NOVA NOTES

Halifax Centre

Nov-Dec 1987
Volume 18
Number 6

1987 Halifax Centre Executive

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Notice of Meetings

Date: Friday, January **15th**, 1987 .

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

Topic: The **7:00** video presentation has not been finalized yet. Our **8:00** speaker will be **Mary Grey**, our National President. She will be visiting our centre before going on to the St. John's Centre. The title of her talk is " *The Dominion Observatory - The Founding and Early Years*".

Last Call for Dues!!

Members who have not yet renewed are reminded that membership dues should be paid now in order to continue receiving publications without interruption and so that you can get your 1988 Observer's Handbook. Fees are $25 for regular memberships and $15 for youth (under 18). Send a cheque or money order payable to "Halifax Centre - R.A.S.C." Our address is on the opposite page.

Note: The above list is tentative and subject to change.

About the cover: The cover this issue shows an 1874 view of a section of the moon which some popular books of the time claimed was a lunar city.

Editor's Report

Patrick Kelly

Once again it is time to give you all an update on what has been going on in our centre since the last issue "went to bed". For starters, this issue of NOVA NOTES contains a first! I thought that it might be a nice touch to send everyone a Christmas card from all of the executive. Doug did one up on his Mac and the result is in this issue's centrefold, suitable for removing and displaying.

I suppose since I have already mentioned the executive I should announce the results of our "election" for next year's executive. I say "election" because once again, we had a bit of trouble finding enough people to fill all of the positions, let alone having more than one person for a single one, so the slate was declared elected by acclamation. The executive for 1988 will consist of:

President: **Darrin Parker** takes over at the helm from **Kathy Oakley** who has decided to return to the "Armchair Faction" for a well-deserved breather after a hectic year in office.

First Vice-President: **Paul Smith** takes over from **Darrin Parker** for his first time on the executive. Paul is a relative newcomer but has been actively involved since joining.

Second Vice-President: **Doug Pitcairn** moves into this newly created position from his post last year as secretary. I know that he is looking forward to "spreading the word" on our behalf.

Treasurer: **Joe Yurchesyn** is continuing for another year as treasurer. He says just one more year and he'll be ready to book his flight to Rio!

Secretary: Another new face this year will be **Paul Duval** who takes over from **Doug Pitcairn.** It should be interesting having two Paul's on the executive, at least since it won't be dark like it is at Beaverbank I might be able to tell them apart!

Observing Chairman: **Mary Lou Whitehorne** will continue on in the post that she took over last year after **Glenn Roberts** had to move to P.E.I. As usual, she will be the one at observing sessions who curses about the problems of astrophotography...but keeps coming back for more!

NOVA NOTES Editor: I will be staying on for another year as editor. I hope to try a few new things in the upcoming issues but I better not make any promises, just in case!

National Representative: You can see the sort of trouble we had with getting people for this year's executive! This job requires travelling to Victoria B.C. for the G.A. and reporting on it at one of our meetings. We didn't even get any nominations from the floor! **Norman Scrimger** wasn't sure that he would be free so this year's national representative will be **Wilf Morley**. Having served as secretary a while back, Wilf will be no stranger to the executive.

Librarian: Last but not least, **Hugh Thompson** will be this year's librarian. He did such a good job helping Mary Lou last year that he decided to stay on. Maybe he will be able to find a book on how to make a GOOD telescope! (Just kidding, Hugh!)

As usual, I would like to thank everyone who served on last year's executive on behalf of all of the members for a job well done and to wish the best to the incoming members.

Now, on to some more news! The Odyssey (alias the CAT-BUSTER) arrived a little while back and has proved to be beyond our expectations. I gives excellent images of all sorts of celestial beasts, while being easily portable and inexpensive (~$600 Canadian). As a matter of fact, Doug was so impressed (no, he didn't buy the company) that he ordered a second one, and it should be here in time for this year's NOVA EAST.

Another late breaking item is that Doug's astronomy

column with the Halifax-Herald has been approved! You can look for it in the Saturday **Mail-Star.** It will have already started by the time you get this. It will be geared more for the public but should provide interesting reading for anyone.

Yet another one of Doug's ideas has also come into being. He had been getting feedback from a lot of our newer members who said that although they liked the regular meetings, they weren't getting what they felt they needed, which were the basics. Thus, the executive has decided that starting in the new year, there will be **two** meetings per month, on regular one, and another much more informal one which will be geared for our newer members. We hope to have one or two members do talks and some "hands-on" stuff about the basics of astronomy. We hope to start them in January, so keep an eye open for the next issue of **NOVA NOTES.**

You will also find a survey form in this issue about your feelings on the centre attempting to build an observatory. Your input is vital. The survey form can be removed (once you have taken out your Christmas card) and we would like you to either mail them in or bring them in person to the **January** meeting.

Those of you who have already received your 1988 Observer's Handbooks will no doubt be wondering about the color of this year's issue. Roy took a bit of ribbing at our November executive meeting about it! Comments such as "Batteries not included!", "Where are my sunglasses?", "At least you'll never lose it!" and "All you do is reflect starlight off of the back cover onto your charts...." were heard as they were passed around to eagerly waiting hands. Roy informed us that the official name for the color is "Dutch Fireball". One thing is certain, the color lives up to its name!

Lastly, we have finally gotten our list of library holdings onto the computer and have made some copies. Members (especially those from out of town) who would like a copy should send me a request, or see our librarian at any of the regular meetings.

Well, I see that I am almost at the bottom of a page, so until next issue, clear skies to all! Ω

After Messier

Doug Pitcairn

A great satisfaction is derived from going out into the dark night, and exploring the Messier list. Your observing skills and positional knowledge are sharpened and you enjoy a growing sense of accomplishment with each Messier object found and noted. Then comes the big moment when you find the last one. The hot chocolate and donuts at "Horton's" are particularly good that night.

However, two weeks later, at the telescope in Beaverbank, it occurs to you "What do I do now?" Several people have concurred with me that they no longer get anything done at observing sessions. The comradeship is still there, but missing is that sense of accomplishment, of working toward a goal. There are several possibilities come to mind and I would welcome other suggestions.

You could start trying to observe the NGC Catalog of some 8000 objects. That would certainly give you something to do, (an equivalent task is building the P.E.I. causeway with a shovel!) For those who use smaller scopes (under 8"), this is not practical as 70% of the NGC objects are invisible at these apertures.

You could begin a photographic study. This requires considerably more investment in time and equipment but has the nice feature that you end up with results you can take with you and brag about to other amateurs! But the photographic side of observing is a science all by itself that only a few brave souls like Mary Lou have dared enter into.

An alternative is to produce a sketch book of the entire Messier list. This requires only a pencil and your scope, and produces transportable results. I was most impressed with sketches I have seen by other members and I hope to begin this project the next clear night. If I can manage two sketches an evening, I should be finished by 1993! Wish me luck and may your skies be always clear! Ω

Toronto Centre's Eclipse Expedition

Ralph Chou - Toronto Centre

At the General Assembly last May in Toronto, the Toronto Centre announced plans for an expedition to observe the total solar eclipse of March 18th, 1988 from General Santos City on the island of Mindanao in the Philipines. This eclipse is the most favorable one since June 11th, 1983 and will not be surpassed until the Hawaii-Mexico eclipse of July 11th, 1991.

This expedition is the latest in a series organized by the Toronto Centre. Other tours were set up for the Manitoba eclipse in 1979, Kenya in 1980 and North Carolina in 1984. The Philipines tour is being organized by Randy Atwood and myself; both of whom are experienced eclipse observers.

The tour is scheduled to leave for Manila on Saturday March 12th, 1988. This is the first day of the March school break. Our group will fly to Chicago where we will transfer to Philipines Airlines. A tour of Manila is scheduled for Monday March 14th. We will then move to a beachfront resort near Cebu, where for two days we can enjoy the tropical climate and equatorial skies. On Thursday we will fly to General Santos City. This will give our group a full day to set up equipment and make any last-minute preparations. The eclipse occurs just after 0900 hours on Friday March 18th. General Santos City is very close to the centre line of the eclipse path and will experience approximately three minutes and twenty seconds of totality. This, combined with the weather prospects for southern Mindanao Island makes General Santos City the best land-based site for eclipse observations.

In the afternoon we return to the resort in Cebu for a celebratory dinner. On Saturday the group returns to Manila. At this time members can return to Canada in time

for the first day of school, or continue their travels on extension tours. Manila is a major hub airport for the Far East, so there are a wide variety of extension destinations available. Our tour agent can tailor a tour to fit your wishes.

Special arrangements are being made to permit the importation of equipment and photographic supplies by expedition members without the payment of customs duties, etc. in the Philipines. The baggage allowance will be a maximum of three pieces of luggage, each weighing up to seventy pounds, aboard the Philipines Airlines aircraft. Thus, one can take along a medium sized telescope. We will try to arrange for transportation of heavy equipment back to Canada for those wishing to take extension trips after the tour. We will be offering a series of lectures and seminars on observing and photographing the solar eclipse, features of the southern sky, etc.

At the time of writing (Oct 30th), we have reserved forty places in aircraft and hotels. The very reasonable price for the tour is $2090 Canadian for double occupancy and $2250 Canadian for single occupancy. Included is return airfare from Toronto to General Santos City, hotel room with breakfast and transfers. Other meals and any air taxes are the responsibility of the participant.

In order to reserve a place we require a deposit of $300, payable to the R.A.S.C. - Toronto Centre. Despite the recent postal disruption we have already sold twenty places. We welcome participants from other R.A.S.C. centres, but please ask that interested members book as soon as possible. For further information, please contact Randy Atwood at (416) 624-4629 evenings. Any reservation deposits should be mailed to: Eclipse Expeditions, R.A.S.C. Toronto Centre, c/o Randy Atwood, 4348 Dallas Court , Mississauga, Ontario, L4W 4G7.

I believe that this is the best, short get-away eclipse package that is available anywhere, and a perfect opportunity to see one of Nature's truly spectacular celestial events.Ω

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Peter Steffin

In their quest for a better understanding of the universe, astronomers have, in recent years, made many great advances in the areas of theoretical and observational astronomy. One of these pursuits is in the field of laser technology and although not as impressive as a supernova, does involve some incredible facts.

On July 20th, 1969, at 8:17 P.M. Greenwich Mean Time, the Apollo XI lunar module touched down on the moon's surface and a new era in space exploration began. The Apollo astronauts had brought along some scientific tools to carry out a number of experiments. Included in this array of equipment was a multi-prism retro reflector. A small item with a big name, whose sole purpose was to reflect a beam of laser light back its point of origin.

Located at MacDonald Observatory in Fort Davis, Texas is the Lunar Ranging Laser (now retired) that shoots a beam of laser light to the moon. The beam bounces off of the one foot square retro reflector and is returned to its source. The concept behind this practice is to measure the time it takes the laser beam to go to the moon and back. Since it is known that light travels at a speed of 186,000 miles per second, it is possible to measure the distance between the Earth and the Moon with great accuracy.

As one of the most accurate scientific experiments ever devised (timed to one billionth of a second), lunar laser ranging is able to measure the distance between the Earth and the Moon, after some refinements, to within a couple of

inches. Earlier methods only gave a value to within half a mile.

A laser beam, at its point of origin, is a very narrow beam of concentrated light and remains as such over reasonable distances. The lunar laser ranging beam is fired from a telescope and in a burst that lasts only a billionth of a second. 1,000,000,000,000,000 photons form the pulse which has to travel a quarter of a million miles in order to reach the moon. By the time it reaches its target it is spread over about one square mile of the moon's surface. The retro reflector is thus only able to return a very small fraction of that amount. The light returning from the moon is not as well concentrated as as the initial beam and when it returns to Earth it is spread over an area the size of Texas. This dilution from the long distance is further aggravated by the fact that only the returning light coming down the barrel of the telescope can be used. If all goes well, this amounts to one photon! Incredible as this may seem, the saga is not over yet. All of the stray light has to be removed from the incoming signal to detect the tiny amount of light returning back to the Earth. As the title suggests, these are indeed astronomical odds, but from them we can gain much beneficial use.

A great amount of science has been extracted from the use of lasers, and in this case the distance from the Earth to the Moon can be accurately measured. Closer to home, measurements taken at the same time by two observatories located continents apart are able to give us the exact distance between them. With a number of measurements taken over a period of time, this can be used to study plate tectonics and the rate at which the continents are drifting relative to each other. Ω

Almost Had Another !

Patrick Kelly

There was quite a stir in the University of Toronto physics department recently over rumors of the discovery of another supernova! This one was reported to be in M31, the Andromeda Galaxy, and depending on its type was expected to reach magintude 7 or even 5! Even more remarkable, perhaps, is the fact that it would have been visible from the northern hemisphere! It was first reported as having been discovered in the Soviet Union, but confirmation was difficult to obtain due to overcast conditions at most other observatories. However, as the following information from the IAU circulars show, it looks like it was all a wild goose chase.

Extract from IAU circular No.4496 Nov.24, 1987

POSSIBLE SUPERNOVA IN M31

A. M. Cherepashchuk, Sternberg State Astronomical Institute, reports the discovery by N. Metlova of a possible supernova in M31, located at R.A. = 0h41m.8, Decl. = +41 35' (equinox 1950.0). On Nov. 21.783 UT, mpg = 11.0.

Extract from IAU circular No.4498 Nov.24, 1987

NO SUPERNOVA IN M31

Numerous reports have been received noting that there is no new object at the position reported on IAUC 4496 to a limiting magnitude of about 15, including the following: Nov. 24.86 UT, nothing to mpg about 15 (D. Buczynski, Conder Brow, England, 0.55-m reflector, appearance identical with Oct. 28 plate taken at the same telescope; communicated by G. M. Hurst); 24.95, nothing to mpg about 14 (R. E. McCrosky and R. Stefanik, Oak Ridge Observatory); 25.0, nothing to mag 14 (D. Axon and D. Carter, La Palma Observatory; communicated by P. Charles).

Well, don't give up hope. Since the rate of supernova production in spiral galaxies is about one per century and since the last one was in 1885, we should be due for a **real** one quite soon! Ω

Observatory Questionnaire

Doug Pitcairn

The past two years have witnessed a significant increase in the amount of visual observing being done in a semi-organized way by members of this centre. The site in Beaverbank together with the incentive of the "Messier Search" seem to have spurred members out to the telescopes and the dark skies. I think this is important, the visual aspect being the only real direct link between ourselves and the "Heavens". Anybody who observes regularly will tell you that photographs just aren't the same. The peace of silence, the calm of relaxation and the magic circle of view in your eyepiece do something for the constitution that nothing else can. However, a few nights spent under the cool skies and fighting off the dew soon bring one around to the thought: "Wouldn't it be nice to have an OBSERVATORY!"

Conversations with people who have these luxuries confirms that they take the hardships out of observing. Feedback from the Calgary Centre indicates that a centre's growth is greatly enhanced by the addition of an observatory. The Calgary Centre was about the same size as the Halifax Centre until they completed their observatory. They then doubled in numbers in three years. Attendance at observing sessions also rose sharply with the availability of shelter, a comfortable seat, and a large aperture telescope to work with.

The above facts in consideration, I feel it is time for the Halifax Centre to seriously consider construction of its own observatory. Or is it? How do you feel about it? A project of this magnitude will require a contribution of effort from many of you. There will be a financial commitment (possibly a

surcharge on the annual dues of some kind). The centre will have to get involved in land leasing or purchasing. A site has to be chosen, necessarily favoring some over others. Do you people who are out there who never look through a telescope (the very noble and distinguished "Armchair Faction") have any desire to see an observatory constructed? In order to have an information base to draw upon, I am asking you, the members, to do the centre a favor. Please take the time to fill out the attached questionnaire and return it to me. If you do not return the questionnaire with your personal views, how can you criticize what the centre decides to do at a later date? The questions are only a guideline, please add a note and describe in detail any feelings you have in this matter. If your interest is strong enough, consider signing up to be on the observatory committee. (Although I am the current committee of ONE, I will be forming a committee proper sometime over the winter.) Do you have any suggestions or leads for possible sites. (Anybody own a dark sky farm in central province with an extra 30 foot square plot? SIGH!!!)

Necessity

In light of the previous discussion, how important do you think an Observatory is to the prosperity of the Halifax R.A.S.C.? Circle the number of your selection on a scale between the two extremes.

Vital ------1 2 3 4 5-------Unimportant


From Santa
Merry Christmas & A Happy New Year

Best Wishes for a Happy Holiday Season
and clear skies in the year to come.

The Executive
Halifax Centre
Royal Astronomical Society of Canada

Location

How far would you be willing to travel to use an observatory?

1) 10 km 2) 25 km 3) 50 km 4) 80 km 5) 200 km

Do you think accessibility should take precedence over quality of sky. Good dark skies are usually quite far away from centres of population, but too far, and nobody uses the facility.

(good sky but far) --- 1 2 3 4 5 ---(poor sky ,but close)

Funding

How do you think the capital cost should be funded. Bear in mind that even if you never use the observatory, you should get some benefit from it if it helps the centre grow as a whole. Should all the membership pay (a surcharge on dues), or should only the people who use the facility pay (a key charge or pay as you use box?) perhaps a combination of a minimal surcharge with an additional user fee is the answer. What do you think?

1) everyone 2)user pay 3)split payment

Should additional funding be investigated such as :

1) co-ownership with a University
2) co-ownership with the N.S. Museum
3) government funding
4) none

Observatory Type

Another idea which has been "unoffically" tossed around is the idea of having a mobile observatory instead of

a permanently located one. This would involve modifying a truck (about a five ton) into an observatory, etc. It would allow the observatory to be available for things such as Nova East as well as allowing it to avoid the problem of picking a permanent site only to have a problem with light pollution in the future.

Instrumentation

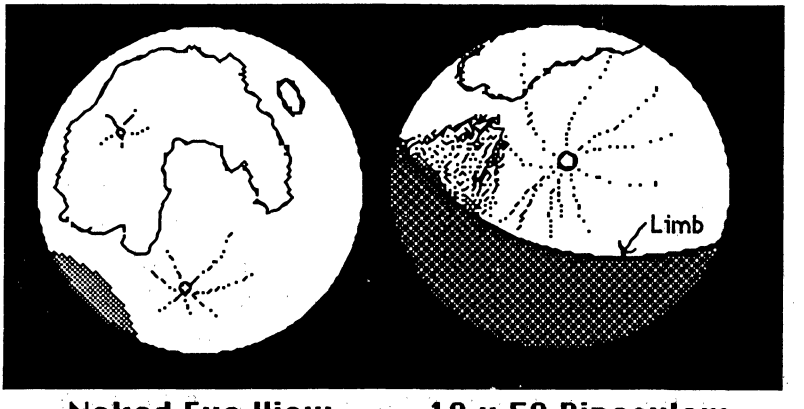
We already have a 8 inch Celestron, Should we plan on immediately getting a larger telescope (such as a 17 inch Odyssey), or make do with the C8? How about 6 pairs of identical binoculars for group "tours"? Any other suggestions? Please write them below or add a note; I'll read them all. Ω

The Penumbral Eclipse of October 6/7

Michael Boschat

It started out as a clear evening with the full moon rising in the east. I started to prepare for the eclipse. Would the umbra give a very small bite to the moon? At 01^h00 UT, with only three hours to go until maximum eclipse, I noticed some bright stuff moving in rapidly from the south-east. What was it? Fog? It can't be. Sure enough, it was low cloud which soon covered almost all of the sky except for a few gaps. Would one of these allow me to glimpse the moon at maximum? Only time would tell.

At 04^h00 UT, using the naked eye, the south-western part of the moon looked dark. I then used my 10x50 binoculars and saw only a somewhat triangular shaped patch which was not very dark, but was noticeable (see sketches). The moon never got any darker and before I knew it, the maximum had come and gone. At least I saw it. Other penumbra eclipses were darker than this one. Maybe next time! Ω



Naked Eye View 10 x 50 Binoculars

The Tunguska Explosion - Unique or Not?

Michael Boschat

In 1908 a large explosion occurred over the isolated Tunguska region of the Soviet Union. When an expedition finally arrived years later, they heard reports from the local residents of a large flaming object which crossed the sky and caused an enormous explosion. Over a large area, trees were charred and flattened away from a central point. However, no crater or meteorites were found at the site. The cause of this explosion has been the subject of lively debate ever since.

In 1930, Fred Whipple suggested that the explosion was caused by the head of a small comet hitting the Earth. The head of a comet is made up largely of ice which is heated to very high temperatures during its flight through the Earth's atmosphere. This in combination with the huge forces acting on the comet due to its passage through an increasingly dense medium result in an explosion which vaporizes the comet, leaving few traces.

In 1965 a fireball streaked over southern Canada and exploded. It became known as the Revelstoke meteorite. In 1966 another fireball exploded over Lake Huron, causing a shock wave which was detected in fourteen states. What is thought to be an actual impact occurred in 1969 when a noticeable seismic reading was recorded at four Canadian seismic stations along with detection of a shock wave. In 1984 a fireball near the city of Novosibirsk in Siberia generated both a powerful shock wave as well as a large enough change in the Earth's geoelectric field to blow out light bulbs in several nearby communities. It eventually exploded at an altitude of about eleven kilometres. The American astronomer Sekanina has traced more than twenty meteors whose flights have ended in similar fashion.

A Soviet astronomer has demonstrated that during an explosion of this kind a meteor disintegrates into a multitude

of fragments, each about 0.1 mm in diameter which evaporate almost instantly. Before it explodes, a meteor is exposed to tremendous aerodynamic loads of up to 20 000 kPa. The astronomer Zotkin compared the radiant of the object which produced the Tunguska event with the radiants of known meteor showers. He found a relationship between the Tunguska object and the Taurid meteor shower. It should be noted that the Taurids are associated with Encke's comet and this relationship has led him to believe that the object may have been a fragment of that particular comet.

An American astronomer, on the other hand, has suggested that the calculated orbit falls more closely in line with that of the Apollo asteroids instead of the Taurids. He thinks that the impact was caused by a small asteroid fragment instead of a piece of a comet. More recent analysis using additional records from eyewitnesses seem to favor the cometary origin. If this is the case, then who knows? There may well be another such object already on its way! Ω

Gawker's Report

compiled by Pat Kelly

Time: Friday, August 21st, 1986
Place: Beaverbank Observing Site
Observer(s): Jason Adams, Mark Earhart, Jim MacGuigan, Norman MacNeil, Nancy & Lee Mailman, Mary Lou Whitehorne, Joe Yurchesyn
Equipment: 60 mm refractor, Meade 2080, C8, 75mm P.O.S., 250 mm reflector, 35mm camera with 35 mm and 300 mm lenses and Poncet mount, 7x50 and 10x50 binoculars
MVM: 6.5
Weather conditions: Cold and damp
Seeing: Inferior to medium
Comments: Joe brought his 6" refractor but forgot the bolts that attach it to the pier! AAARRGH! Lots of smoking meteors all over the place. Jim saw several "unidentified" NGC's (he can't remember which ones). Dust lanes were visible in M31. I spent some time introducing three visitors to the splendours of the night sky. - M.L.W.

Objects Observed:

Planets: Jupiter (and three moons), Saturn and Titan
Planetary Nebulae: M27, M57, M76
Nebulae: M8, M20, M16, M17, NGC 7000
Globular Clusters: M13, M22
Open Clusters: h & χ Persei, Pleiades, M11, M17, M18, M23, M39
Galaxies: M31, M32, M110, M33, no success with M74
Double Stars: Polaris, Albireo, ε Lyr

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Time: Sunday, August 23rd, 1987
Place: Beaverbank Observing Site
Observer(s): Jason Adams, Mark Earhart, Jim MacGuigan, Norman MacNeil, Doug & Paul Pitcairn, Hugh Thompson, Mary Lou Whitehorne, Joe Yurshesyn
Equipment: B&L 4000, 150 mm refractor, 250mm f/6 reflector, 75mm P.O.S., 100mm RFT, 75mm CAT, C8, 35mm camera with Poncet mount, 7x50 and 10x70 binoculars.
MVM: 6.2
Weather conditions: Clear, with a light wind
Seeing: Excellent

Objects Observed:

Planets: Saturn
Planetary Nebulae: M27

Nebulae: Veil Nebula, "E" black in Aquila
Globular Clusters: M4, M25
Open Clusters: M11
Galaxies: M31, M32, M110, NGC 708, NGC 752, NGC 891

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Time: Sunday, September 1987
Place: near Hering Cove
Observer(s): Paul Duval
Equipment: B&L 4000, 10x50 binoculars
MVM: 5.5 - 6.0
Weather conditions: Cool and windy with low humidity
Seeing: Good
Comments:

Objects Observed:

Planets: Saturn, Jupiter with four moons
Globular Clusters: M15, M54, M69, M70
Open Clusters: M52, M103, NGC 457, NGC 663, NGC 869, NGC 884, NGC 7789
Galaxies: M31, M32, M33, M110, NGC 253
Double Stars: γ And, γ Ari, δ Cep, β Cyg
Variable Stars: δ Cep

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Time: Thursday, October 15th, 1987
Place: Beaverbank Observing Site
Observer(s): Jim MacGuigan, Doug Pitcairn, Hugh Thompson, Mary Lou Whitehorne, Joe Yurshesyn
Equipment: 250 mm Newtonian, C8, Meade 2080, 150 mm Newtonian, 60 mm refractor, 10x50 binoculars
MVM: 6.5
Weather conditions: Cool and damp
Seeing: Unusually good

Objects Observed:

Planets: Jupiter and four moons; the steady deeing revealed spectacular festoons in the equatorial belts!
Planetary Nebulae: M57, Helix Nebula
Nebulae: M8, M22
Globular Clusters: M13, M15, M92
Open Clusters: M34, M103, NGC 457, Tr 1
Galaxies: M31 (M31 was showing off its dust lanes), M32, M33 (spiral structure was visible!), M74, M77, M110, NGC 6207

Comets: Comet Levy!!! It was observed (through a tree) on the north-west horizon.

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Time: Monday, October 26th, 1987
Place: Beaverbank Observing Site
Observer(s): Mark Earhard, Jim MacGuigan and several students from Jim's classes at Henson College and Dartmouth High School
Equipment: OMCON 525, OMCON 1070, 80 mm Tanzutsu Newtonian, several pairs of binoculars
MVM: 6.0
Weather conditions: Mostly clear, humidity 93%, humid and raw. We lost both large scopes to dew withing one and a half hours. Temperature 8 °C.
Seeing: 2 out of 5 (same for transparency)
Comments: This was the third trip out for some of my students and they are getting reasonably good with star charts and using telescopes. - J. MacG.

Objects Observed:

Planets: Jupiter
Planetary Nebulae: M57
Nebulae: NGC 7000 (North America), NGC 6992-6995, NGC 6960 (Veil)
Globular Clusters: M13, M15, M36, M37, M38
Open Clusters: Hyades, M45, NGC 869, NGC 884
Galaxies: M31, M32, M81, M82, M110, NGC 6207
Double Stars: Polaris, Albireo, Alcor & Mizar, ε Lyr
Meteors: several Orionids(?), one -1 mag.

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Time: Sunday, November 15th, 1987
Place: Beaverbank Observing Site
Observer(s): Pat Kelly, Jim MacGuigan and class, Doug Pitcairn, Hugh Thompson, Joe Yurchesyn
Equipment: 250 mm reflector, 200 mm refractor, 150 mm reflector, C8
MVM: not recorded
Weather conditions: clear, cool and relatively dry
Seeing: very good
Comments: Having had my first look throught the new Odyssey, I'm quite impressed. It will be a pleasure to have my "share" of it during the winter when it is too cold for certain other people to observe!!! - P.K.

Objects Observed:

Nebulae: M42 (It's Green), NGC 2023 (dark band easily visible)
Open Clusters: M35, M36, M37, M38, NGC 1647 (the "Enterprise" cluster - for

those of you who are wondering how it got its name, it reminded Doug of the Star Trek episode in which the Enterprise is being pursued by the Doomsday machine - in this case the Doomsday Machine is represented by the Hyades. If you don't believe it, go look for yourself!), NGC 1746 (the "Constellation" cluster - ask Doug yourself for this one, since he won't tell me!) NGC 1907, NGC 2129, NGC 2158, NGC 2266, IC 2157

Comets: Bradfield is very well formed with a tail about 1.5° degrees long. It is nice to see a comet that looks like a comet! -D.P. Borrelly! Finally was able to get Doug to chase it down with the 10". I had spent several occassions trying to find it with the Centre C8 but with no success. Of course, Hugh had to find to find it first. We were still looking and he piped up "I've got it!" . Threats to give him a real close up view of his mirror could not keep him quiet for the rest of the night about that one!. Borrelly was in the "glow" from Halifax but still distinct. Doug estimated its magnitude as about 8 but with the "glow" it may have been a bit brighter. - P.K.

Members are invited to submit their observations to the Editor for inclusion in "Gawker's Report". In order to make the compiler's job easier, please list all information in a format similar to that used for the column. Thanks and clear skies. Ω

The dates of the regularly scheduled monthly observing sessions can be obtained from the "Calendar of Events" inside the back cover. If the weather does not permit an observing session on the scheduled date, an alternate is set by the Observing Chairman based on the weather. If you wish to be informed of the time of alternate observing sessions, contact the Observing Chairman to have your name added to the list (see the inside front cover).

Astro- Ads

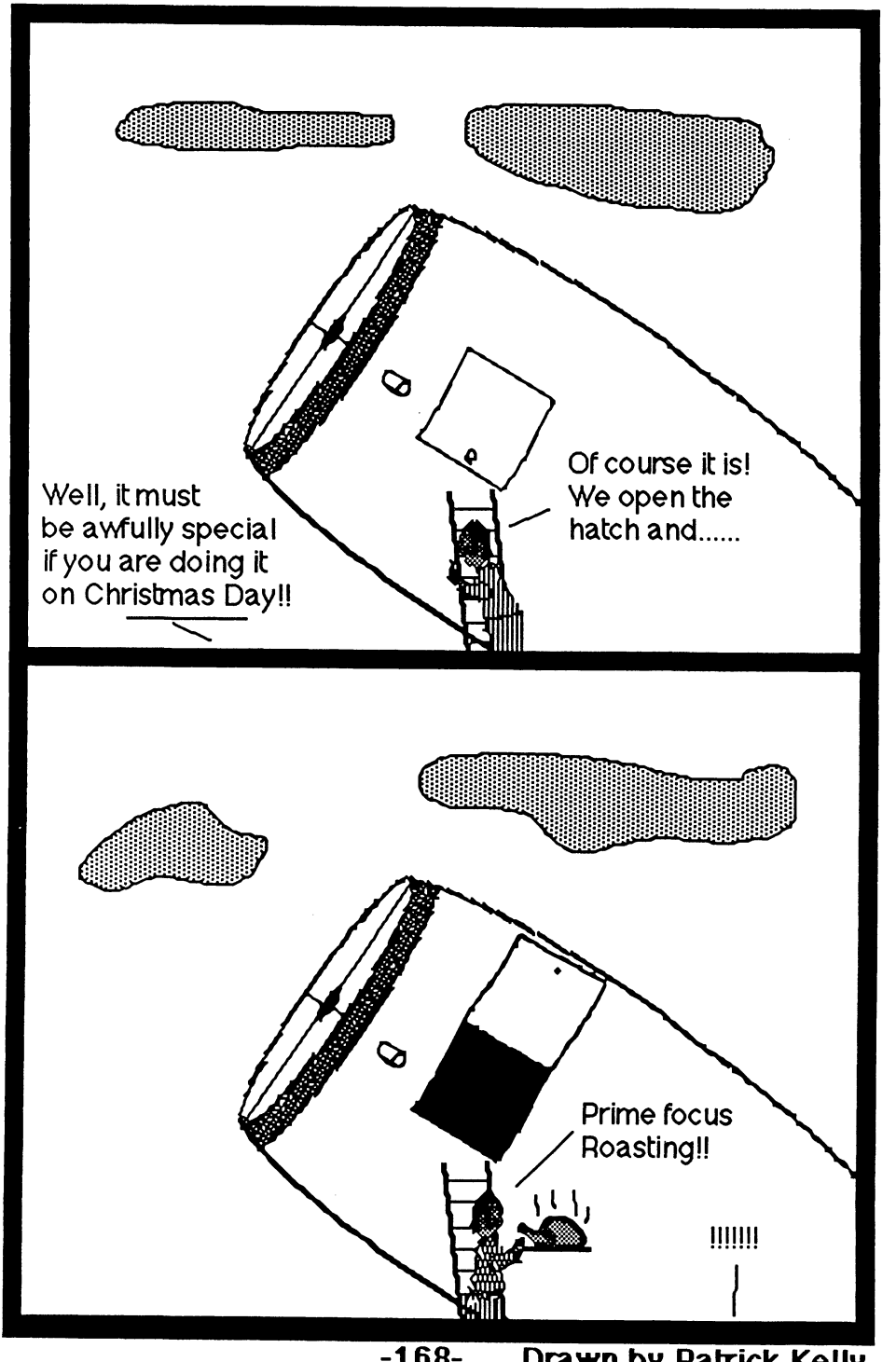
FOR SALE: **B & L 4000 Criterion**

Spotting Scope	$621.00
1.25 inch Diagonal	$60.00
Adaptor	$27.00
B&L 16.3 mm eyepiece	$38.00
TOTAL COST NEW	**$746.50**

Asking $500.00
call David Bessonette - 463-7760

GA☆ZER


Gee, Gazer; why are you using "the Bucket" for solar observing?
I'm not observing. But tracking the sun for an hour and a half is no fun, I'll tell you.
What are you doing, then? Taking photographs?
No, No! Something better than that! Here, give me a hand.



 Drawn by Patrick Kelly

NOVA NOTES INDEX

November - December 1987 Volume 18, Number 6

NOVA NOTES is published bi-monthly by the Halifax Centre of the Royal Astronomical Society of Canada in January, March, May, July, September and November. Articles for the next issue should reach the editor by January 15th, 1988. Articles on any aspect of astronomy will be considered for publication. The editor is:

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NOVA NOTES is printed courtesy of the Nova Scotia Museum

HALIFAX CENTRE - R. A. S. C.
1988 CALENDAR OF EVENTS

January 1988

S	M	T	W	Th	F	S
					1	2
3	***4***	5	6	7	8	9
10	11	12	13	14	15	**16**
17	18	19	***20***	21	22	23
24	25	26	27	28	29	30
31						

February 1988

S	M	T	W	Th	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	***13***
14	15	16	17	18	19	**20**
21	***22***	23	24	25	26	27
28	29					

March 1988

S	M	T	W	Th	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	**19**
20	21	***22***	23	24	25	26
27	28	29	30	31		

April 1988

S	M	T	W	Th	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	**16**
17	18	19	20	21	***22***	23
24	25	26	27	28	29	30

Key to calendar:

Meetings: outlined

Special days: ***bold and italicized***

Observing sessions: **bold and underlined**

Special Days:

Jan. 4 - Quadrantid Meteors
Jan. 20 - Mercury 2° North of Moon
Feb 1 - Vesta Occulted by Moon
Feb 13 - Saturn 1.3° North of Uranus
Feb 22 - Mars 0.01° North of Uranus
Mar 6 - Venus 2° North of Jupiter
Mar 22 - Mars 1.4° South of Neptune
April 22 - Lyrid Meteors

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