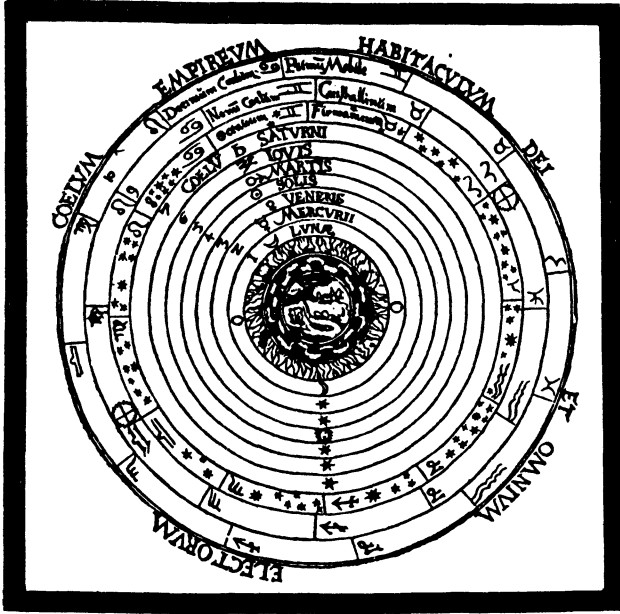


NOVA NOTES



Halifax Centre



Sept-Oct 1989
Volume 15
Number 5

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NOTICE OF MEETINGS

Date: Friday, September 21st : 8:00 P.M.

Place: Nova Scotia Museum: Meeting to be held in the lower theatre. Access from parking lot & side entrance

Speaker: Dr. Roy Bishop of Acadia University and recently elected RASC National President will be giving a lecture titled: "The Rainbow: An Atmospheric Phenomenon of Planet #3 "

Date: Friday, October 19th : 8:00 P.M.

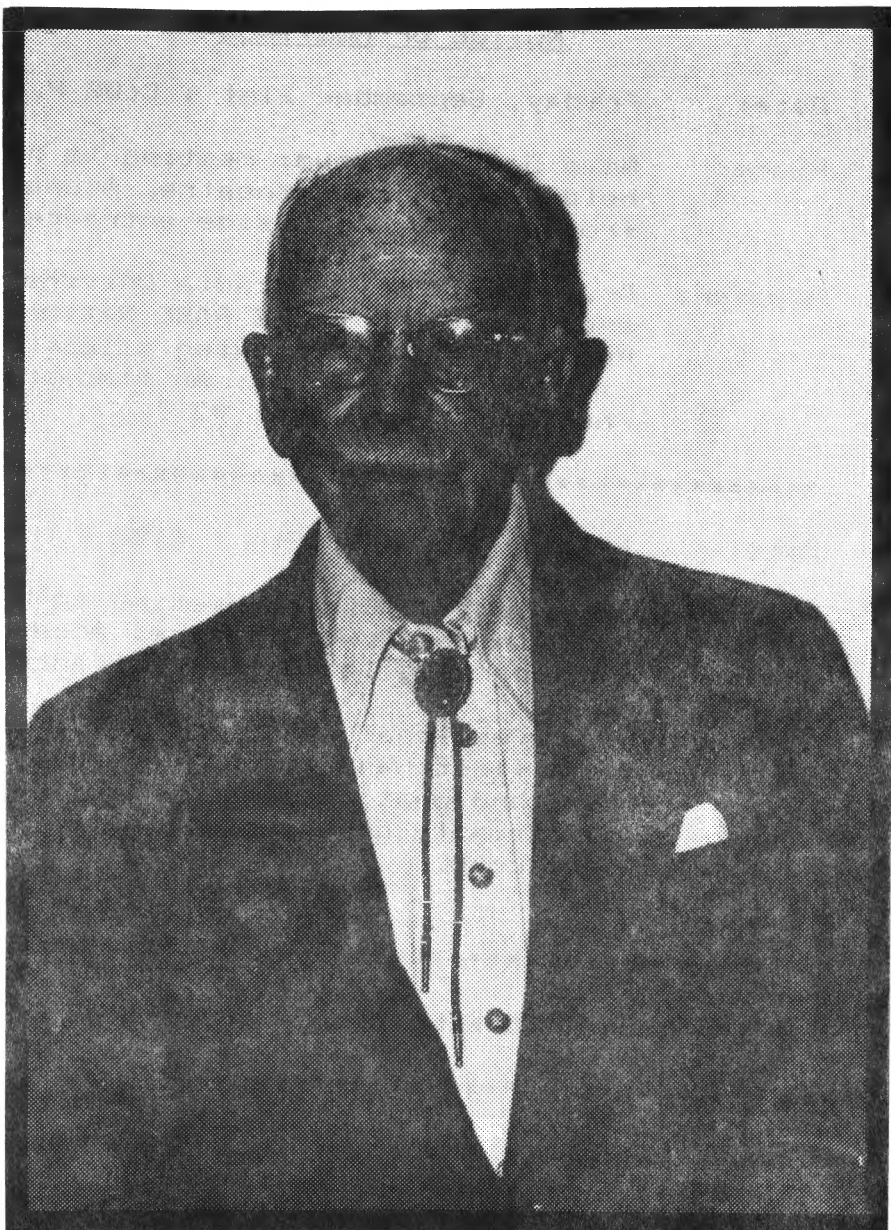
Place: Nova Scotia Museum: Meeting to be held in the lower theatre. Access from parking lot & side entrance

Speaker: A professional astronomer will give us a first hand account of what it is like and what happens when given the opportunity of using a limited access telescope.

(tentative)

REFRESHMENTS WILL FOLLOW BOTH MEETINGS !

About the cover: The cover this issue shows the Ptolemaic system as depicted in Apian's "COSMOGRAPHIA" (1553). Alfonso X (1221-1284), king of Castile and Leon, is said to have remarked after the Ptolemaic system had been explained to him, "If the Lord Almighty had consulted me before embarking upon Creation, I should have recommended something simpler."



William Hall Holden
1897-1984

WILLIAM HALL HOLDEN, 1897-1984

It is with regret that we must report that our Honorary President, Dr. William Holden, FASC died Aug 13 at his summer home at Trout Lake. In 1980 Dr. Bishop inasurated Dr. Holden as the second Honorary President of the Halifax Centre with the followins introduction:

"William Hall Holden was born in Lynn, Massachusetts on January 24, 1897. He studied medicine at Tufts Collese Medical School, obtaining his M.D. in 1924. He then specialized in otolaryngology, involins reconstructive surgery of the head and neck, and was associated with the Columbia Medical Centre in New York city from 1926 to 1950. From 1950 he worked at the Medical Centre in Macon, Georgia, completins 50 years as a surseon in 1974, the year of his retirement."

"In addition to his long and distinguished medical career, Dr. Holden has made other contributions to his country. He left collese for a time in 1918 when he enlisted in the U.S. Navy and qualified as a pilot flyins the amphibious biplanes of that era. He retained his interest in aviation, becomins qualified in aviation and aerospace medicine, and accumulats some 3800 hours of flyins time, part of it in his own plane, durins flights ransins from Greenwood, N.S. to the Caribbean and Central America between 1918 and 1973. In 1937 and 1938 he was involved in two scientific expeditions to the then little-known Sierru Akari mountain ransu in the southern part of British Guiana. For the collections be brought back, he was elected Patron of the American Museum of Natural History. Among other honours, Dr. Holden is a member of the New York Academy of Sciences, a Fellow of the American Geographical Society, a Patron of the Smithsonian Institution,

and a Fellow of the Explorers' Club."

"Dr. Holden's interest in Nova Scotia began in 1897 when he visited his mother's home at Albany, Annapolis County. Many subsequent summers were spent there. In 1940 he built a cottage on nearby Trout Lake, and when he retired in 1974 he chose Albany as his home, having purchased a small farm house there a few years before. He lives there alone, his children being in the United States."

"His interest in astronomy began about 1970. He joined the Macon astronomical club and, after his return to Nova Scotia, the Halifax Centre of the R.A.S.C. Recently Dr. Holden erected a roll-off roof observatory under the dark skies of his Albany home to facilitate the use of his Questar telescope. During a recent visit there, the full moon shone through broken clouds, crickets called from the surrounding fields and forest, while the music of Vivaldi and Bach joined the curl of pipe smoke as Dr. Holden reflected on his long life and waited for a darker, clearer evening when he would again stroll out to his observatory."

"In view of Dr. Holden's example of service to his fellow man, of his love for this part of Canada, and of his demonstration that an active and keen interest in astronomy has no limits, the Halifax Centre of the Royal Astronomical Society of Canada is honoured to have Dr. Holden as its Honorary President."

The highlight of Dr. Holden's life was, I'm sure, his expedition to British Guiana for the American Museum of Natural History. Even in the last months of his life, he recalled the trip with amazing detail for the members of our Centre. The following recalls details of the arduous trek and is taken from Dr. Holden's obituary notice in the New York Times (26 August, 1984) by R.B. Lynch.

"Dr. Holden, a plastic surgeon and a licensed commercial pilot, led the Terry-Holden expedition through British Guiana and Brazil in 1937 and 1938 for the Museum of Natural History, where he was a staff surgeon."

"The expedition, also sponsored by the New York Botanical Gardens, was the first major jungle exploration equipped to be guided by radio direction bearings and to broadcast from the heart of the jungle."

"During the expedition, which began in September 1938 (actually 1937--R.B.) and lasted six months, Dr. Holden and his colleagues studied habits, drugs and diseases of the Taruma and Wai Wai Indians. The expedition also collected hundreds of scientific and zoological specimens from the Atlantic Coast of British Guiana, now Guyana, to the Sierra Acarai Mountains, on the Brazilian border, and the Brazilian Amazon district."

"In his medical study of the Wai Wai Indians, who inhabited the upper regions of the Amazon, Dr. Holden discovered that many of them lived more than a century, which he attributed to their immunity from cancer, high blood pressure and heart disease."


"Dr. Holden concluded that the Wai Wai were free of these diseases because their lives did not have the 'strains, noises, anxieties, and competitive conflicts,' of civilized life."

"I'm not ready to recommend any revision to the primitive life," Dr. Holden was once quoted as saying. "I don't want to sit on a log all day and only move to eat, but there must be much we can learn from a life that will make our own less strenuous and more pleasant."

His philosophy was brought home as I drove Dr. Holden to Halifax for his presentation of his expedition's movie at our May meeting. As we drove through the Mic Mac Rotary (against the traffic fortunately!) he was appalled by the line of traffic that stretched for 3 km and the resulting stress that was being unconsciously born by the hundreds of drivers sitting in the line. Yet he himself was not one to "sit on a log" for he was physically and mentally active to his last day. He had several times asked that I teach him how to use a sextant, so only a week before his death, he was standing on the end of his dock learning and enjoying the experience of taking a sighting of the Sun. Dr. Holden has made a lasting impact on my outlook of life and I, and many of the Centre's members, feel privileged to have known him.

Randall C. Brooks

P.S. At the May meeting someone was recording Dr. Holden's talk. If you know who that may have been, would you please call Kathy Oakley or Randall Brooks. We wish to have a copy for the Centre Archives. Thanks.



We have loved the stars too fondly
to be fearful of the night.

- Tombstone epitaph of two amateur astronomers

RASC MEMBERSHIPS

1 October is the beginning of the year for the RASC so we would like to remind you that the annual dues are now payable. Plans are to continue our slate of lectures, observing nights and special events such as the Camping Observing Weekend, Astronomy Day, Centre Dinner, etc. With Halley's Comet zipping into view within a few months, you can expect some special activities to coincide with this once in a life time spectacle. We hope you will join us for another year or better still for a Lifetime!

The fees for 1985 membership are:

Life:	\$300.00
Regular:	\$20.00
*Student:	\$12.50
Associate:	\$5.00

*Student is defined as a person under 18 yrs.

We would like to point out that these fees have not changed in 4 years. If you have been contemplating a life membership, this is the year to invest before it goes up!

Make cheques payable to:

Halifax Centre, RASC

and mail to: Randall Brooks
 71 Woodlawn Rd.
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WILLIAM HALL HOLDEN

1897-1984

HONORARY PRESIDENT

HALIFAX CENTRE, RASC

It was a short four years ago that the members of the Halifax Centre realized that a remarkable gentleman lived in our province. A man who had already experienced a rich and long life as a surgeon, explorer, and a pilot, and who possessed a keen interest in people and astronomy. It has been our good fortune to have had Dr. Holden as our Honorary President.

Dr. Holden's mother was from Albany, and he came to know the hills and lakes of that area when Victoria was still Queen of England. Although his professional life was spent in the United States, and his work as a surgeon and adventurer took him to many foreign lands, his love of Albany and Trout Lake brought him back here many times, and eventually for retirement in 1974. Despite failing health, with his dog "Mac", he managed his house and cottage for another decade.

Flying, like Albany, was one of the great loves of Dr. Holden's life. Realizing that one does not accumulate 3800 hours of flying time over 55 years without some exciting moments, a few weeks ago I asked him about this. He chuckled and said that he had had many scrapes and wished that he had written an account of them. He then told me about one that occurred when he was flying in the U.S. Navy in 1918 (and for posterity, I record it here):

He was instructed to take some reports from mainland Florida to an island in Biscayne Bay. He climbed into an N9 amphibious biplane and took off. A short while later he flew into some clouds and soon found himself in a small but intense storm. The winds were strong and the heavy rain reduced visibility to zero.

The rain killed the engine (which was open to aid cooling) and the turbulence set the plane into a spin. With no power to correct the spin and being only 1500 feet above the sea, the outlook was dim, but somehow (he did know how) he managed to recover from the spin and leveled off in time to land on the water. At this point the wind caught the tail of the plane and flipped it over, plunging the cockpit beneath the waves. He extricated himself, reached the surface, and climbed up on the inverted main pontoon. Eventually a boat reached him and took him to where an ambulance was waiting "to pick up the pieces". Within an hour, he was up again in another plane.

Dr. Holden generously opened his home, cottage, and observatory to his friends. On his invitation the past three annual camping-observing weekends of the Halifax Centre were held at Trout Lake Observatory. Members of our centre will treasure the remarkable 90 minute commentary Dr. Holden gave at our meeting last April to accompany the films of his 1937-38 expedition up the Essequibo River of British Guiana, across the Serra Acarai Mountains, and down the Mapuera and Trombetas Rivers, tributaries of the Amazon. Dr. Holden had a deep interest in young people and urged them to learn as much as they could. One evening this July he treated two young Albany boys to telescopic views of Jupiter and Saturn.

Having renewed many of his friendships over the preceding weeks and with members of his family nearby, he died at his beloved Trout Lake cottage early on August 13. As Dr. Holden would likely have said, "It was a propitious time to depart". We will not see his like again.

Roy. L. Bishop

OBSERVERS GROUP

During this summer, I managed to get a small group of centre members together to form the Observers Group of the Halifax Centre. The group was created with the more active members in mind. The first meeting was held in early July. This meeting went quite well and I feel that the Observers Group is sitting on a solid foundation and hopefully it will grow and become a permanent addition to the Halifax Centre.

On August 25th the group had its' first clear observing session of the year. We met up at Mount Uniake "The Uniake House" in the parking lot around 9:00 but we were soon hampered by dew and the session wrapped up around 10:30.

I would like to announce that the Observers Group will hold observing sessions every month with an alternate date being set in case of inclement weather. These sessions will be held at Mount Uniake unless otherwise noted. The following list is for the rest of this year. Please note that everyone is invited to attend.

Saturday September 22 8:00 P.M.
" " 29 (alternate)

Saturday October 20 8:00 P.M.
" " 27 (alternate)

Saturday November 17 7:30 P.M.
" " 24 (alternate)

Saturday December 15 7:30 P.M.
" " 22 (alternate)

Anyone wishing to join the Observers Group can either see me at the monthly meetings, call me at 434-1787, or write me at 327 Arklow Drive, Dartmouth, N.S. B2W 4S1. I would like to wish good observing to all!

Gordon Hawkins

ASTROQUIZ FOR THE HARD-OF-THINKING

- 1) The period of time which the Earth takes to orbit the sun is called:
 - a) an ecliptic
 - b) a minute
 - c) a year
 - d) a couple of years

- 2) A hammer is to a carpenter as a _____ is to an astronomer.
 - a) crystal ball
 - b) food processor
 - c) pooper scooper
 - d) telescope

- 3) It's daytime and you notice an extremely bright object in the sky. Chances are that object is:
 - a) the Sun
 - b) hot
 - c) not the sun
 - d) an exploding nuclear weapon
 - e) Pluto
 - f) items (a) and (b), maybe (d) but not (e).

- 4) Which of the names below does not belong ?
 - a) William Herschel
 - b) Harlow Shapley
 - c) Percival Lowell
 - d) Lumpy Rutherford

- 5) Polaris is called the "North Star" because:
 - a) it is white
 - b) it is cold
 - c) it is at the north celestial pole
 - d) none of the above

- 6) Most cosmologists believe that the Universe began with a "Big _____".
 - a) One
 - b) Brother
 - c) Cannonball Splash
 - d) Bang

7) You are looking through a telescope at a planet with a beautiful set of rings. Chances are you are looking at:

- a) Saturn
- b) Pluto
- c) Goofy
- d) a lens defect

8) You are at an observing session when suddenly the sky clouds over. Would you:

- a) use a higher power
- b) use a filter
- c) scream obscenities
- d) go home
- e) both (c) and (d)

9) In a conversation with a friend, they mention that they recently acquired a 26 mm Plossl. Would you say:

- a) "That's too bad, I hope it's benign."
- b) "Gee that's a big one, isn't it?"
- c) "What's that in inches?"
- d) "How do you spell Plossl?"

10) At a Public Night you are intently observing your favorite deep-sky object. A member of the general public approaches and asks "How much can that telescope see?" The best reply would be:

- a) "I don't know, it hasn't told me yet."
- b) "It can't see anything without someone looking through it."
- c) "How far is up?"
- d) "Enough to make your feeble mind think it's an insignificant piece of cosmic lint."
- e) "Billions and billions of stars."

11) You're walking down the street when you bump into Carl Sagan. Which of the following would be inappropriate greetings:

- a) "Hi Carl! How's Johnny Carson?"
- b) "Hi Carl! Discovered any alien life lately?"
- c) "Hi Carl! Gee, you look a lot older in person."
- d) "Hi Dave! Say, where is that \$5 you owe me?"

12) Which of the following to not belong in the list ?

- a) The Trifid Nebula
- b) The Lagoon Nebula
- c) The Orion Nebula
- d) A can of Spam

13) You drive into the observatory parking lot one clear night with your quartz-halogen high beams on and notice a group of people taking long exposure astrophotos. Do you :

- a) Drive your car into them to end their suffering.
- b) Get out of your car and say "I hope I didn't disturb your photographs."
- c) Pretend to be a police officer.
- d) Stay in your car, turn around and drive out before a counterweight finds your windshield.

Reprinted from "ORBIT"
(Hamilton Center's Newsletter)

SPECIAL ISSUE ON COMETS

As promised, here is a list of topics that you may wish to choose from if you have decided to try writing an article on comets for our special issue next May. In most cases it should be fairly easy to find ways to relate these topics to Halley's comet.

- comets through history
- other famous ("great") comets
- the origin of comets
- comets and meteors
- how to observe comets
- cometary orbits
- famous comet hunters
- chemical composition of comets
- periodic comets
- space missions to comets

Once you decide on a topic (and you may choose one not listed) please contact me so that we won't have more than one person covering the same topic !

ASTRONOMICAL RENAISSANCE

The classical Renaissance was a period of rebirth of the arts and the sciences. At this time there was a great desire to learn more about the real environment. Scholars tended to now rule the field of learning where earlier philosophers dominated. Astronomy then became, step by step, a science rather than the abstract conception that it had been.

Once the Renaissance was in full swing it became quite obvious that astronomy offered many rewards which at first may have seemed difficult to appreciate. Astronomical arguments ran counter to religious theology and they were based as well on mathematics which made them difficult to understand by most people. Slowly but surely astronomy in the modern sense gained ground and recognition through the efforts of a number of dedicated mathematicians and astronomers. It is these champions that advanced the cause of astronomy and even though they suffered for it, their efforts were not in vain.

In 1377 the idea of an Earth centered universe was challenged by Nicholas Oresme in THE WORKS OF HEAVEN AND EARTH. This was the first of what would eventually become many new formulations of a Sun centered universe and finally a Sun centered solar system. The era of greek influence was slowly and surely eroding. The mathematics and keen observations by the new astronomers proved too much for the old theories.

The mathematicians and astronomers who were responsible for all these new ideas had at times a struggle to gain acceptance but eventually they perservered though not always in good time. Their names; Copernicus, Brahe, Kepler, Galileo and Newton are familiar to us all.

As a medical student in 1491, Nicholas Copernicus soon realized that he had a much greater desire to study mathematics and astronomy. Once he had made up his mind it soon became obvious to him that celestial mechanics did not behave as believed. Further study led him to revive the heliocentric system of Aristarchus and although few people listened, his logical arguments would eventually revolutionize astronomy. The Copernican system was to replace the Ptolemaic system and in his book, DE REVOLUTIONIBUS, Copernicus went into great mathematical detail that few people understood. It was almost a century before the Copernican theory won wide acceptance and then only with the help of Galileo. It is somewhat unfortunate but Copernicus was not to receive a copy of his book until he lay on his deathbed in 1543.

While Copernicus put the Earth in motion around the Sun it was left to Tycho Brahe, who in 1572 made much practical use of mathematics in astronomy by making various measurements, to determine accurate positional changes of distant stellar objects. Tycho however was not able to accept the Copernican theory that the Earth moved and this led to his own Tychonic system. It was sort of a half acceptance of the Copernican system. Tycho's precise astronomical measurements were highly regarded and when his services were no longer required in Denmark he became the court mathematician in Prague. While he was there he was in correspondence with Johannes Kepler whom he invited to come to Prague and on his death bestowed the mass of observations he had accumulated upon him. He wanted Kepler to show that the observations fit the Tychonic system better than the Copernican. Kepler did not enjoy the same accuracy of observation as Tycho and so instead turned his attention to the study of planetary motion. In this undertaking he had greater success.

Kepler published his first two laws of planetary motion in THE NEW ASTRONOMY in 1609 and created somewhat of a sensation with the first one.

Kepler's First Law. The orbit of each planet is an ellipse, (not a perfect circle as everyone had assumed) and the sun is located at one focus of the ellipse.

Kepler's Second Law. The straight line connecting the planet with the sun sweeps out equal areas in equal intervals of time.

About ten years later he came out with a new book, HARMONY OF THE WORLD in which he presented his third law of planetary motion.

Kepler's Third Law. The squares of the periods of revolution of any two planets (including the Earth) around the sun are proportional to the cubes of their mean distances from the sun.

This last law gave Kepler a great deal of satisfaction and it allowed others, who were not astronomers, to understand the heliocentric system more easily. The church having believed in an earth-centered universe felt threatened by Kepler's Laws and banned Catholics from reading some of his books. Another astronomer to encounter Church resistance but on a greater scale was Galileo.

Galileo Galilei was the first known person to make use of the telescope for astronomical purposes. He did not invent it but his astronomical application did lead to many improvements over the years. With the telescope he was able to discover many new stars, the phases of Venus, sunspots (and the sun's rate of rotation) and the moons of Jupiter although the quality of his telescope was too poor to show the rings of Saturn. He published a number of books that were banned by the Catholic Church.

Since Galileo's views were contrary to Church dogma and because he would not completely recant his theories the Church then sentenced him to house confinement. He eventually went blind and died at the age of 78 on January 8, 1642. Now recognized as one of the greatest thinkers of all time, he has left us with a great many discoveries that opened the door to a greater understanding of astronomy. Into this world was born Isaac Newton.

Possessing one of the finest scientific minds of all time, Isaac Newton, with a solid background in mathematics, turned his sights to astronomy to make some important contributions. He built the first reflecting telescope, he did much pioneer work with the passage and breakup of light through prisms and he laid out the laws of motion which are the basis of that branch of physical science known as mechanics. To us he is much more famous for the formulation of his "Law of Gravity" which states that:

Every body in the universe exerts a force of attraction on every other body and the strength of the attraction is directly proportional to the masses of the attracting bodies and inversely proportional to the square of the distance between them.

Heavy stuff? Maybe. Isaac Newton's Law of Gravity was instrumental in allowing Edmund Halley to calculate the orbits of certain comets including the now famous "Halley's Comet" due to reappear in the winter of 1758/59. All of this came out of a re-awakening and new interest in the sciences, the Renaissance.

Peter Steffin

Observing the Autumn Messier Objects

By September and October, the splendours of the Milky Way regions in Sagittarius, Ophiuchus, and Scorpius are setting in the southwest in the evening sky, but a well-placed observer with dark skies should still be able to manage a good view of several deep-sky objects in the region, many of which are in the Messier Catalogue. Unfortunately, most of us find ourselves in the metro area with less-than-perfect conditions, so I have selected a few Messier objects which are bright enough and elevated enough that they can be viewed easily from urban locations with the help of binoculars. However, the observer who takes the trouble to drive a few miles to a dark sky site will be well rewarded, since the cool, clear and dry evenings of the Nova Scotian autumn provide a favourable observing season. One night of observing in Kedgimkujik National Park last Thanksgiving weekend surpassed a whole summer's worth of observing in the city.

A complete list of the Messier objects with space for observing notes is available from the Observing Chairman at RASC Halifax Centre meetings. What follows is a brief list of recommended objects which are placed for convenient viewing during these two months. (Unfortunately, there is no space to provide finder charts, so you are left to your own devices.)

M31 "The Great Nebula in Andromeda" This galaxy is the largest in our Local Group and is a naked-eye object. Binoculars improve the view immensely. If you have dark skies, try measuring the angular limits of the galaxy. A 7th magnitude supernova was discovered in M31 in 1885.

M13 "The Great Cluster in Hercules" This bright globular cluster appears as a condensed misty patch in binos. In the same constellation is M92, another globular, although smaller and dimmer. Globular clusters can stand a fairly high magnification in telescopes, so try to resolve stars at the edge or granularity in the centre.

M11 Open cluster in Scutum. This irregularly shaped cluster lies in an insignificant constellation to the southwest of Aquila in the Milky Way. Just to the northwest of the cluster is a grouping of three 6th and 7th mag. stars and a variable, R Scuti. This star varies in brightness between 4.8m and 6.5m over a period of 140 days.

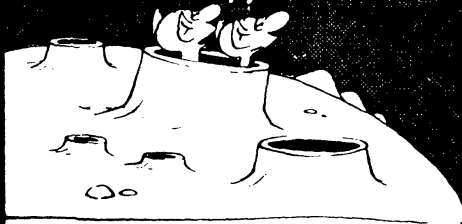
M34 Open cluster in Perseus. This large and bright cluster is found between Beta Persei (Algol, the famous eclipsing binary) and Gamma Andromedae (a nifty double star in small telescopes). Since you are in the area, you may as well check out the Pleiades, the most famous star cluster, which counts as a Messier object (M45, for those who are counting).

M27 "The Dumbell Nebula" This planetary nebula is a little harder to find, but worth the effort. It lies in Vulpecula, another insignificant constellation, between Cygnus and Aquila. A planetary nebula is actually a shell of gas illuminated by a dim, dying, central star from which the gas was ejected during a more active period.

I hope this list provides some assistance to the beginning observer faced with a bewildering list of deep sky objects. A set of star charts with the naked-eye stars and locations of the Messier objects (such as Norton's Star Atlas) will come in handy. If you plan to consult charts or make notes while observing, rig your flashlight with a red filter to preserve your night vision. Most stationary stores sell transparent red plastic sheets in the form of report covers which can be cut into disks to fit inside the lens of the flashlight. Good Observing!

Dave Chapman

I WONDER WHAT THE
BACKSIDE OF THE
EARTH LOOKS LIKE.



THERE IS NO BACKSIDE,
STUPID, ... IT HAS A
COMPLETE REVOLUTION
EVERY 24 HOURS.



YOU MEAN
ROTATION,
DON'T YOU?

...THAT
TOO.



Reprinted from "B.C. Where the hell is heck ?"

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