that it will cast a shadow on the other card.

This simple procedure should disclose the most conspicuous solar features: (1) the dark centers, or umbrae, of the spots; (2) the delicate fibrous structure of the penumbrae immediately surrounding the spot; (3) the bright mottling, or faculae, that usually accompany spots and appear most clearly toward the sun's limb; (4) the granular structure of the solar surface most clearly visible near the center of the disk; and finally (5) the above-mentioned darkening to the limb. If you wish, draw on the card itself to get a permanent record of sunspots and other visible solar features.

To view the sun directly through the telescope, one may employ a special dark glass somewhere in the optical beam. For best results set this dark filter close to the focus of the primary objective or immediately behind the eyepiece. I regard as somewhat dangerous the conventional susstitutes of glass smoked in a candle flame or heavily fogged photographic film. Such materials are safe enough for looking at the sun with the unaided eye. But do not use them with a telescope: the concentrated solar heat may crack the glass or ignite the film so that an intense flash would strike the eye. Ordinary dark glasses do not provide sufficient protection, although certain types of commercial dark glass are perfectly safe for this purpose. Your optician will be able to cut out some small circles and perhaps even repolish them, if you are unable to buy them ready for use. American Optical Company or Metal and Thermit Welding Glass No.12 is recommended.

Many professional observers use a solar diagonal, which is simply an unsilvered mirror. The back surfact of this mirror, however, preferably should be incluned with respect to front surface in order to eliminate the possibility of multiple reflections between them.

Perhaps the most effective and inexpensive device is the miniature unsilvered pentaprism.

Fig.1: The double reflection from glass sufraces effectively reduces the intensity of sunlight to a reasonable value, with marked losses at each reflection.

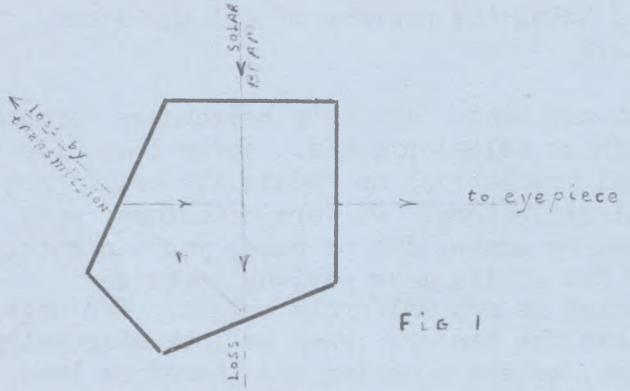

Fig 1

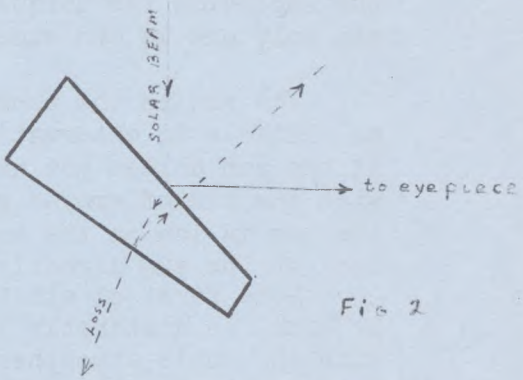

Fig 2

Fig.2: The observer will particularly appreciate the possibility of seeing the sun without the color distortion that absorbing glasses introduce. In addition to the pentaprism, some weak, neutral glass will usually suffice. The number of sunspots at any one time varies over a long-range cycle, with times of maximum spottedness occurring at intervals of about 11 years and a well-pronounced minimum during the in-between periods. The American Association of Variable Star Observers (AAVSO) maintains a solar section to instruct the coordinate the work of those who are willing to maintain a regular patrol to record sunspot numbers.

Lunar Drawing B.L. Matthews

Drawing various features on the surface of the moon need not be a tedious task left to the dedicated few but a leisurely informative way to learn our nearest neighbour. First to dispell a popular misconception "you do not have to be an artist to capture lunar features".

Methods of drawing.

The actual methods of drawing are numerous, vary in complexitity, and require time and patience. To mention a few, line drawings, notational sketch and the artistic drawing. The line drawing is done to record topographical features (i.e. hills, craterlets, streaks or rays,) but not shadows or tone changes by means of solid or broken lines. The notation sketch can be explained as an incomplete sketch with the numbered and written notes on the face of the drawing. It is the artistic drawing that I would like to talk about at this time.

The artistic drawings are done to depict accurately and truly as they appear on the moon. A drawing that shows what the observer sees using the eyes resolving power, the ability to distinguish contrast and some interpretation, lends itself to the production of a photographic like result. This type of drawing can be done in pencil, ink, paints or a combination of any of these.

Supplies

It is my opinion that the observer starting out in lunar drawing should start using pencil. By using pencil he then has two methods to choose from. For either method the observer should have a selection of various grades of pencils, (some pointed others blunt). Also he should have one or two good quality erasers, again some sharpened to a point. Another usefull device is an artists shading pencil. (The latter can be easily replaced with a product known as Q Tips). Finally a relatively good grade of paper, a well placed dim light and a smooth working space.

Methods

The two methods mentioned earlier are known as "sketching" and "shading-erasure". As I have not done more than experiment with the latter method and this I find is very well explained by Mr. Coutchie for the June 1959 issue of "Sky and Telescope", I will go onto what is known as "sketching".

The observer starts by making a basic line drawing showing only the outline and positions of obvious features. To first trace these features from a good lunar atlas is quite acceptable. The

author is presently working on a number of these outlines and they should be available very shortly to interested members. The observer works from the largest feature down to the smallest visible through his own instrument, he then goes on to shading and tonal reporduction leaving the bright areas white.

It takes a great deal of practice and observational ability but the end result is well worth the effort. The most important thing to remember is capture the relative position, and shapes as accurately as possible. The one common pitfall is the ability to keep craters and craterlets to the proper relative size.

When you are finished check all regions to make sure you have left nothing out. Compare your finished drawing with the view through your scope to see if they really do look the same. Remember you must be as fast as practical, as accurate as possible in the shortest possible time. (The lighting on the moons surface is continually changing).

Lastly data of the following nature should be shown on the drawing. Apature used, Magnification, filters if any use, Universal Time (time the outlines of the major shadows where drawn) sun's colongitude (taken from the Observers Handbook,) Julian Day and last but not least your name signed proudly on a piece of work that has scientific as well as training value.

Barry

Suggested List of Material

1 - #1 Eagle alphabet pencil
1 - #2 " " "
1 - "Ebony" 6325 pencil
1 - 2B Pure Charcoal pencil
1 - white lead pencil
1 - Shading pencil (Q Tips)
1 - small can Fix - It spray (Non Gloss)
1 - clip board
1 - Photographic Lunar Atlas (optional)
(or rough outlines lunar features)
1 - pad of reasonable good quality paper.

Royal Astronomical Society of Canada Solar 1

Observer _____ Month _____ Year _____

Address _____ Time used _____

Naked-eye Observations of Sunspots

Use discs below to plot position of sunspots seen, giving date and time. Use column at left to record daily observations, as follows:
No observation - leave space blank. Cloudy - X. No sun-spots visible -C. Sun-spots seen - give number.

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