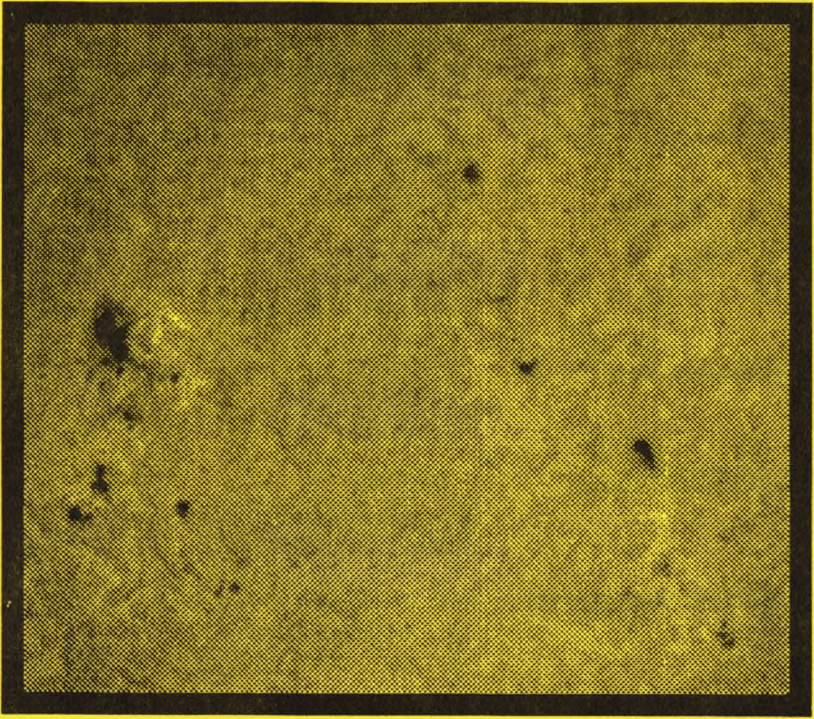


NOVA NOTES



Halifax Centre



May-June 1990
Volume 21
Number 3

1990 Halifax Centre Executive

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Notice of Meetings

.....
Date: Friday, April 20th: 8:00 P.M. for the main speaker
Place: Nova Scotia Museum, Summer Street, Halifax. Access from the side entrance. Meeting to be held in the lower theatre.
Topic: **Member's Night!** Events will include the annual trivia contest, plus short talks on solar observing, planisphere, digital setting circles, plus various slides.
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.....
Date: Friday, May 4th: 7:00 P.M. cash bar; 7:30 P.M. meal
Place: Harbourside Terrace, 3rd Floor, Dartmouth Holiday Inn (on Wyse Road, just south of the MacDonald Bridge)
Topic: **Annual Banquet!** See the Editor's Report for more details.
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.....
Date: Wednesday, June 13th: 7:30 P.M.
Place: Room MM310, McNally Building, Saint Mary's University
Topic: Observer's Group Meeting. *Fixed Camera Astrophotography* (members of a local photo club will be there as well)
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.....
Date: Friday, June 15th: 8:00 P.M. for the main speaker
Place: Nova Scotia Museum, Summer Street, Halifax. Access from the side entrance. Meeting to be held in the lower theatre.
Topic: **Dave Wing** a graduate student from the Astronomy Department of Saint Mary's University will be giving a talk on ring galaxies. **Nat Cohen** will give a presentation on the observatory that he visited recently in Israel.
.....

Halifax Planetarium Public Shows

Sunday, April 22nd	2:00 P.M.	The Night Sky - JM
Thursday April 26th	7:00 P.M.	Neptune - PK
Sunday, May 6th	2:00 P.M.	The Night Sky - JM
Thursday, May 10th	7:00 P.M.	The May Sky - DP
Sunday, May 20th	2:00 P.M.	The Night Sky - JM
Thursday, May 24th	7:00 P.M.	Comets - PK
Sunday, June 3rd	2:00 P.M.	The Night Sky - JM
Thursday, June 7th	7:00 P.M.	The June Sky - PK
Sunday, June 17th	2:00 P.M.	The Night Sky - JM
Thursday, June 21st	7:00 P.M.	The Milky Way - DP

The Planetarium is in the Dunn Building, Dalhousie University.
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Note: The above list is tentative and subject to change.
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About the cover

The cover shows the area around a sunspot as photographed through an H-alpha filter. The picture was taken by Mary Lou Whitehorne on June 14th, 1989, using TP2415 film at f/30 and a 1/125 second exposure.

Editor's Report

Patrick Kelly

Well, the photo on the cover of the last issue of NOVA NOTES drew an unexpected response. A few days after sending them out, I got an electronic mail message which said: "It's Darrin Parker, please send my prize!". Although I hadn't really thought of it as a contest, it was decided that a prize should be given out. The first place prize in the "Guess the Past President" contest, therefore, goes to **David Tindall**. His prize consists of the following goodies which, I'm sure, will make him the envy of the rest of the membership:

- 1) A trip to the Bridgewater Mall on the Friday night of your choice to watch the pickup trucks rev their engines.
- 2) While in Bridgewater he will be given a tour of the nearby Bridgewater Astrophysical Observatory (or as the locals call it "the BAOA" which stands for Bridgewater Astrophysical Observatory, eh)
- 3) He will also attend an observing session at the Desbrisay Museum to see what fog looks like at 100x.

Once again, congratulations to David Tindall on winning this exciting prize!

Another item of news is that we have passed out our first Mini-Messier Certificate. It goes to **Phyllis Kennedy** who observed all twenty of the required items with a 60 mm refractor. Phyllis commented that it didn't come with a frame, but we explained that she had another 90 objects to get first!!

Annual Banquet Time Again!!

This year's speaker will be **Brian Segal** our new 2nd Vice-President. He will be treating us to a light-hearted view of "Observing in the Humid Sub-Tropics".

Supper will consist of melon cocktail as the appetizer; a main course of roast turkey (with gravy, dressing and cranberry tart), rolls and butter, mixed garden vegetables and princess potatoes; dessert will consist of carrot cake with the choice of coffee or tea. **PRICE: \$23.00 for regular members; \$21 for youth members. This price includes tip, tax and bartender's fee. Tickets are available from Mary Lou Whitehorne. Please get yours as early as possible. (That way we have fewer people to call!!)**

As a result of museum regulations on commercial activities, the centre executive has developed and approved a set of regulations regarding commercial activities at all centre events. Basically, there is a form that commercial operators may use to request permission to display at centre events. The form contains several restrictions that may be applied by the centre president.

Copies of the *Invitation to Display* form are available from the centre president.

Now that National Office has a new constitution, they have received a proposed constitution to be used by individual centres. We have formed our own constitution committee consisting of **Joe Yurchesyn, Nat Cohen, Dave Lane** and myself. You may have noticed that all four of us are capable of rambling on at great lengths on any subject... perfect people for doing constitutional work! Hopefully, we will be able to ensure that such a constitution reflects the challenges that we have encountered here in the Maritimes.

For those of you who read **Roy Bishop's** review of the *Voyager* program in the recent issue of the *Journal of the R.A.S.C.*, you may be interested to know that version 1.2 is now available. It includes many new features such as: projection of the Earth's shadow on the sky for lunar eclipses; a 3D rotatable model of the nearest stars; a conjunction search; plots of angular size and magnitude for solar system objects over the entire year; the ability to have up to four comets or asteroids at once; a transparent horizon; the ability to define a local horizon, adjustable grid sizes; planets visible as disks with grid lines. In addition, they have now made use of hierarchical menus which makes the user interface even easier to use.

I recently received the spring catalog from the Canadian Wildlife Society. One of their more intriguing items is a lunar clock made in France. It features a disk about 12 cm in diameter which contains a photograph of the Moon. A black plastic hemisphere slowly revolves around it, so that when viewed from the front, one sees the Moon in its current phase. It is a novel approach that has to be seen to be appreciated. Anyone who wants more information should let me know.

Thanks mainly to the efforts of **Doug Pitcairn, John Jarvo** and **Reg Henderson**, a new astronomy club has been formed in Truro. There has been a preliminary meeting with over a dozen people showing up. The Halifax Centre has promised to provide speakers for their first four meetings. They plan to have their meetings on the Wednesday evening following our monthly meetings and to have one member present at ours so that they can report back. Meetings will be held at the YMCA. For more info, call Reg Henderson (895-8968) or John Jarvo 895-6428.

Lastly, did anyone get to see the two shadows on Jupiter on the night of February 26th? I had completely forgotten about it, but decided to sketch Jupiter as it was clear. I only realized my good fortune when checking the Handbook to see what was going on! Unfortunately, the seeing was so poor that I couldn't see the first shadow. I decided to let the scope cool off some more but when I came out thirty minutes later it was overcast!! Ω

President's Report 1989

Joe Yurchesyn

Judging by the date on this issue of Nova Notes, my closing message to members is a little tardy, but there is a valid reason. If you are unaware, Pat hurriedly published the first two issues of Nova Notes for 1990. This was to minimize consequences if the Nova Scotia Museum stops printing Nova Notes free of charge. We have been advised that the loss of this service is possible in early 1990. As of this writing, it is still uncertain if this will occur, but if it does, the publishing of Nova Notes will become a major financial cost for the centre. If you review Nat's financial reports the \$1,000 donation is the assumed value of the free printing service provided to us (offset by a \$1,000 fictitious expense).

On the up side, membership has risen again: 146 in 1988, approximately 155 in 1989, and 165 paid to date for 1990; with one new life member. This makes our centre the 4th largest! With 200 members the centre would qualify for two representatives on National Council. Perhaps work by some members to raise public awareness is beginning to pay benefits. This volunteer work includes planetarium speaking, public speaking to cub, scout and school groups, and participating in organized public star parties; as well as Doug's continuing education work and newspaper article. The executive has also created a number of astronomy related slide sets which are available by loan to Nova Scotia science teachers. Whether this increase in public awareness also accounts for the increase in handbook sales, or visa versa, 1989 was another record breaking handbook year! Other revenue sources like T-shirt, pins/crests and bumper sticker sales were also a great success.

NOVA EAST was another success this year. Dr F. Girouard provided a public talk in the French language, but the subsequent public observing was clouded out. Unfortunately, other public observing at the Perseid party and at the October meeting were also clouded out. Well, there is always next year!

I would like to thank all non-metro members who took the time to attend meetings. To members for whom this is impractical or impossible, please feel free to make use of the library, the slide collection, the centre telescopes, and other programs which do not require you to be physically present. Doug is attempting to nurture a possible Truro satellite club. There are satellite clubs in Hebron, Antigonish, and Saint John; as well as astronomy clubs in Sydney and Summerside. You can contact the executive for more information.

Due to the diversity of members, finding speakers for the monthly meetings is a challenge. I tried to provide a reasonable

mix of technical and non-technical speakers, and I hope the membership found the 1989 meetings both informative and entertaining. If anyone has ideas for speakers or topics (or on anything for that matter) feel free to contact the executive.

I would like to express my most sincere thanks to fellow executive members, and all the other members who have given me support and advice during my term. Thank you for the experience and the privilege of serving you as president.

Remember, your club is what you make it. Keep things in perspective, and keep looking up! Ω

Notes from the Chair

Doug Pitcairn

Well, I don't know which is thawing out quicker, my creaky bones or the wet soggy ground. The spring here in New Scotland is notoriously cloudy, but the great sky god was most kind to us on Mon. Mar. 19th. We enjoyed a rare, very clear and not so cold spring observing session. I feasted on about two dozen galaxies under the Big Dipper's bowl, Dave Lane mopped up the rest of his Messier List, (CONGRATULATIONS, Dave!) and Pat Kelly, Paul Duval, Jason Adams and another intrepid observer each enjoyed a most successful session. For once, it clouded over as we were all leaving, instead of as we were all arriving.

In preparation for a possible Messier Marathon the following weekend, I picked off M74 and M77 shortly after dusk. It was not until much later that I realized I was within a few degrees of the much brighter Comet Austin, Fudgeticks! Also, we all plumb forgot about the eight mag. Comet "What'shisname-George". It is still quite visible in the northern sky. Were all hangin' in there for Austin!

I also had the first matchup between my trusty bucket and Dave's new Genesis. It is a beautiful instrument and gives magnificent views, although we could not do a good comparison since Dave's improvised mount did not do the optics justice. (I'm looking forward to "blowing it away" whenever Dave gets it onto a better mount. snicker, snicker!)

There is a steadily growing group of regular observers at the site these nights, it is a good sign. I encourage any of you to make an effort to come out to the site soon. Dress comfortably, and bring along a scope if you have one. If you don't, don't worry, there is always lots to see and things to discuss. I would especially like to see a greater number of you armchair astronomers out to the site. Come see some real photons. After all, they have travelled all the way from Andromeda for "Your eyes only". Don't miss 'em! Clear skies. Ω

The Astrophotographer's Desiderata

Alan W. MacFarlane

reprinted from *Desert Skies* - T.A.A.A.

Go placidly amid the dark & wind & remember what peace there in pole alignment. As far as possible, without surrender, do not shine your light in another's eyes. Expose your film quietly & clearly and admire the scopes of others, even the homebuilt ones too, they too have their advantages. • Avoid mercury and sodium vapor lamps, they are vexations to the emulsion. If you compare your scope with others, you may become vain & bitter for there will always be that guy on a mountaintop in Arizona with clear skies, a 14" and a Byers drive. Enjoy your star parties as well as your meetings. • Keep interested in your own telescope, however humble, it is a great friend in a recession. Exercise extreme caution in guiding, there is always a trick or two in even the best drives. But let this not blind you to what value there is in hypered film. Everywhere astrophotographers help each other and space is full of undiscovered miracles. • Use a dewcap. Especially do not play loud music. Neither be cynical about bad weather & missed shots, for in the face of moisture and bad seeing, clear skies are as perennial as *Sky & Telescope*. • Shoot quickly the mountains of the Moon, removing the hat after the vibrations die. Nurture strength of mount to shield your scope in moments of high wind. Do not distress yourself with moonlight. Many lousy pictures are borne of fatigue and field rotation. Beyond cleaning your optics occasionally, be gentle with your slow motion controls. • You are a child of Eastman Kodak, no less than the stars and the film industry. You have a right to waste film. And whether or not the heavens are clear to you, no doubt the cloud deck is unfolding as it should. • Therefor be at peace with your telescope, whatever its configuration. And whatever your viewing and photographic goals, in the confusion of a star party, keep your guide star in the centre of your crosshairs. • With all the bad seeing, clouds, flimsy mountings, skyglow, drive errors, foot binaries, tube flexure and slow film, it is still a beautiful hobby. Drink coffee. • Strive for grat pictures. ••

FOUND IN AN OLD OBSERVATORY DATED 1982 Ω

Port Mouton Sees First Light

David Griffith

The newly formed Port Mouton Consolidated School Astronomy Club held its first meeting and observing session on the evening on March 6th. Students (and some parents) were first treated to a slide show entitled "What's up there?", followed by a brief lecture on how to use a telescope.

We then gathered on the soccer field behind the school where the three Astroscans eagerly awaited first light. Some students arrived armed with binoculars and one brought his 60 mm refractor. After locating the Big Dipper, Orion and the Pleiades, the kids were treated to telescopic views of the gibbous Moon, the Pleiades, Jupiter with several of its moons and the Orion Nebula. The Moon, in particular, drew an abundance of "oohs" and "aahhs".

The group (about sixty students ranging from grades three to eight and including one grade primary) then returned to the warmth of the classroom to discuss their discoveries over cups of steaming hot chocolate. Judging from the numbers, the Port Mouton Astronomy Club seems to be off to a great start. The kids are already asking about the next meeting.

We are awaiting a response from the N.S.T.U. concerning our application for grant money; our long term goal is to purchase a school planetarium dome and projector (about \$3000). If our application is not approved, then we hope to direct future fund raising activities toward achieving this goal. While on the subject of planetaria, thanks Doug for the splendid show put on for our group in February. It really helped spark interest in our club.

The Port Mouton Astronomy Club meets several times a month at the school. We have an excellent, dark observing site on the school soccer field and currently possess two Astroscans (three counting my own). We are in the process of acquiring audiovisual material for the club and subscribe to *Odyssey* magazine, a very popular magazine with the kids.

Activities planned for future meetings include a "sky Scavenger Hunt", a comet watch (provided Austin doesn't let us down) and a "mini-planetarium" show using my forty dollar planetarium, a.k.a. the Bushnell Star Machine.

Astronomy is alive and well in Queens County! Ω

The Earth reminded us of a Christmas tree ornament hanging in the blackness of space. As we got farther and farther away it diminished in size. Finally it shrank to the size of a marble, the most beautiful marble you can imagine. That beautiful, warm, living object looked so fragile, so delicate, that if you touched it with a finger, it would crumble and fall apart. - James Irwin, Apollo XV astronaut

Happy Birthday, Dad, Wherever You Are!!

Brian Segal

Had he lived this long, my father would have turned 72 on March 12th, 1990. He wasn't particularly interested in the heavens, astronomically speaking, that is, but was fitting in many ways that this posthumous birthday was marked by a rare evening of astronomical delights.

I decided that despite the state of the Moon (one day past Full), I would make a "last ditch" desperate effort to grab a piggyback shot of the Horsehead area of Orion. My latest attempt at prime focus had been, to say the least, very disappointing. I have a slide that is a fabulous finder chart for the Horsehead... only the nebula did not show up that night. It must have found its body and gone for a ride.

Well, anyway, what with Orion quickly becoming a late afternoon wonder and my crazy schedule, I decided to try this shot with a fast 105 mm lens [*Editor's note: A 105 mm howitzer is also useful for some shots!*] piggybacked on the 8" LX5 and my current "fav", Fujichrome 400 film. So, I got the whole rig set up, polar aligned, infinity focussed, etc. As I was going about this routine I noticed a much too bright glow around the Big Dipper. You guessed it, on my "last ditch" night I was going to be AURORAED OUT! O.K., so why be greedy, right? I mean, Orion will be there next year (or maybe even tomorrow night). Go for the aurora! Besides, what choice did I have?

I called my wife, a confirmed aurora nut, out to the back porch, and we both oo'ed and ah'ed as the sky began to turn that amazing red. The aurora was a 360° event! A band of red shot from the western horizon right through Jupiter and Gemini's feet, swathed Castor and Pollux and headed off to Leo. In the north-west, another red band ate up the Dipper and in the north-east Cassiopeia was wrapped in a white sheet. Spears of greenish-white light danced up from the horizon and the entire 360° circle of the horizon was awash in white-green luminosity. What a sight! And no Moon up yet!

Needless to say, the camera was de-piggybacked and gotten attached to its 35 mm lens, but quick! I snapped away at the various constellations, hoping to capture their trailed stars in the auroral glow in exposures running from thirty seconds to two minutes. The highlight had to be Castor and Pollux perched on top of a red-green apex of auroral glow that was shaped almost like the Orion Nebula.

Strangely, the aurora began to fade just as suddenly as it had

appeared. The southern glow settled in just below Sirius. I decided to go for the Horsehead before the Moon finally got over the highish hill that comprises my eastern "horizon" (there are times when the hill is a liability, but when the Moon is full, the hill gives me extra time to shoot!).

Off the tripod comes the camera and back on the scope. I quickly got the Horsehead and belt stars into the viewfinder and proceeded with a thirty minute guided exposure. The faint glow in the south may have an effect (the film is not back yet), but then again, not too many people can say that they photographed an aurora and the Horsehead in one night!

Just to round out the evening, as the Moon began to peep above the hill, I took an extensive series of shots of Jupiter and high magnifications. It was the nicest visual view of the gas giant that I'd ever had. There were festoons and streaks and bands all the way to one pole. Hopefully, the photos will at least come close to the eyeball spectacle of that night.

So that was it. Three types of celestial wonders in one night! What a great way to remember my father. Astronomy really is a transcendental pursuit. No wonder we so treasure the opportunity to become intimate with the heavens. 'Night , Dad. Ω

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A Spring Comet

Roy Bishop

A bright comet usually comes along about once a decade. In the half century that I have been visiting this planet I have seen five: Comet Arend-Roland and Comet Mrkos, both in 1957, Comet Ikeya-Seki in 1965, Comet Bennett in 1970 and Comet West in 1976. Comet Kohoutek in 1974 and Halley's Comet in 1985 received more publicity, but neither was the equal of these other five. Ikeya-Seki was the largest comet I have seen, and West was the brightest; however, few people saw either because there was little publicity and both comets were in the morning sky.

The next spectacular comet is overdue. Last autumn, on December 6th, a New Zealand amateur astronomer, Rodney Austin, found a faint comet deep in the southern sky. It has been designated Comet Austin (1981c₁), the 29th comet to be discovered in 1989. It may turn out to be the next "great Comet". It could be a relative "dud" like Kohoutek. However, evidence to date indicates that it may be the best comet since West, fourteen years ago.

Comet Austin is presently approaching from the southern side of the Solar System. It will go closer to the Sun than Mercury early in April and then pass four times closer to us than the Sun in late May as it begins its long journey back to the cold regions far beyond the outer planets. If it visited the Sun in the past, it must have been long before mankind kept written records, for the comet's path is still indistinguishable from a parabola. It could be a "new" comet, making its first close pass by the Sun.

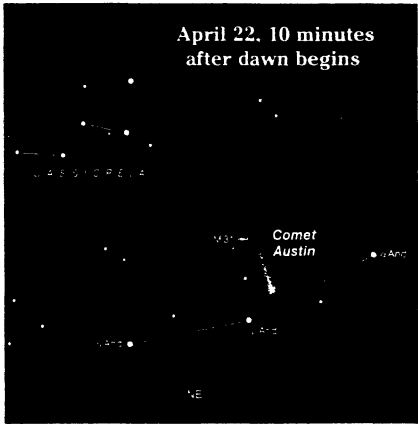
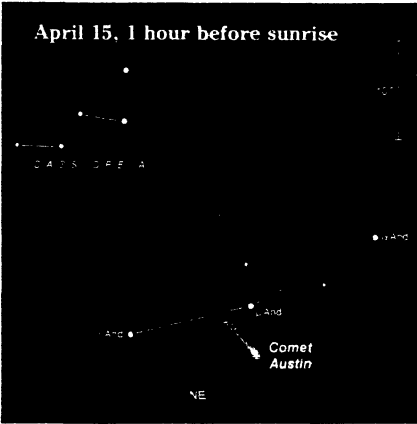
My first view of Comet Austin was on February 25th from the Gulf Coast of Florida: it was a faint fuzzy glow, visible only in a telescope. From Canada, Austin will be difficult to see through March and early April as it drifts northward near the western horizon in the evening twilight. However, during the last week of April, it will vault into a dark north-east pre-dawn sky, passing near M31, the Andromeda Galaxy (a line of sight alignment only!). During the first week of May, it should be a fine sight in the eastern sky about 4:00 A.M. It should be *easily* visible to the unaided eye from a dark sky site, but binoculars will provide the most spectacular view.

Moonlight will interfere from about May 7th to 18th, but during the last part of May, Comet Austin will be well-placed in the dark, early morning sky as it moves southwestward from night to night across the summer Milky Way.

What is a comet? Its core, or nucleus, is a mountain-sized dirty iceberg. There are believed to be millions of such dusky hunks of ice orbiting the Sun, most being far beyond the orbits of the planets. These fragments are likely remnants of the material

from which our Sun and its planets formed about five billion years ago. Every year a few pass through the inner Solar System. The ones which come close to the Sun (like Austin) lose gas and dust as the Sun's heat bakes their surface. For several weeks, evaporating clouds of this material form a bright, fuzzy head around the nucleus. The outer parts of this cloud, called the "coma", are blown away by the Sun's radiation to form an immense glowing tail of dust particles and ionized gases.

This may be a spectacle that occurs only rarely in a lifetime. Locate your binoculars and check your alarm clock. The early morning skies for several weeks beginning in late April may be graced with a truly "Great Comet". Ω



COMET AUSTIN BEFORE DAWN

As the comet rises higher in late April, you can begin to view it in a dark sky before the first break of day. The tail is drawn pointing in the direction away from the Sun. It may actually appear quite different — shorter, longer, narrower, broader, multiple, or curved. The horizons are again drawn for latitude 40° north. This is just about the optimum latitude on Earth for viewing Austin when it is at its best, because here the comet stands highest above the horizon before dawn (directly above the Sun, as evidenced by the tail direction). The 10° scale in the first panel is about the width of your fist held at arm's length, a helpful measure for finding your way around the sky.

A Tour of U.N.B.

Len Larkin

After several changes in scheduling, our tour to the astronomy facilities at the U.N.B. campus at Fredericton became reality on Thursday, November 23rd. The weather, of course, did not co-operate and road conditions were rather poor due to a fresh fall of snow. Nevertheless, by 8:30 P.M., six hardy members of our club - Dave Driscoll, Debbie Storey, Kay Belanger, Dave McCurdy, Tom Anderson and myself - arrived at the Arts Building to be greeted by Professor Merrill Edwards. An hour and a half later, we would be chatting excitedly about the sights we had seen.

Professor Edwards began by taking us into the original Brydone Jack Observatory. This unusual, barn-shaped building, the first astronomical observatory in Canada, is composed of two floors. The first contains much memorabilia pertaining to the observatory, including instruments for surveying and navigation. A magnificently crafted surveyor's transit by Troughton & Sons of London was mounted on a substantial wooden tripod. We were told that during the refurbishing of this instrument, it was found that most of the bolt and threaded hole combinations were unique - bolts could not be interchanged! Quite a change from our mass production world. A small (approximately 4 cm in diameter) transit telescope, also elegantly mounted in brass, had setting circles with an inlay of silver to highlight the numbers engraved upon it.

Among the many items were a Gregorian telescope (of unknown origin), a bifilar micrometre and a set of astronomical transparencies. These transparencies may have been used with a device like a slide projector and the subjects of the slides were well displayed, considering their antiquity. This was quite evident with one of the planetary slides - it was identified as *Georgium Sidus* (the Georgian Planet). This was the name that Herschel had bestowed on his planetary find of 1781, for which the name Uranus apparently came into common usage after 1850!

But, as much as the first floor was a delight, the upper floor held the greatest of surprises for the observers. For there, located under an aging dome, was a beautiful 6" (150 mm) Merz refractor! It was mounted in a tube of solid mahogany which was finished with brass fittings. A steel and concrete base replaced the original wooden base and provided support for the clock-driven equatorial mount. Incredibly enough, Tom Anderson has a telescope making book which describes the speed governor employed in the clock drive for this instrument! Repair work on the dome has caused it to bind, to the extent that observations are difficult, if not impossible.

This might just have been a collection of cold facts, had it not been for Professor Edwards' background information. Many of the anecdotes concerning Professor Jack and the observatory were humorous and insightful at the same time.

But, enough of 19th century technology. It was time to check out the modern equipment. We had to go to the top of the Physics Building (and through a conveniently warm mechanical room) to reach the observatory. Inside, a C14 Celestron (mounted on a pier) was equipped with a Tuthill Celestial Navigator. That saves the bother of trying to read tiny setting circles at night (as it has shaft encoders for right ascension and declination). Clouds prevented Professor Edwards from showing off the 'scope, but he did demonstrate the motor drives for both the hatch and azimuth motion of the Ash dome. There was a good selection of eyepieces for the 'scope, but no light pollution filters. We made use of the opportunity to extol the virtues of the filters based on our recent experiences at NOVA EAST '89. Perhaps one of these will show up in the dome in the near future.

Just before the tour ended, Professor Edwards gave us one more surprise. He had already told us about the Questars and Criterion Newtonians available for student projects. But when we entered his office, there was a magnificent 10 cm Quantum Maksutov-Cassegrain lying in its case. Quantum has been out of business for several years and these instruments are sure to become collectors items. The craftsmanship was exquisite and the motions were silky smooth. Dave Driscoll and Tom were fascinated with the slow motion controls and probably would have disassembled the 'scope on the spot if we hadn't persuaded them to leave with us!

After the talk, we visited Tim Horton's for some refreshments before heading back to Saint John. So, there is the formula for a great evening: good company, superb instruments and the subject of astronomy. Our thanks go to Merrill Edwards for making it happen! Ω

FRANK AND ERNEST



Book Review: 3-D Star Maps

by Richard Monkhouse and John Cox

David Griffith

Remember those 3-D movies, the ones that seemed to invite you to drive right into the action? In a novel way, authors Monkhouse and Cox have developed a unique set of star maps using the same concept. While this set will not compete with Tirion (it was never meant to), it will provide a refreshing new perspective from which to view the heavens.

3-D Star Maps is a collection of thirty-three 3-D maps, accompanied by matching "standard" maps which identify stars and various deep sky objects. The side by side placement makes for easy reference. About one third of the book is devoted to providing background material for beginners; a "Stellar Astronomy in a Nutshell" course. After touching on such concepts as star color, evolution, spectra, luminosity, etc., the authors embark on a brief survey of deep sky objects and a primer on observational astronomy. This section is handled remarkably well, given its brevity and diversity of material.

The highlight of the book, is the collection of 3-D star maps, which you view through the "glasses" which are included with the book. The maps are printed in red and green tones on a greenish background, and include a 3-D depth key to represent relative distances. There are three separate groups of maps. Bright Stars represent what we see with the naked eye; Near Stars depict the stars up to eighty light-years away (most of which are invisible to the naked eye); and Galaxies depict several thousand galaxies.

I must confess that these maps are a lot of fun. Using the glasses, the illusion of depth really is apparent as some stars seem to recede into the page while others hover above it. It takes practice to see the illusion; the more relaxed you are, the more likely you are to see it. When, the illusion takes hold, the viewer is treated to the sensation of seeing the depth of the universe.

3-D Star Maps is better described as a "rainy night" book, than an actual observing atlas. Its strength is its unique approach in representing the visible universe. It is also great for helping novices to understand the vast variance in stellar distances, despite the illusion that all stars are on a fixed plane in the sky. The Bright Stars map of the Taurus region graphically shows the physical separation of Aldebaran from the Hyades cluster, of which it is not an actual member. Similarly, the map of the Pegasus region separates distant M31 from the field stars.

In sum, *3-D Star Maps* makes for an entertaining read, but also uses a novel technique to help us begin to visualize the vast depth of space; something a standard atlas cannot do. Ω

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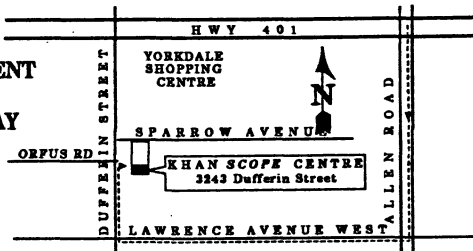
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Ask GAZER

GAZER

Well, I'm glad to see that my modest attempts to educate the great unwashed is paying off... I've had three letters passed on by your trusting editor. I hope he has enough room for all of them. In the meantime, keep those letters coming, eh!

Dear GAZER:

I have a question for you. Many of us have telescopes that need a right angle device known as a star diagonal to make observing more convenient. My question is: What does the "star" in "star diagonal" refer to?

DJL, Chief Astronomer
BAO, eh!

If you can't answer a simple question like that how did you ever get to be a chief astronomer?? Actually, considering that most "modern" amateurs know good gear from junk, it's not surprising. Back in the old days, if one bought small telescopes from certain companies (that shall remain nameless), one often found two accessories, which were similar in appearance. One was a diagonal with a very partially silvered mirror which was used for observing the Sun. It reflected only a very small amount of the Sun's light off the diagonal mirror to the eyepiece. The other accessory, which had "full" mirror was what we now call a star diagonal. Obviously, to make them easy to distinguish, one was called a "sun diagonal" while the other was called a "star diagonal". As they say in Latin: QED (Quite Easily Done!)

Dear GAZER:

Help! I have been actively observing the night sky for just over 1 year and my style and knowledge could best be described as beginner extraordinaire. My problem is I am having a difficult time understanding the focal ratio (FR) of a telescope. Oh yes, I know how to figure out the FR, but I run into trouble when I see telescopes all the same diameter having different FR's (i.e. 8" f/6 or f/10. Then there are the telescopes with different diameters having the same FR's (i.e. 10" f/6 or 8" f/6).

Can you tell me what difference all these FR's make and if anybody really cares?

All FR'ed up

Now here is someone I can sympathize with, as I went through the same thing when I was first starting out. Of course, back in the days when almost all scopes were refractors or

reflectors, things were a lot simpler. For these types of scopes, the focal ratio is the number that you get when you divide the diameter of the main mirror (or lens) by the distance from to the point to which it focuses light. You must be sure to use the same units of measure. An 8" mirror that focuses light 80" away has a focal ratio of 8/80 which simplifies to 1/10, or f/10. One can take the same mirror and grind it some more so that it now focuses only 64". Although it is still an 8" mirror, the focal ration is now 8/64 which simplifies to 1/8 or f/8. However, you can have a 6" telescope that is also f/8 if it focuses light 48" from the main element ($6/48 = 1/8$). For telescopes with correcting lenses, the focal ratio must be calculated differently but the idea is the same.

As for what it all means: in general, a scope with a lower focal number (say f/4 as opposed to f/8) will have a wider field of view, lower magnification and brighter images (using the same eyepiece!!) and will require shorter photographic times. You can see why there are some people who really care about such things. Of course, now that you understand focal ratios, with the weather around here, you're still likely to be FR'ed up!

This next one was intended for the editor, but got passed on to me as we share a similar view of the problem.

To the Editor:

In the media it is commonly assumed that 1990 marks the first year of the next decade. I was surprised to find the same error in the Editor's Report of NOVA NOTES... The reason for this is easy. There is no year 0 as time goes from 1 B.C. to 1 A.D. Thus the first decade was completed at the end of year 10...and when we reach the year 2000 we will still be in the 20th century. The next century will start when we reach the year 2001 (remember the movie).

Brian Sears

You may recall that the local newspapers had a case of verbal diarrhea about this topic shortly after the New Year. As far as I'm concerned a decade is any ten year period, and a century is any 100 year period. (Check your dictionary.) Thus, saying that the decade of the 80's went from 1980-1989 is valid. Shortly into the new year, one of the local papers had a column predicting that the Women's Auxiliary of the N.S. Conservative Party would elect John Buchanan as the Conservative "Man of the Century" for the century running from 1886-1986! The type of argument would not hold if we were actually counting decades, like we do centuries; so I would agree that the 199th decade won't be over until the end of 1990 and that the 21st century won't start until the year 2001. However, most people are more concerned with a new digit showing up on the calendar so I imagine no one will cancel the big parties to mark the end of 1999! Ω

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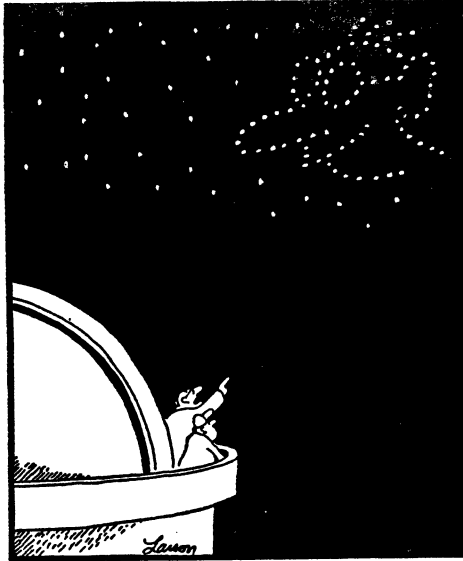
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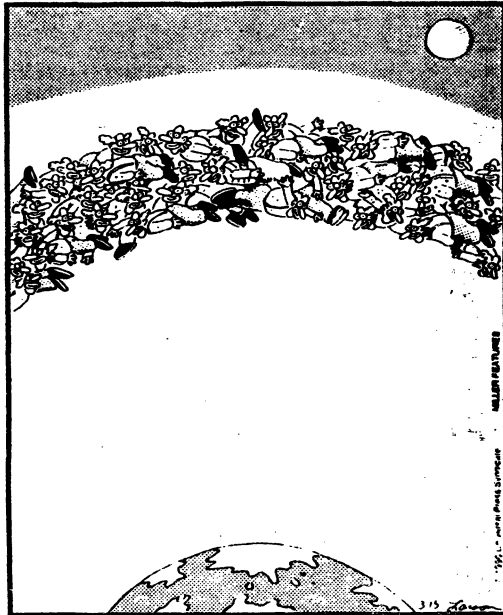
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May-June 1990

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Halifax, Nova Scotia
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HALIFAX CENTRE - R. A. S. C.
1990 CALENDAR OF EVENTS

April

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

May

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

June

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

July

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

Key to calendar:

Regular and

Observer Group Meetings: **bold and shadowed**

Special days: **bold**

Possible observing sessions: underlined

Special Days:

- April 22 - Lyrid meteors
- April 29 - Jupiter 3° S. of the Moon
- May 14 - Saturn 1.5° S. of the Moon
- May 26 - Jupiter 2° S. of the Moon
- May 29 - Two shadows on Jupiter at the same time
- June 23 - Jupiter 1.6° S. of the Moon
- July 28 - Mercury 0.04° N. of Regulus

Note: Events may occur in the early morning of the following date.

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