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NOVA NOTES

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Officers of the Halifax Centre, 1975

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NOVA NOTES will be printed six times a year
(Jan., March etc.). Contributions for the
next number should be sent to the Editor not
later than 20 Feb. If possible articles
should be typed in the form of this issue.

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MEETINGS WILL BE HELD

JAN 17 at Saint Mary's Univ. at 8:00 in
room 152 when the speaker will be Mr.
Marty Zatzman. Space Craft: Manned Veh-
icles to the Stars--Past, Present, Future
Everyone with slides, pictures and add-
itional information should bring them to
present following the speaker. And follow-
ing this the observatory will be open
for observing--bring your camera and a
roll of your favorite film.

FEB 21 (tentative) It is hoped to have as
speaker Dr. Robert Raider of the David
Dunlap Observatory, Univ. of Toronto. The
meeting will be held at the Museum at 8:00.
Refreshments will be served.

STELLAFANE

Ever since 1609 when Galileo first raised a telescope to the night sky, many people have been fascinated by this instrument. Telescopes, or "far-watchers", have been constructed in many shapes and sizes; however, whether of brass and mahogany, or aluminum and fiberglass, the silent blend of glass, vision, and the universe has cast a spell over innumerable individuals.

In North America there are thousands of amateur astronomers. For several decades those who have been particularly interested in telescopes have held annual meetings on the side of a small, wooded mountain in Vermont. The choice of this location is linked with a man who contributed both to the popularization of amateur telescope making and to the design and construction of the giant 200" telescope on Palomar mountain in California. Russell W. Porter (1871-1949) became interested in the design and construction of telescopes when he was about forty years of age. During the 1920's he produced articles and diagrams on the subject and was one of the founders of the Amateur Telescope Makers of Springfield, Vermont. He donated a piece of land on Breezy Hill near Springfield and designed a small clubhouse for the group. The clubhouse was called "Stellar Fane" (fane is an old term meaning temple, or church), but this soon was shortened to "Stellafane", a name known today to astronomers all over the third planet.

In recent years the annual Stellafane meetings, held on an early August weekend have attracted several hundred people of

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all ages. This year, which was the 40th gathering and my first visit, the attendance was the largest ever with perhaps 1500 coming from many locations over the United States, Canada, and even Japan. Most of those present camped in one of the two large fields a short distance from the clubhouse. Telescopes were as abundant as cars, tents, and people. Although much of the weekend was very informal, talks were given by several individuals on various topics, and telescopes were entered in a competition in which they were judged for optical and mechanical excellence. A threatening overcast moved away on the first evening and allowed light from the depths of space to enter hundreds of telescopes on both that night and the next. An added bonus was the annual Perseid meteor shower which was approaching its peak on this weekend. Never before had I heard a thousand voices exclaim as an especially bright meteor expired in the night. It was a unique gathering of interesting individuals--people who have in common a love of the universe and a loathing of mercury vapor lamps.

Roy L. Bishop

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Amateur made 6 inch reflector

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V.W.Bowers -- 455-4021

This feature of Nova Notes is designed to show the constant revision of theories which takes place in astronomy. The ideas that will appear in this column are not necessarily accepted at present and some will immediately appear incorrect in view of recent studies. Others may require review or study of later materials.

From SKY AND TELESCOPE, Sept. 1954

Age of the Universe

Dr. H. P. Robertson, a mathematical physicist at Cal Tech reported recently on the bearing of the revised intergalactic distance scales on previous discrepancies between geological and cosmological age estimates of the universe.

Better agreement between the two methods is found but the important question of the finiteness or infiniteness of the universe can not be answered until further data is collected. Depending upon the assumptions one makes with respect to relativity factors, the curvature of space, etc. the time-scale of the universe can be set at three and a quarter to seven billion years. The earth is known from geological evidence to be more than three billion years old.

From SKY AND TELESCOPE, Sept. 1964

More About X-Rays from the Crab Nebula

Can neutron stars be the sources of the intense X-rays discovered in 1963 in Scorpius and Taurus? Optically unobservably faint, these fantastically dense and hot stars should be powerful emitters of X-rays.

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The Crab Nebula, the remnant of an A.D.1054 supernova explosion, is centred on the Taurus source and hence the hypothesis appeared plausible.

To test the neutron star conjecture the Naval Research centre sent a rocket-borne X-ray detector aloft. It reached an altitude of 144 miles arriving at apogee in time to observe an occultation of the Crab by the moon. A point source would be expected to disappear suddenly as the moon's limb eclipsed the object, the possible neutron star.

Instead the intensity of the X-rays diminished slowly over the five minute observation period. The researchers thus concluded that the radiation was coming from an extended envelope of gas clouds of considerable angular extent corresponding to the rapidly expanding filaments observed optically.

Don't Forget !!

1975 memberships should be paid as soon as possible-any further delay may mean you won't get your Journal on time. The Observers Handbooks have arrived so pick yours up at the next meeting if you didn't get it in Dec. Spare copies may be obtained from the treasurer for \$3.00. Membership fees are the same as last year--life \$150. regular \$12.50 and student (18 and under) \$7.50. As the treasurer is expecting a move shortly your dues may be mailed to the editor(see front page for address). Please arrange payment of your fees as soon as possible.

Articles in this feature will be taken from newsletters of various centres and will hopefully be of interest to you. If you have material which you think would be of interest send it along. The following article appeared in Astronotes (Ottawa Centre) for November 74.

THE OLD DOMINION OBSERVATORY

A. E. Covington

The transfer of the 15-inch refractor with its pedestal from the old Dominion Observatory to the National Museum of Science and Technology on July 9th 1974 may arouse feelings of strangeness in some of us who have enjoyed glimpses of the heavens with it or have just thought about it. The work of the Observatory since 1905 is well documented in the early volumes of our Journal and was summarized in a report prepared by R. Meldrum Stewart, which only appeared in 1971, Vol. 65, 206. Although the forefront of astrophysics had moved to Victoria with the 72-inch reflector, the refractor represents an old working model which will not be made again. The pier and dome of the observatory building which housed it form the center of the design, and two of the functions of the building are reflected in the orientation of the two diagrammatically opposite office wings; one has the center line aligned with the geographic E-W line while the other is oriented to the magnetic E-W. Other fields of activity of the early observatory besides astrophysics and magnetism are solar research, meridian work, time service, photometry, gravity, and seismology. When the astronomical functions of the observatory were terminated in 1970, the unique instrument was left in working condition and provided the core for a small but exceedingly high quality historical museum. The dome can be seen for many miles and certainly invokes an occasional thought about astronomy and the heavens, and when one ventures near, the small crenelated building near the entrance is found upon inquiry to be the South Azimuth marker. It is the surviving one of two which could be taken as the first approximation for the prime meridian of Ottawa. In the Nautical Almanac the Dominion Observatory is given latitude $45^{\circ} 23' 38.1''$ N, and longitude $75^{\circ} 43.0'$ W, along with other parameters. This is just one historical asset in the building complex which should be considered as part of our astronomical inheritance from the founders of the Observatory.

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I first became aware of the possibility of the transfer for the telescope through newspaper accounts, and a few enquiries indicated to me the seriousness of the reports. I expressed my concern to various members of Heritage Ottawa, a group I had joined when the threat of demolition of the Billing's residence in our neighbourhood became imminent. They were very helpful, and their advice and active interest at a time when there were other crises is much appreciated. Correspondence was established, and through this, somehow or other I am pleased to report that the recently created Canadian Engineering Heritage Record became aware of the complex of observatory buildings. I believe this group became interested since I had stressed the importance of surveying in the early work of the Observatory and had indicated that the South Azimuth marker was an important Surveyor's monument which should be made more visible. I was urged to fill in a standard form used to register any engineering artifact considered important for preservation. I have been informed that an identification code 3501010601 has been assigned and that a staff member is preparing a submission for the board meeting to be held sometime in November. The record is the concern of the Engineering Institute of Canada, and the National Historical Parks and Sites Branch of the Department of Indian and Northern Affairs. Although the idea of heritage is now shared by a great number of organizations, Heritage Ottawa and other groups are separate organizations.

In other countries, National Trusts have been in existence for decades to save what is best from the past before it is too late. The interest in conservation in Canada was greatly strengthened by the many centennial projects in 1967. Our own Society, for example, prepared a special issue of the Journal "Astronomy in Canada, Past, Present and Future". The government recognizes this growing interest and created Heritage Canada in March 1973 in order to come to grips with the many aspects of administering such a trust. This group is particularly concerned with buildings, street scapes, and areas, and is thus distinct from the National Museum Board and the Public Archives.

FINANCIAL REPORT--1974

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The following is an itemized statement of revenue and expenses for the year ending Dec 31, 1974 for the Halifax Centre of the Royal Astronomical Society of Canada.

Revenue

Balance from 1973		117.51
Membership fees		240.00
Regular memberships 1973-74	12.50	
Student memberships 1973-74	15.00	
Regular memberships 1974-75	212.50	
National Assembly		64.00
Donation for travel	64.00	
Sale of <u>Handbooks</u> , etc.		21.00
Sale of <u>Handbooks</u>	21.00	
Life Membership grants		12.00
Life Membership grants 1974-5	12.00	
Interest, Dividends		2.19
Interest-Bank of Nova Scotia account	2.19	

TOTAL REVENUE		456.70
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EXPENSES

Fees remitted to national office		177.00
Regular memberships 1973-4	7.50	
Student memberships 1973-4	9.00	
Regular memberships 1974-5	127.50	
Sale of <u>Handbooks</u>	16.50	
National Assembly		100.00
Travel Expenses to Roy Bishop	100.00	
General expenses		107.08
Refreshments	22.12	
Bank chequing expenses	1.20	
Stationary	28.76	
Stamps	55.00	
Miscellaneous		12.50
NSF cheque	12.50	

TOTAL EXPENSES		380.08
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Balance carried forward to 1975		76.62
		<u>456.70</u>

Report any omissions or errors to the treasurer, Mr. Bill Shepard, as soon as possible.

OPPOSITION OF EROS

Minor planet #433, Eros, passes through opposition on Jan 13 at a distance from earth of 0.156 AU's and then approaches us, being closest on Jan 23 when it will be 0.151 AU's distant. Also as noted in 'Observing Reminders' it passes in front of the star kappa Gem for observers in a twenty mile wide strip from Trois-Rivieres to Augusta Me. about 8:15 PM on the 23rd. However, this prediction is sufficiently in doubt that you should watch for the disappearance. Mike Edwards communicated the following information on the path. R is the distance of the minor planet from the Sun, and r the distance to earth. Eros is a rock of dimensions 35 x 16 x 7 km and because it rotates about it's shortest axis the magnitude varies by 1^m.5 in a period of 2h 09^m-half the rotational period.

Date	R.A.	Dec.	R	r	mag
Jan 12	7h 52 ^m .7	38 ^o 43'	1.137	0.160	8.1
14	7 50.6	36 35	1.136	0.157	8.0
16	7 48.6	34 20	1.135	0.155	7.9
18	7 46.6	31 59	1.134	0.153	7.8
20	7 44.7	29 33	1.134	0.152	7.8
22	7 42.9	27 04	1.133	0.151	7.8
24	7 41.4	24 33	1.133	0.151	7.8
26	7 40.0	22 01	1.133	0.152	7.8
28	7 38.8	19 30	1.134	0.153	7.9
30	7 37.8	17 02	1.134	0.154	7.9
Feb 1	7 37.1	14 38	1.135	0.157	8.0
3	7 36.5	12 19	1.135	0.159	8.1
5	7 36.2	10 05	1.137	0.163	8.2
7	7 36.2	7 59	1.138	0.166	8.3
9	7 36.3	6 00	1.139	0.170	8.4
11	7 36.7	4 08	1.141	0.175	8.5
13	7 37.4	2 24	1.143	0.180	8.6
15	7 38.3	0 47	1.145	0.186	8.7
17	7 39.4	-0 43	1.147	0.191	8.8
19	7 40.7	-2 05	1.149	0.197	8.9
21	7 42.3	-3 21	1.152	0.204	9.0
23	7 44.0	-4 30	1.155	0.211	9.1
25	7 46.8	-5 33	1.158	0.218	9.2
27	7 48.1	-6 31	1.161	0.225	9.3

Observing Reminders

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Jan 23--planetary appulse by Eros of the 3.7 mag. star kappa Gem. This is not certain and no time is given. It is suggested you check Sky and Tel for Aug. 1974 page 91 and then the Jan 1975 issue.

Feb 2--grazing occultation by the moon of the 6.4 mag. star 214G.Vir visible south of Halifax across to the Kentville area. This is event 15 on page 66 of the Hdbk. Hopefully the editor will have more detailed information before the event for those interested.

Feb 14--planetary appulse by Jupiter of the star SA0146789 mag. 7.5. See note given with the Jan 24 event. Time of the close approach is 21^h 48^m UT.

March 19--grazing occultation of 6.9 mag. star 219B.Tau. The path is similar to that given above but several miles further west and south. Again further information may be available. This is event 22 listed on page 66 of the Hdbk.

Numerous occultations will occur with the brightest being of the star zeta Tau on Feb. 21 at 0^h22^m6^s AST and ending at 1^h22^m0^s AST. Zeta Tau has a magnitude of 3.0 See page 60 of the Observers Handbook for a listing of the others visible in N.S.

Mercury will be at greatest eastern elongation at 16^h AST on Jan 23 when it will be 19° from the sun and will be 13° above the horizon at sunset. Mercury is the 7th brightest object in the sky but it is thought Copernicus never saw it, so here is your opportunity to discover something he didn't.