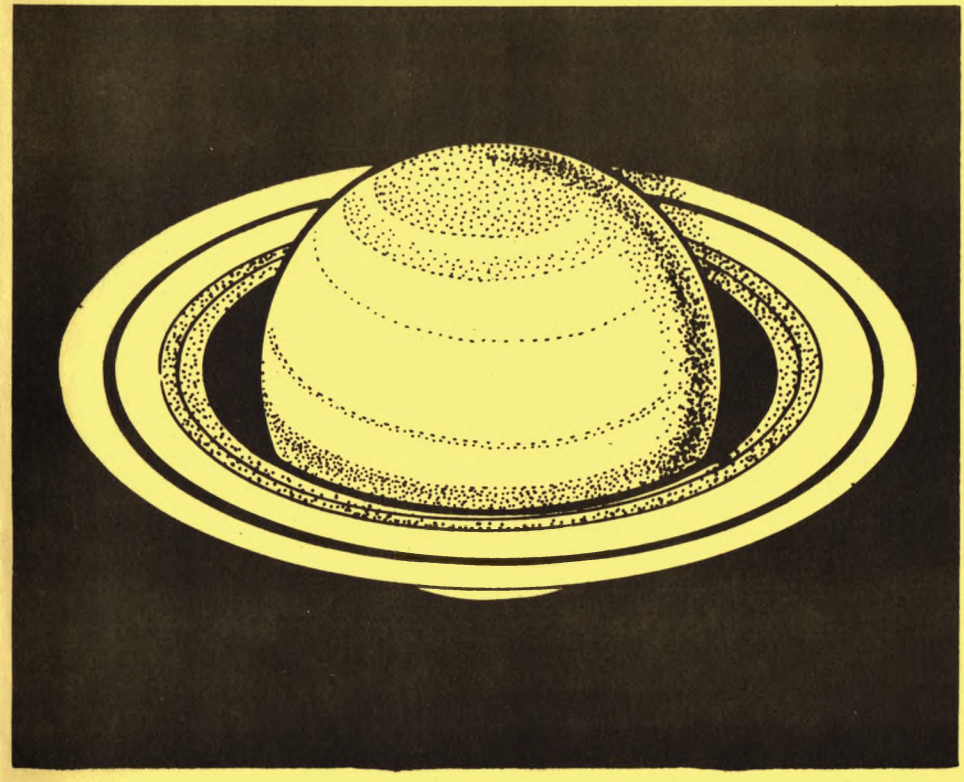
NOVA NOTES



BI-MONTHLY JOURNAL OF THE HALIFAX CENTRE

JAN-FEB 1980 VOL. 11, No 1

1980 Halifax Center Executive

President - Randall Brooks, 71 Woodlawn Rd. Dartmouth, B2W 2S2
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Alternate Rep. - Roy Bishop, Wolfville, N.S.
Librarian - Brian Guest, Enfield, N.S.
Observ. Chairman - Glenn Graham, 99 Sunny Brae Halifax, B3N 2G8

UP COMING MEETING:

Friday 18 January at the N.S. Museum,

Speaker: Dale Ellis

Topic: Neutron Stars

Our speaker for the January meeting will be discussing Neutron Stars. They are pulsars which were discovered about a decade ago. They are thought to be rotating Neutron Stars. It is believed that these Neutron Stars are only 10 km in radius yet with a mass as great as our own sun. Dale will describe some of the properties of Neutron Stars and explain some of the methods used by physicists to make these predictions.

REPORT OF THE PRESIDENT -- 1979
or
The President Writes

The past year has been all it had promised. The regular monthly meetings have continued to be held with the odd divergence. Another societies' show was held in the spring at the museum and again we had one of the better displays (at least in the eyes of any astronomers who passed by). The display was smaller this year, but was just as interesting. The first Burke-Gaffney and Simon Newcomb (astronomer) Awards were presented. The Burke-Gaffney Award, a Halifax Centre Award and the Newcomb Award, a National Office Award were both presented to Bill Calnen. Six of our members attended the London GA, only to find that London was fine in '79. Interest in a centre observatory increased substantialy and a possible site was found. This as you may realize is on property owned by our Libraian, Brian Guest. Again a most and the most successful camping/observing weekend took place during the summer. This past year we travelled to the south and centre of the province and ended up outside the Kejimikujik National Park. We were treated to the best skies yet seen at any of these outings. Our summer tour this year was to the Maritimes Weather Offices of the Atmospheric Environment Service in Bedford Towers in Bedford. On this occasion a most educational, informative and enjoyable evening was spent. The regular meetings resumed in the fall. However, back in April the Second Anual Centre Diner took place. Last spring the Halifax Centre converged on the China Town Restruant in Rockingham. The meal was followed by a members' night of silde presentations.

The following is a listing of the various meeting topics;

January	Dr.D. Tindall: Eclipses, Past and Present
February	Dr.S. Boulton: The Other End of the Telescope
March	Dr.R.L. Bishop,Mr.R.C. Brooks, Mr.W.J. Calnen: Astronomy in Nova Scotia to 1900
April	Mr. M. Ha, China Town and Centre Dinner
May	Mr. W. Zukauskas: Report on the London General Assembly
June	Dr. L.Bogan: Jupiter as Seen from Voyager 1.
July	Camping/Observing Weekend at Keji and surroundings.
August	Mr.K. MacDonald: Tour of the Maritimes Weather Office in Bedford.
September	Mr.J. MacNeil,Mr. R.C. Brooks, Mr. M.P. Edwards: The Mechanical Parts of a Telescope.
October	Members' Night and Dr.R.L. Bishop: IAU Report.
November	Mr.W. Appleby: Astronomical Seeing or Weather and the Stars
December	Dr.N. Scrimger: Infrared Astronomy

Of course we also had many observing sessions. Usually at least one a month was scheduled.

The up-coming months are to be very busy. Our national president, Dr. Percy, plans to visit our centre in May, at which time our Centre Dinner is to be held, and he will be an after dinner speaker. Plans are well along for the

Halifax hosted 1980 General Assembly. This is to be known as the Bluenose General Assembly. Lots of help will be needed by the various committee chairmen. Possibly plans for the observatory will have to be put aside until after the G.A., in late June.

One other item, of great consequence, which has been begun, and is to continue is the formation of the Centre constitution. This will enable incorporation of the Centre. This is almost a requirement, if we are to do anything having a lasting effect, such as the building of an observatory.

I have certainly enjoyed holding the position of president of the centre for the past two years. I sincerely thank the membership for their continued interest and response. Finially, I look with interest to the future of our growing centre

Michael P. Edwards
President (Past)
Halifax Centre

The explorations of space
end on a note of uncertainty...
We measure shadows... we
search amoung ghostly errors
of measurement....
- Edwin Hubble, 1935

ROYAL ASTRONOMICAL SOCIETY OF CANADA

Statement of Financial position of the Halifax Center as of December 15, 1979.

Balance from 1978		$ 322.04
Receipts:		
Membership, Regular	1,214.28	
Life	400.00	
Life grants	44.80	
Handbooks	360.00	
Grant: Gen. Assembly	116.00	
Interest	5.82	$2140.90
		$2462.94

Disbursements:

National Office/Regular	749.20	
Life	400.00	
Handbooks	255.43	
Plane Fare - Assembly	232.00	
- Constitution	208.00	
Stamps, Envelopes	133.50	
Equipment	54.00	
Subscriptions	21.43	
Refreshments	39.69	
Father Burke Gaffney/ in Memorium	10.00	
Bank Charges	.40	$2103.65
Balance per Dec. 15, 1979		359.29

Respectfully submitted,

Alan Bent

Treasurer

R.A.S.C. Halifax Center

Minutes of the November and December Meetings

The regular monthly meeting of the Royal Astronomical Society of Canada, Halifax Centre was held on Nov. 16 at the N. S. Museum. The topic was "astronomical seeing", and the speaker was Mr. Bill Appleby of Atmospheric Environment Service, Environment Canada.

Data used in Mr. Appleby's Master's thesis was collected in 1963 from the David Dunlap Observatory and in 1966 at Mt. Kobou, B. C. The hypothesis involved a relation between the boundary layer of atmospheric turbulence and the quality of astronomical seeing. Turbulent plumes are created just after a front has passed by because the lower layer of air is warm, while the higher layer is cool. Temperature gradients cause image broadening.

A substantial question and discussion period produced some tips for choosing an observing site in Nova Scotia. The east coast experiences frequent jet streams which hamper viewing. One should stay away from water, especially on the south shore, since the prevailing wind is from the southwest. However, in the winter, the northwest wind from the Bay of Fundy brings cloud. The place to be is inland, to avoid low cloud and fog, which is what certain members have been telling us all along! The meeting ended after refreshments and conversation.

The December meeting took place on the fourteenth at the N. S. Museum. Dr. Norman Scrimger of the Dept. of Astronomy, St. Mary's University, spoke on infrared astronomy.

Dr. Scrimger outlined Herschel's experiment which was the first infrared detector, using the sun as a source. While visible light is between 4000 and 7000 Å on the electromagnetic spectrum, the infrared region lies above 7000 Å. Radiation beyond 8000 Å is absorbed by water vapour in the atmosphere. Astronomers rarely use the term "angstroms", but prefer "microns"

(1000 Å = .1$^{\mu m}$). Photographic plates exposed with red or blue filters reveal stars of different brightnesses. Image tubes are sophisticated instruments for detecting infrared objects, and if their photo cells are cooled, via liquid nitrogen or liquid helium, they are rendered more sensitive. Equipment sensitive to the infrared are able to detect smaller objects than can optical instruments. Objects surrounded by dust, eg. the lunar crater, Tycho, and those containing silicates, eg. some comets, appear bright in the infrared. Other objects, known as "infrared excesses" consist of dust surrounded by a planetary nebula shell. H_2 regions are such excesses. Abnormal galaxies, such as M82, are active in the infrared, and the most massive galaxies yet discovered in the local group, Maffei 1 and 2, are very bright in the infrared but invisible in blue light. Some of the brightest objects are not visible in optical light. Dr. Scrimger ended a most enjoyable talk by answering numerous questions.

The President announced the names of next year's executive and called for a motion that the election results be accepted. Peter Edwards so motioned, and Roy Bishop seconded. Roy motioned that the ballots be destroyed, and Peter seconded. The election results were as follows:

President-Randall Brooks	Ass't Ed.-Jody LeBlanc
Vice Pres.-Walter Zukauskas	Nat'l Rep.-Mike Edwards
Secretary-Murray Cunningham	Alternate Rep.-Roy Bishop
Treasurer-Sherman Williams	Librarian-Brian Guest
Editor-Peter Steffin	Observing Chairman-Glen Graham

The meeting ended over refreshments.

Diane Brooks
VP/Secretary

R.A.S.C. LIBRARY REPORT

HALIFAX CENTER

The R.A.S.C. library has a total of 102 books. Seven new books were added during the past year. In comparison to past years, the turn over of books by members was average. Certain members use it on a regular basis. I feel the library would be used more by members if the books could be better presented during meetings; a matter I will be considering during the coming year.

An inventory of the books showed several missing and some overdue by a year or more. Some of these books are:

1. Communication with **Extra** Terrestrial Intelligence/Sagan
2. Astro Directory News
3. Sleep Walkers
4. Deep Sky Objects
5. Sky & Telescope Vol. 55 No. 2
6. Guide To The Planets/Moore
7. Astronomy with An Opera Glass

If any of these books are in your library at home please return them during the next R.A.S.C. meeting.

If you have read or heard of any books that other members may be interested in let us know.

EXPLORE THE UNIVERSE THROUGH THE R.A.S.C. LIBRARY

Brian Guest
Dec. 14, 1979

BUYING A TELESCOPE?

Hang on, and read this first.....

R.C. Brooks

In 1978 the Tariff Board held hearings across Canada and received presentations from various groups requesting decreases or elimination of duties on hobby equipment and antiques. Seven presentations were made on behalf of amateur astronomers including one on behalf of Halifax Centre members by Roy Bishop. The report of the Tariff Board was published this summer and as a result recommendations were made to Parliament which are to our benefit. Whether they were accepted is not known but it is believed that acceptance was a formality and the provisions may be in force.

Previously, most components for making your telescope were subject to tariffs of 2½% (British preferential) or 15% (Most Favoured Nation, incl. USA, products) under item 46200-1. Lens and mirror blanks were duty-free under item 32633-1 as "glass shapes not further manufactured than rough cut or unwrought for use in manufacturing optical instruments". If you had bought your blank and compounds separately, the blank would have been duty free.

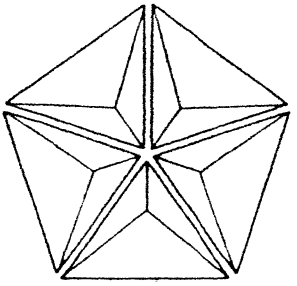
The Tariff Board recommended the following:

> "Astronomical telescopes having an objective mirror not less than three inches and not more than twenty inches in diameter or having an objective lens not less than two and one-half inches and not more than eight inches in diameter; mountings therefore; parts of all the foregoing."--granted free entry for BP & MFN.

What does this mean in savings for you? Well, the following table will show the savings on an item costing $100.

Duty Rate	0%	15%
Import price	$100	$100
Duties (sub total)	$0 (100)	$15 (115)
9% Fed. Sales Tax	$9 (109)	$10.35 (125.35)
Retail Markup (30%)	$32.70 (141.70)	$37.61 (162.96)
Prov. Sales Tax (8%)	$11.35 (153.04)	$13.04 (176.)

The difference ie.cost of the 15% duty is $22.96 and is the saving one would achieve under the above conditions.



SIMON NEWCOMB AWARD for *1980*

R.L. Bishop

At the meeting of the Council of the RASC on May 21, 1978, a proposal from the Halifax Centre, the Simon Newcomb Award, was adopted. The award is named after a native of Nova Scotia, an astronomer who was the foremost man of science of his time in America.

Simon Newcomb (1835 - 1909) was born at Wallace Bridge. At age 18 he moved to Massachusetts and later to Washington D.C. where he spent his entire professional life. In 1861 President Lincoln commissioned him as Professor of Math. and Astronomy in the United States Navy. For 16 years he carried on astronomical observations at the Naval Observatory. From 1877 to 1897 he was Superintendent of the American Ephemeris and Nautical Almanac Office. Newcomb became the world authority on the orbital dynamics of the Moon and planets. Among the many honors which he received were the Gold Medal of the Royal Astronomical Society (1874), the Copley Medal of the Royal Society of London (1890), President of the American Association for the Advancement of Science, the first President of the Astronomical and Astrophysical Society of America (the present American Astronomical Society), and seventeen honorary degrees from leading universities in the United States and Europe.

The Rules of the Award are as follows:

Topics

Awards will be given for articles relating to astronomy, astrophysics or space science. Topics should interest average to well informed amateurs and may be of current or historical interest.

Presentation

Articles should be 1000 - 1500 words, written in proper

grammatical form and presented typewritten and double spaced. Diagrams need not be in finished form but should be complete and ready for drafting. Photographs may also be submitted and if possible original negatives should accompany the submission.

Eligibility

Any RASC mamber in good standing may submit articles. The intent of the Simon Newcomb Award is to recognize literary ability among non-professional members of the Society.

Submission of Entries

Articles must be received by the Awards Committee of the RASC between 1 January and 31 March. Members of Centres must first submit their entries to their Centre Executive with the Executive then choosing the entries they wish to represent their Centre. It is the responsibility of the Executive of the Centre to ensure the entries are received by the deadline above. Unattached Members will submit their entries to the Awards Committee directly.

Judging

Articles will be judged by the Awards Committee. Criteria shall include scientific accuracy, originality, and literary merit.

Presentation of the Award

The award will be presented at the General Assembly by the Halifax Centre Representative to the winner (or a representative of the winner's Centre). The award will remain in the hands of the winner's Centre for display and will be returned to the National Office by 1 April of the following year. If the winner is an unattached member, the award will be displayed at the National Office of the RASC.

EDITOR's NOTE:

The Burke-Gaffney Award will be awarded to the Halifax Centre member presenting the best article for entry in the Simon Newcomb Award. The rules for the Burke-Gaffney Award have been printed in the Jan/Feb and March/April/79 issues of Nova Notes. Entries will be accepted at any time up to the deadline noted above, and, more than one article may be forewarded by the Hfx Exec. for the Simon Newcomb Award. Make submissions to any Exec. member.

ASTEROID AND LUNAR OCCULTATION OBSERVING

Here is an opportunity for amateurs with telescopes of fair size to observe and time occultations of stars by the moon or by asteroids. All that is required is to set up your telescope and set a short wave radio to WWV time signal in Colorado on 15 MHz. A tape recorder is good in case of a graze where the star will appear and disappear for a few seconds; this is the important part of occultations.

Occultations of stars by asteroids is also important since there is a chance that a second occultation of the star will occur because of a second body or satellite of the asteroid, but this is not conclusive proof as stated by one American astronomer.

The telescope can be any type but should be over 90cm since then you can observe fainter stars. An essential part of your equipment is a stop watch, since timings have to be made to hundredths of a second. The most important item in lunar occultations is the reappearance of the star though the disappearance is important. With asteroids the length of the light drop of the star to hundredths of seconds is vital and watch for other drops of the star's light.

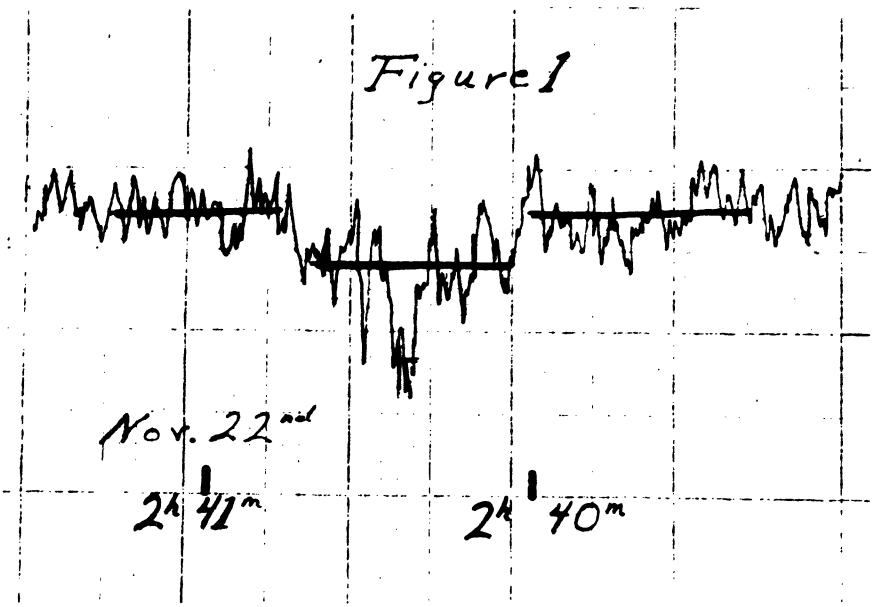
All data should be sent to Mr. Harold Povenmire, 2120 47th. St., Place West, Bradenton, Florida, 33505 U.S.A. I should also mention that his book "Graze Observers Handbook" is best for those who will try to do occultations. So get out there and observe!

MICHAEL E. BOSCHAT

A POSSIBLE VESTA OCCULTATION

by Steven Morris

Calgary has been having very clear skies lately, in marked contrast to the weather in Halifax. On November 21, I and some staff members at the University of Calgary headed out to the infamous Rothney Astrophysical Ovservatory. We had been notified the day before that the astroid Vesta might occult the star HD 15285 (good old HD 15285). By the time Russ Robb (our technician) found the star and observations were begun, the time of the predicted event was only two minutes away. Dr. Milone was at the guidescope keeping the star centred, Russ was at the chart recorder marking the WWV time signals ont the graph, and I stood at the chart recorder admiring the tracing as it came out. The predicted time came and went, with the tracing remaining steady. Ten minutes later, just before we were going to call it quits, a significant drop occurred and lasted forty seconds. Figure 1 shows this section of the tracing clearly.



We had something, but what was it? Not only was it very late, but it looked peculiar. Instead of being flat-bottomed, it seemed rather curved with much larger fluctuations than were found elsewhere on the tracing. Could the star have moved out of the field of the photometer's view? After all, exact guiding on a faint star is no easy task. Or could it have been a passing cloud?

We are still waiting to hear from the States about the ten-minute delay, because if other observers saw it on time, then our tracing is certainly spurious. If it is not spurious, an explanation of the tracing's curious shape may be at hand. The tracing may indeed be flat-bottomed, but with one or possibly two brief drops in intensity near the centre. This could occur if HD 15285 was a double star. Checking the catalogues I found that it was indeed double, with the components having a predicted position angle of 225° and a separation of only 0.19 seconds of arc. Moreover, their magnitudes would fully account for the depth and duration of the tracing.

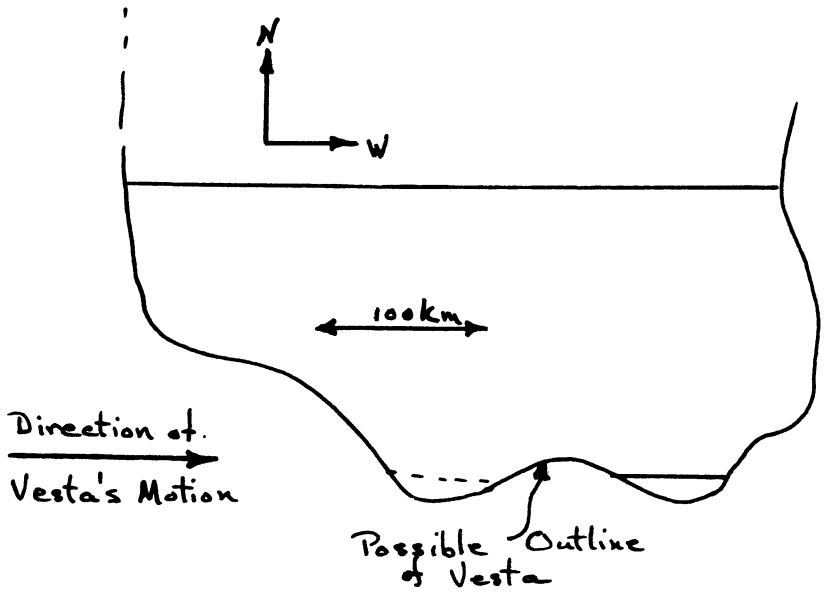
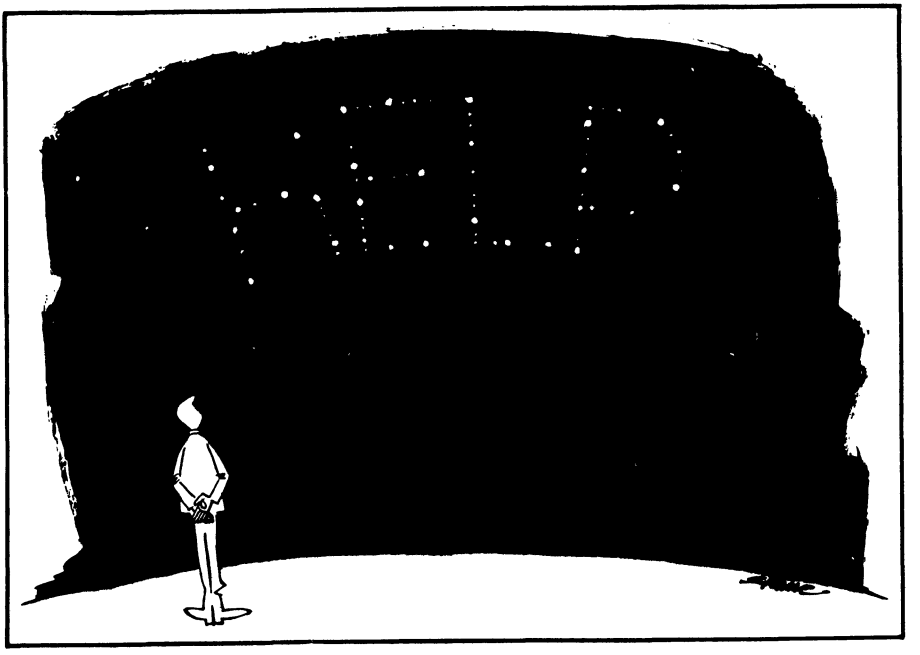


Figure 2.

Figure 2 shows the most likely chords across the asteroid's image, as derived from figure 1. The dotted line is included assuming the brief dimming at 2:40:30 UT was real and not just noise. Observations at just one station are not very informative, and a variety of shapes could cover the chords in Figure 2. It should be kept in mind that the position angle and separation of such a close binary are rarely known with great accuracy, so the information in Figure 2 should be taken with a grain of salt. If these observations really do show a double eclipse by Vesta however, they tie down rather nicely the position of the southern end of the asteroid at the time of observation.

The situation will be much clearer in the next few months. Meanwhile there are <u>two</u> occultations, by Metis and Juno, on the night of December 10! Dare we observe them?!



A Day in the Life of an Observing Chairman

Glenn Graham

The morning of Dec. 15 dawned bright, cold and cloudless. As the day wore on I began to look forward to the planned observing session at Grand Lake. At 6 P.M. as I was about to leave for a not too secret rendevous at 'Inn On The Lake' I was then told that no-indeed I could not have the car. My father had to have it to show my uncle, in from the country, the bright city lights. I was allowed however to take the car and get groceries. At seven-thirty when this task was done it turned out that if I wanted the car I could have it after all.

Realizing that the Burke-Gaffney tour would still be in progress and that it is specifically reserved for RASCals from 8.00 till midnight I deceided to go there instead. Not wanting to go alone, Astronomers are gregarious people, I phoned our former Observing Chairman. Jody confirmed he would like to use the 16" but he couldn't get away from work until 9.30. By this time the little hand was on the 8 and the big hand was rapidly approaching the twelve (I'm a clock-face person). Knowing the grad. student conducting the tour would be long gone before I could drive down to the Loyola Building, I deceided to try phoning the observatory. After three tries I managed to get the residence night desk. "Sorry the switchboard is closed for the night" click. I try again. "Sorry there is no number listed for the observatory". Finally I resorted to cunning. Have them call the extentions phone no., I thought.

"Hello; could you please put me through to room 312B". My voice dripped honey. "Sorry, no can do!" Clunk! Click! Buzz! !!?*XX$ Moronic _ _ _ _'s. It was then 8.15.

Undaunted I deceided I could still go out to the planned observing session. However since the roads were rather slippery I deceided maybe I should call and see how many RASCallians were there. A woman answered the phone, "Could I speak to Brian please". "I'm afraid he's down at the gravel quarry using his telescope; could I take a message". "Perhaps you could help me, how many people from the Astronomical Society are with him." "One moment,pause, I believe he's all alone, goodbye." Such enthusiam from members brings joy to my heart.

One option remained open to me. I could use an 8-inch Newtonian I have access to. Last year a High School Astronomy Club of which I was a part constructed a fork mount for a Meade 8-inch F-6 Newtonian. The Meade German mount which came with the Newtonian is also sold with their 6-inch scopes and may even be adequate for them. To make a long story short, what we ended up constructing was the world's largest tuning fork. Even focusing caused the fork arms and declination axis to vibrate so badly as to make the mount inoperable.

Most of the above was heresay because until the night of December the 15th. I myself hadn't attempted to use this most colossal (you have to observe on a step ladder) white

since at present it is more than a year behind schedule and approximately 100% over estimated costs.

Having completed a half year course in 'Statistics' and of course knowing everything about everything I concluded the reports I had heard were greatly exaggerated. There was absolutely nothing wrong with the engineering of the mount, it shouldn't shake! Ipso facto, it doesn't.

After threatening Jody with public humiliation (his Achille's heel) I persuaded him that instead of crawling into his bed he should come out with me and try to observe using the 8-inch and its mount. As it turns out I should have realized he was the more expert head.

We went outside, I handed Jody the telescope to hold while I opened the cradle. I unclasped our rust, real brass clasps and tried to open the cradle. Instead all I did succeed in was emasculating myself. Jody then tried to show me how its done, which is why we are now both eunuchs. Finally using our brains we deceided to use some hot water. Didn't help at all. At last my engineering experience came to the rescue. I picked up a conveniently handy brick and bashed it several times against the cradle. It opened. The time was 11.45.

Putting the telescope into the cradle I then proceeded to close the cradle. It wouldn't close; I couldn't make it shut far enough so I could latch it. The felt lining in the cradle had swelled. The cradle was now too small for the telescope.

Closing it as best we could and hoping against hope that it wouldn't fly open we loosened the brakes and swung (very cautiously) the mount around to look at Jupiter. To hell with aligning the polar axis. I wanted to observe.

Unbeknownst to us the condensation which had formed on the telescope when we brought it outside had frozen so when we pointed the telescope up at Jupiter the tube started to slide down. We stopped it just before the finder would have smashed into the cradle.

Since Jody was starting to fall asleep where he stood (I think this was by way of being a hint) we packed it up. Darn mount! Before leaving his home I made a vow to myself that I would still do some astronomy that evening. The peak was just past (thursday morning) for the Geminid meteor shower. Remembering Steve Morris's article on observing minor meteor showers I deceided why not. A couple of uncomplicated hours of naked-eye astronomy might be just the thing. I stepped out of the house, looked up to see.... clouds! Looking down at my watch I saw it was exactly 12.00. Time to call it a day anyhow.

Observing Session/Saturday 19 January:

The observing session (if clear) will be held at Brian Guest's in Fall River. We will meet at 7:00 SHARP at the Inn On The Lake at the intersection of the Bicentennial Highway and the Waverley Rd. You will be guided to Brian's from there. Dress warmly!! And bring a thermos of coffe.

NOVA NOTES NOTICE BOARD

WANTED

$4\frac{1}{4}$" or 6" Rich Field Telescope.

With or without a mount. Good condition.

Contact Steve Bolton, 423-5772.

WANTED

Require back issues to Sky & Telescope.

Issues required are January,79 to August,79 inclusive. Will pay $1.50 per good issue.

Contact Peter Steffin, 434-4541.

THIS SPACE RESERVED FOR YOU!

If you would like to place an ad in this space to buy, sell or trade objects of astronomical interest then please:

Contact Peter Steffin, 434-4541.
EDITOR; Nova Notes

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